Contract No:

This document was prepared in conjunction with work accomplished under Contract No. DE-AC09-08SR22470 with the U.S. Department of Energy (DOE) Office of Environmental Management (EM).

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Accelerated Leach Testing of GLASS: ALTGLASS Version 3.0

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December 2016
SRNL-STI-2016-00527, Revision 0

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Printed in the United States of America

Prepared for
U.S. Department of Energy

SRNL-STI-2016-00527
Revision 0

Keywords: *glass corrosion, glass dissolution, ALTGLASS, nuclear waste, glass database*

Retention: *Permanent*

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Savannah River National Laboratory™
OPERATED BY SAVANNAH RIVER NUCLEAR SOLUTIONS

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PREFACE OR ACKNOWLEDGEMENTS

The authors would like to thank Madison Caldwell at Savannah River National Laboratory (SRNL) for her diligent and meticulous work in helping to complete ALTGLASS Version 3.0, as well as, Frances Williams (SRNL) for her outstanding efforts that helped bring the first versions of ALTGLASS to the international glass corrosion community. Without the help of both of these individuals, updates to the database would be much slower coming to fruition.

The development of the database was completed at SRNL under contract with the Department of Energy - DE-AC09-08SR22470 with Savannah River Nuclear Solutions (SRNS). Version 3.0 of the database was sponsored by the Department of Energy's Office of Environmental Management (DOE-EM). The compilation efforts of the original Versions 1.0-2.2 were cosponsored by DOE-EM and the Department of Energy's Fuel Cycle Research and Development (DOE-FCR&D) program.

EXECUTIVE SUMMARY

The Accelerated Leach Testing of GLASS (ALTGLASS) database is a collection of data from short- and long-term product consistency tests (PCT, ASTM C1285 A and B) on high level waste (HLW) as well as low activity waste (LAW) glasses. The database provides both U.S. and international researchers with an archive of experimental data for the purpose of studying, modeling, or validating existing models of nuclear waste glass corrosion. The ALTGLASS database is maintained and updated by researchers at the Savannah River National Laboratory (SRNL)[‡].

ALTGLASS provides the leachate compositions for corroding solutions including data for: Si, B, Ca, Li, Na, K, Al, Fe, Mo, Mg, Ti, Zn, and Zr. The database provides additional experimental information about each of the reported PCTs including:

- Glass Type (HLW or LAW)
- Test vessel type (Teflon or stainless steel)
- Test duration (days)
- Geometric surface area (SA) of initial glass product (m^2)
- Surface area-to-volume ratio (SA/V) (m^{-1})
- SA/V*time (days/m)
- Density (g/cm^3)
- Glass starting mass (g)
- Glass particle size (mesh)
- Leachant volume (L)
- Type of leachant (water, brine, etc.)
- Test temperature (°C)
- Final pH of leachant solution
- Secondary mineral phases formed during corrosion (mineral type, name)[†]
- Analytical method used to identify/study secondary mineral phases[†]
- Glass homogeneity prediction (THERMO™ model)
- Glass compositional state predictions
- Glass composition (wt.%)

The PCT-B test was recommended as an indicator of long-term glass dissolution behavior at surface area-to-volume ratios of 20 m^2/L and at 90°C.

The database was first compiled in FY2013 (ALTGLASS Version 1.0) and originally contained 2112 rows of data where each row represented the average of a duplicate or triplicate PCT response of a particular glass composition at a given test duration. The database, ALTGLASS Version 1.0, was updated to Version 2.0 in 2014 with the addition of 20 rows of data, and two updates, Versions 2.1 and 2.2, were issued to correct several minor input errors.

This newest version, ALTGLASS Version 3.0[‡], has been updated with an additional 503 rows of data representing PCT results from corrosion experiments conducted in the United States by the Savannah River National Laboratory, Pacific Northwest National Laboratory, Argonne National Laboratory, and the Vitreous State Laboratory (SRNL, PNNL, ANL, VSL, respectively) as well as the National Nuclear Laboratory (NNL) in the United Kingdom.

[†] Not available for all glass compositions reported in the database.
[‡] Electronic copies of ALTGLASS Version 3.0 can be obtained by contacting the database custodians:

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LIST OF ABBREVIATIONS

ALTGLASS	Accelerated Leach Testing of Glass
ANL	Argonne National Laboratory
ASTM	American Society of Testing Materials
DOE	Department of Energy
EA	Environmental Assessment
EM	Environmental Management
FCR&D	Fuel Cycle Research and Development
HLW	High-level Waste
LAW	Low-activity Waste
MAGNOX	Magnesium non-oxidizing
NNL	National Nuclear Laboratory (United Kingdom)
PCT	Product Consistency Test
PFA-TFE	Perfluoroalkoxy-tetrafluoroethylene
PNNL	Pacific Northwest National Laboratory
ROC	Reduction of Constraints
SA	Surface Area (m^2)
SA/V	Surface Area-to-volume Ratio (m^2/L)
SEM	Scanning Electron Microscopy
SRNL	Savannah River National Laboratory
SRS	Savannah River Site
THERMO	Thermodynamic Hydration Energy Reaction MOdel
V	Volume (L)
VSL	Vitreous State Laboratory
XRD	X-ray diffraction

1.0 Introduction

The Savannah River National Laboratory (SRNL), along with other laboratories within the DOE complex (e.g., ANL, PNNL, VSL) and international laboratories (e.g., NNL), have been conducting short to long-term sequences of static powder corrosion tests on high-level waste (HLW) and low-activity waste (LAW) using the short and long term Product Consistency Tests (PCT-A and PCT-B; ASTM C1285) [1]. These test sequences follow the evolution of the leachate solution composition so that the long term durability and corrosion mechanisms of the glasses can be assessed. SRNL has undertaken the task of compiling, combining, and preserving data from various national and international glass corrosion research programs into the Accelerated Leach Testing of GLASS (ALTGLASS) database.

The generally accepted model of glass corrosion [2,3], shown in Figure 1, divides the dissolution process into three stages marked by the different glass/gel corrosion mechanisms and solution interactions (Stage I, II, & III). Glasses typically undergo an initially rapid rate of corrosion, known as Stage I, during which several mechanisms are taking place nearly simultaneously relative to the duration of the latter stages [2]. Stage I corrosion mechanisms include hydrolysis, ion exchange, and interdiffusion. As the concentration of glass elements increases in the leachant solution, this initially rapid rate will start to slow and the glass corrosion process will transition into Stage II [3].

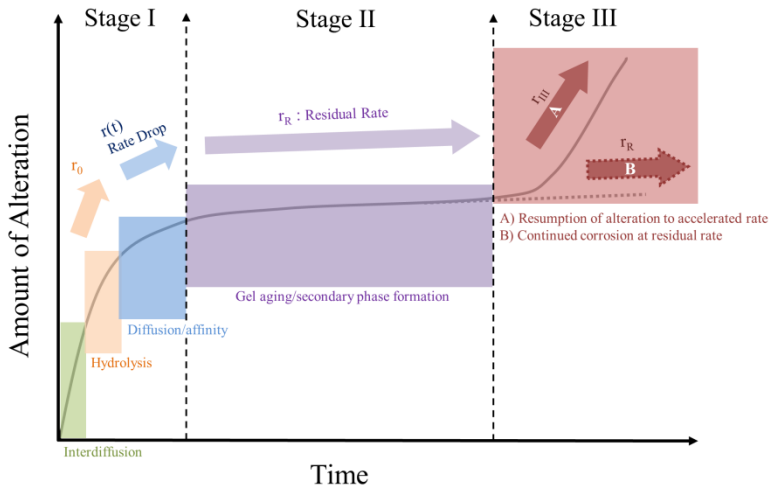

Figure 1: The generally accepted conceptual model demonstrating the various stages of corrosion a homogeneous waste glass will undergo in contact with aqueous solutions.

Characteristic Stage II corrosion is marked by a slow release of glass components into the leachate solution – the rate is typically orders of magnitude slower than the initial rate in Stage I. In Stage II, a pseudo-equilibrium state exists between the corroding glass/gel system and the contacting solution. Two hypotheses have been proposed for the rate-controlling mechanism driving the Stage II "residual" rate: 1) a thermodynamic affinity between the glass/gel and solution slowing the release of glass components into solution (e.g., aqueous silica saturation), and 2) a transport barrier is established by the formation of the gel layer, which hinders and/or prevents the diffusion of glass components into solution. It is probable that a coupled mechanism between those two hypotheses is actually controlling the Stage II dissolution [4].

Certain glass compositions will exhibit a sudden "resumption of alteration" after remaining in the pseudo-equilibrated Stage II regime for long times – this is known as Stage III corrosion. During Stage III, the concentration of elements such as B and Si in the leachant solution will increase at rates which are

comparable to the initial rate and significantly greater (1-4 orders of magnitude) than the residual rate. This "resumption of alteration" is marked by the formation of large quantities of highly crystalline mineral assemblages on the glass surfaces, which continue to increase in size as the glass dissolves at the accelerated rate.

Detailed knowledge of the corrosion behavior of a wide-ranging glass compositional space is required to develop an accurate radionuclide source term for a repository performance assessment (PA) model that encompasses the aforementioned corrosion phenomena and their effects on waste glass durability.

The ALTGLASS database was originally compiled in FY 2013 [5], and contained the results of static corrosion test duration sequences so that geochemical, thermodynamic, kinetic, and glass composition/structural approaches to the prediction of the long term glass durability can be studied on the national and international level. Version 1.0 of the database contained 2112 rows of data where each row represented an averaged duplicate or triplicate test response. Version 2.0 added 20 data sets [6] and Versions 2.1 and 2.2 corrected some minor input errors [6].

The database is openly available to national and international interests for the purpose of studying, modeling, or validating existing models of nuclear waste glass corrosion. For example, SRNL is currently applying aspects of informatics[†] to the database in order to correlate the evolution of corroding glass systems to observed corrosion phenomena. By utilizing the informatics methodologies, HLW and LAW glasses can be compared, contrasted, and grouped into categories that allow researchers to search for unifying compositional characteristics on a large, preexisting dataset, rather than designing and conducting expensive experiments sometimes lasting years or decades and only target a few compositions or experimental conditions. The ultimate goal of these efforts is to establish a link between deleterious corrosion mechanisms and original glass compositions.

This report documents Version 3.0 of the database, an update including 503 rows of new data, from tests conducted at several national and international sites including: SRNL, PNNL, VSL and NNL. The ALTGLASS Version 3.0 database is given in tabular form in this report (Appendix B - Table 11) and is electronically available to national and international modeling groups as a ".xlsx" file upon request.

2.0 Experimental Review

All of the static durability testing in the database was performed in accordance with the procedures set forth by ASTM C1285A or B, the Product Consistency Test (PCT). The PCT-A is a 7 day short term test conducted in a stainless steel digestion vessel with very specific experimental parameters. The PCT-B is less strictly parameterized in that many controls such as duration, particle size, and vessel type are variable. The PCT-B test was recommended as indicator of long-term glass dissolution behavior at surface area to volume ratios of 20,000 m^{-1} (20 m^2/L) and 90°C [7]. The ALTGLASS database contains data from two days to over 20 years of testing and is primarily for glasses tested in deionized water (ASTM Type I water). A few glasses that were tested in Yucca Mountain J13 and SRS E-Area groundwater are included for comparison to the studies in ASTM Type I water.

2.1 Static Test Details

The data in ALTGLASS was generated with the PCT – this ASTM protocol has two test methods: Test Method A and Test Method B. The details of each test method are given in Table 1, which is reproduced from Table 1 in the ASTM C1285 procedure [1].

[†] The term "informatics" refers to the science of information processing.

Table 1: Summary of PCT Test Methods A and B (from ASTM C1285-14)

	Test Method A	Test Method B
Type of Waste Form	Radioactive, Mixed Simulated, Hazardous	Radioactive, Mixed Simulated, Hazardous
Usage	During production for rapid analysis and for waste compliance*	Scoping tests; Crystalli-zation studies; Comparative waste form evaluation
Test Vessel	Unsensitized Type 304L stainless steel; vessels rated to> 0.5 MPa	Unsensitized Type 304L stainless steel or PFA TFE-fluorocarbon vessels rated to >0.5 MPa
Test Duration	7 days ± 2%	7 days ± 2% or varying times
Leachant	ASTM Type I water	ASTM Type I water or other solutions
Condition	Static	Static
Minimum Sample Mass	≥1 g	≥1 g
Particle Size	U.S. Standard ASTM −100 to +200 mesh (0.149 to 0.074 mm)	U.S. Standard ASTM −100 to +200 mesh (0.149 to 0.074 mm) or other sizes which are <40 mesh (0.420 mm)
Leachant Volume	10 ± 0.5 cm^3/g of sample mass	10 ± 0.5 cm^3/g of sample mass or other volume/sample mass
Temperature	90 ± 2°C	90 ± 2°C or other temperatures provided that any observed changes in reaction mechanism are noted
Atmosphere	Air	Air or CO_2 free air (optional)
Type of System	Closed to transport	Open to transport in PFA TFE-fluorocarbon; Closed to transport in stainless steel

The majority of data in ALTGLASS was derived at a leaching temperature of 90°C and in ASTM Type I water. Some of the data were collected at 200°C. Only one set of data was generated in J13 groundwater from the Nevada Test Site at 90°C and one set of data at 25°C in Savannah River Site (SRS) E-Area groundwater. The latter data were added to the database as the leachate data contained U concentrations which many of the other datasets did not. Other datasets in J13 groundwater were not included for the following reasons:

- Geochemical modeling in ASTM Type I water is fundamental for understanding glass dissolution mechanisms since all of the species in solution are generated by the glass.
    - Geochemical modeling in groundwater is complicated by the presence of Si and other elements that are common to the glass and the groundwater.
- Geochemical modeling of leachate concentrations in ASTM Type I water should be benchmarked before attempting to model more complicated leachate solution compositions.

The compositions of the J13 and E-Area groundwaters are given in Table 2.

Table 2: Compositions of J13 groundwater and SRS E-Area Groundwater

	J13 Yucca Mountain Groundwater[8]	SRS E-Area Groundwater[9]
Species	**Concentration (ppm)**	**Concentration (ppm)**
Aluminum	1.1	0.90
Boron	0.16	---
Calcium	5.1	0.41
Potassium	7.3	---
Iron	---	0.06
Lithium	0.05	---
Magnesium	0.39	0.71
Sodium	54	2.76
Silicon	46	4.75
HCO_3^-	120	---
F^-	3	---
Cl^-	9	2.71
NO_3^-	16	---
$SO_4^=$	35	6.15
pH	8.2	5.79

3.0 Test Parameters

The test parameters that govern the conduction of a PCT experiment were carefully chosen for a number of reasons, which are discussed in the following sections.

3.1 Glass Sample Parameters

For most of the samples in the ALTGLASS database, the crushed glass particle size was the nominal -100 to +200 mesh; although, the database does contain some glass entries with non-standard particle sizes shown in Table 3. For the majority of the entries in the ALTGLASS database, all of the test parameters that are relevant to geochemical modeling efforts are provided or can be calculated from the information given.

The surface area of the glass was calculated using equation (1):

$$SA = \frac{6m_g}{\rho d} \quad \left(cm^2\right) \tag{1}$$

Where m_g (g) is the mass of the glass, ρ (g/cm^3) is the glass density, and d (cm) is the diameter of an average particle in a given mesh size. Within the ALTGLASS database, measured density values are displayed in **boldface** font, and estimated density values[§] [10] are displayed in plain text. The average diameter of the particle sizes used for the different mesh ranges is given in Table 3, which were calculated using the arithmetic mean of the particle size range associated with each mesh size range [1].

[§] The value used for the "estimated density" was based on the density of an average HLW glass composition from DWPF.

Table 3: Average Particle Diameter for Various Mesh Sizes

Mesh Size Range	Range of Particle Diameters (cm)	Average Particle Diameter (cm)
-60 +80	0.0177-0.0250	0.0214
-100 +140	0.0105-0.0149	0.0127
-100 +200	0.0074-0.0149	0.0112
-200 +325	0.0044-0.0074	0.0059
-270 +400	0.0037-0.0053	0.0045

The surface area to volume of leachate, the SA/V parameter, is the surface area of glass calculated from equation (1) divided by the volume of the leachate solution – the units of the SA/V ratio are expressed in terms of the glass surface area exposed to a unit volume of corroding solution, e.g., m^2/L.

A time-normalized, SA/V parameter, SA/V*time, where time is the duration from t=0 to the aliquot sampling time, is also reported in the database. The dimension of this parameter is expressed in units of (m^2-day)/L. The SA/V and SA/V*t parameters provide a means to normalize results of experiments that were conducted with differing initial conditions as allowed by the PCT-B protocol.

Note that the SA/V values given in the database are calculated from the average particle size determined from the sieve range used in each study, which is the current method specified in the PCT procedure. For the SON68 and AFCI glasses studied and reported in Ebert et al. [11], the measured particle size from Microtrac analysis (after glass fines had been washed from the powder) was used to calculate the SA/V. Therefore, the SA/V given in the database does not match the values in Reference 11. Note that the method used to report the SA/V in the PCT procedure (ASTM C1285) is under discussion by the ASTM C26.13 committee.

All of the leachates were filtered through a 0.45 μm filter. Data from Reference 11 indicated that filtering with a 0.45 μm filter provided sufficient filtration to remove colloidal suspensions – viz., the same solution analyses results were obtained for filters with lesser pore sizes as were obtained with the 0.45 μm filters. Therefore, the ultrafiltration data is not tabulated separately in the database.

The maximum and minimum values of the test parameters are given in Table 4.

Table 4: Maximum and minimum of test parameters.

Parameter	Minimum	Maximum
Test Duration (days)	0.42	7426
SA/V (m^2/L)	1.1	39.1
(SA/V)·time (days/m)	3.9	30,938.7
Glass Density (g/cm^3)	2.373	3.004
Temperature (°C)	25	200

3.2 Compositional Characteristics and Indicators

There are currently no direct measurement techniques of a glass specimen that can quantify its chemical durability. Durability is measured through secondary measurements of leachate solutions, alteration layers, etc.; all of which are byproducts of durability and/or corrosion. However, one can make estimations of the corrosion resistance of a particular glass based on certain compositional "states", which are useful for classifying subsets of glasses based on structural properties. For instance, glasses that are predicted to be phase separated (φ-sep.) or potentially phase separated from compositional indicators are particularly susceptible to anomalous corrosion behavior [12].

Phase separation in glasses generally takes the form of two immiscible glass phases which differ in chemical composition, density, and surface tension. Usually one phase is more soluble than the other. Phase separation complicates modeling of glass durability as a function of composition because the composition of the overall glass is known but the compositions of the two immiscible phases are not known. Consequently, the performance of the overall glass is unpredictable and the long term durability of the glass cannot be modeled [12]. As such, information regarding the potential phase separation of a glass is useful in discriminating potentially anomalous durability responses caused by structural phenomena from an ALTGLASS data subset that is being used in modeling efforts. These compositional states are described in detail below.

Tovena, et al. [13] demonstrated that several HLW glass durability models [14-17] did not predict waste glass durability accurately when the composition of the waste glass contained > 15% B_2O_3 with little or no Al_2O_3. For these glasses all the models under-predicted the glass durability significantly. Tovena, et al. attributed the under-prediction to phase separation and complete dissolution of a borate rich phase in the glass when the Al_2O_3 content was insufficient to stabilize a glass against phase separation.

Jantzen, et al. [12] determined that phase separation could also occur in iron containing HLW glasses with insufficient Al_2O_3, i.e. Al_2O_3 concentrations in the region of 3-4 wt.%. It was also determined that the Al_2O_3-SiO_2-Fe_2O_3-Na_2O basalt quaternary system was a natural analog system for HLW iron containing glasses: the quaternary system depicts a region of phase separation at <4 wt.% Al_2O_3 [18]. In addition, glasses in the Na_2O-Al_2O_3-SiO_2 system are known to phase separate when the glasses contain less than 3 wt.% Al_2O_3 [19,20].

For these reasons, the durability model used by the Savannah River Site (SRS) Defense Waste Processing Facility (DWPF) [18] excluded the modeling of phase separated glasses by the development of a "phase separation discriminator" based on experimental data for both homogeneous and phase separated glasses. This discriminator methodology was carried over into the construction of the ALTGLASS database as a means of classifying glasses that with potentially anomalous durability responses; i.e., the phase separation discriminators provide a potential mechanistic explanation of PCT anomalies.

The original discriminator [18] was a probability function that determines if glasses are homogeneous based on the following criterion, where the more **negative the value**, the **less likely** the glass is to **phase separate**:

$$-1.6035x - 5.6478y + 210.9203 = P(x,y) \quad (2)$$

Where, P(x,y) is the criterion value and:

$$y = \text{Dense Oxide Components} \equiv Al_2O_3 + (Fe_2O_3 + FeO \text{ calculated as } Fe_2O_3) + Nd_2O_3 + Ce_2O_3 + La_2O_3 + Y_2O_3 + CaO + MoO_3 \quad \text{(wt.\%)}$$

$$x = \text{Less Dense Oxide Components} \equiv Na_2O + Li_2O + K_2O + Cs_2O + SiO_2 + B_2O_3 \quad \text{(wt.\%)}$$

There is an intermediate region, where the criterion value in Equation (2) may equal a value on the interval [-1,1]. If the discriminator criterion falls within this interval, this particular criterion is indeterminate, and more investigation is needed to determine if the composition is phase separated.

The use of this phase separation criterion in Equation 2 was later dropped in favor of an approach that ensured that the DWPF durability model would be linear in glass composition, which is an important factor in the error analysis within the DWPF process/product (P/P) models for process control. Rather than group glasses as "phase separated", "intermediate", or "homogeneous", these new constraints indicate if a glass composition's durability is predictable via the THERMO^{TM} model based on the potential for phase separation. Collectively referred to as the "reduction of constraints (ROC)", the criteria in use in DWPF during sludge-only processing [21] and in coupled processing [22] is currently defined as the following:

(1) an alumina constraint of $Al_2O_3 \geq 3$ wt.% and a sum of alkali constraint with an upper limit of 19.3 wt.% ($\Sigma M_2O < 19.3$ wt.%), or
(2) a lower limit on the Al_2O_3 constraint of 4 wt.% ($Al_2O_3 \geq 4$ wt.%) without a ΣM_2O

For glasses with $Al_2O_3 \geq 3$ wt.% and $\Sigma M_2O < 19.3$ wt.% or glasses with ≥ 4 wt.% Al_2O_3, phase separation is not problematic and the glass durability response is linear in glass composition. For glasses with Al_2O_3 of 3-4 wt.% and $\Sigma M_2O \geq 19.3$ wt.%, the homogeneity of the glass should be examined by various microscopy techniques to determine if the glass is phase separated and the durability response needs to be examined as durability becomes dependent on the glass composition and the solution pH. The pH of the corroding solution is directly proportional to the alkali content of the corroding glass, and durability is inversely proportional to solution pH [18]. For nuclear waste glasses with $Al_2O_3 < 3$ wt.%, the glasses are likely to be phase separated – independent verification is also suggested with electron microscopy or spectroscopic diffraction. These criteria have been included in previous versions of the ALTGLASS database.

In 2016, a TiO_2 criterion was added to the DWPF durability model, based on data that suggested glasses with $TiO_2 \geq 2.0$ wt.% could potentially phase separate if the Al_2O_3 content in the glass was less than 4.0 wt.% [25]. This TiO_2 criterion was added to this version of the ALTGLASS database. If $TiO_2 < 2.0$ wt.%, then the aforementioned criteria regarding Al_2O_3 content and the sum of the alkali oxides is used to indicate the predictability of a glass composition's durability based on potential phase separation issues. All of the current DWPF-based discriminators were combined into a single logical test that was also added to ALTGLASS Version 3.0. Table 5 summarizes the various discriminators that were added to the ALTGLASS database to facilitate glass dissolution modeling efforts.

Table 5: Information useful for subset classification is provided by the database in the form of the listed property states.

Property State	Database Definition
Phase-separated/homogeneous (Original THERMO™ discriminator)	$-1.6035x - 5.6478y + 210.9203 \begin{cases} < -1, \text{ HOMOGENEOUS} \\ > 1, \text{ Potential } \varphi\text{-sep.} \\ [-1,1], \text{ Indeterminate} \end{cases}$
Low or high alkali	Low alkali $\Rightarrow \Sigma_{alkali} < 19.3$ wt.% alkali High alkali $\Rightarrow \Sigma_{alkali} \geq 19.3$ wt.% alkali
Low/Mid/High Al_2O_3	Low Al $\Rightarrow Al_2O_3 < 3.0$ wt.% Mid Al $\Rightarrow 3.0$ wt.% $\leq Al_2O_3 < 4.0$ wt.% High Al $\Rightarrow Al_2O_3 \geq 4.0$ wt.%
Low/High TiO_2	Low Ti $\Rightarrow TiO_2 < 2.0$ wt.% High Ti $\Rightarrow TiO_2 \geq 2.0$ wt.%

All of the new compositions have been added to Table 9 in Appendix A. Note that the Environmental Assessment (EA) glass [23,24], which has Al_2O_3 ~3 wt.% and $\Sigma M_2O \geq 19.3$ wt.%, was extensively studied by microscopic methods to determine that it was not phase separated. This example with EA glass is highlighted to illustrate that the discriminators referenced here and extensively reported on in the given references are not necessarily wholly deterministic – some glasses that are indicated to be phase separated may, upon investigation, be determined homogeneous and at the same time the opposite may be true for other compositions. The information regarding phase separation is included in the database only to serve as a guide to modeling efforts should anomalous leaching behavior not fit a given model or approach and not to definitively designate glasses as "homogeneous" or "phase separated."

The cells with gray shading in Table 9 are compositional regions where glasses are expected to be homogenous based on the aforementioned ROC constraints. The regions with black shading are glass formulation regions where care must be exercised to determine the impact of potential phase separation and/or excess alkali on the glass durability. The unshaded region of glass formulation should be avoided during HLW and LAW glass formulation for long term durability concerns associated with potential phase separation. Table 10 gives a comparison between the ROC glasses that were determined to be predictable coupled with the criterion from the original homogeneity discriminator. Glass compositions in the shaded cell of Table 10 are considered to be agreeably homogeneous in that their P(x,y) is negative and they are considered "predictable" by the ROC criteria.

While a failure to meet the phase separation criteria excluded a glass's inclusion in the aforementioned DWPF modeling efforts, glasses that were potentially phase separated were not automatically excluded from the ALTGLASS database. Phase separated glasses, especially low alkali phase separated glasses, can be durable depending on the type of phase separation that occurs [12,18]. Therefore, the low alkali glasses, as well as the glasses with less than three weight percent Al_2O_3, are also gray-shaded in Table 9 in Appendix A.

3.3 Leachate Parameters

In the ALTGLASS database, the leachate parameters given in Table 6 were tabulated if available. Data for specific compositions or test durations were not entered into the database unless a minimum set of leachate parameters were available – these essential elements are shaded in Table 6. Some glasses did not contain Li_2O and/or Fe_2O_3, and for those glasses the minimum leachate parameters for Li and Fe concentration were nonexistent. Those glasses without Li_2O and Fe_2O_3 reported in the leachate were included in ALTGLASS, whereas a glass containing Li_2O and/or Fe_2O_3 that did not report the Li and Fe releases to solution were not included in the database. Data sets used in ALTGLASS had to contain Al or Fe or both in ppm in order to be included in the database due to the importance of these two components in the secondary phase formation on the glass surfaces that return to an accelerated rate. Because of these minimum requirements, many of the available data could not be included.

Table 6: Leachate parameters tabulated and minimum leachate requirements for inclusion in the database. Shaded cells represent elements that must be reported in the leachate concentration for a sample to be included in the database.

Leachate Parameter
pH
Si (ppm)
B (ppm)
Ca (ppm)
Li (ppm)†
Na (ppm)
K (ppm)
Al (ppm)†
Fe (ppm)†
Mo (ppm)
Mg (ppm)
Ti (ppm)
Zn (ppm)
Zr (ppm)
U (ppm)

†Unless a given glass did not contain these elements.

The ALTGLASS Version 3.0 database contains 2635 rows of data with each row representing the average of duplicate or triplicate PCT tests for over 500 different glasses. Averages of the individual PCT tests were used instead of singular measurements as many of the references only contained averaged results. In order to maintain consistent error structure in accordance with ASTM C1285-14 and eliminate weighting discrepancies during modeling, singleton (not duplicate or triplicate analyses) measurements were not included in the database.

Two sets of data in groundwater, one in Yucca Mountain J13 groundwater and one in SRS E-Area Groundwater, are located at the end of the database since these experiments were conducted under different initial conditions (i.e., leachant type) than the other experiments conducted in ASTM Type I water.

For several of the longest duration PCT tests, pH measurements were not available due to a lack of solution for analysis.

The ranges of leachate pH values and the concentrations represented by the leachates in the database are given in Table 7. As can be seen by inspection of Table 7, the ranges of measured leachate concentrations for the glass elements can vary by as much as four orders of magnitude implying that the database covers a broad spectrum of glass durabilities.

Table 7: Maximum and minimum (non-zero) concentration of measured leachate parameters.

Parameter	Min.	Max.
pH	7.39	13.66
Si (ppm)	2.260	45,200.00
B (ppm)	0.078	35,230.62
Ca (ppm)	0.011	136.10
Cr (ppm)	0.395	346.08
Li (ppm)	0.028	6750.00
Na (ppm)	3.453	76,318.23
K (ppm)	0.133	10,223.10
Al (ppm)	0.027	1812.18
Fe (ppm)	0.003	1485.90
Mo (ppm)	0.810	9219.73
Mg (ppm)	0.001	10.88
Ti (ppm)	0.006	47.00
Zn (ppm)	0.006	115.33
Zr (ppm)	0.007	76.00
U (ppm)	0.081	8.31

3.4 Glass Parameters and Phase Identification

The compositions of glasses in ALTGLASS are given in oxide weight percent (wt.%). In addition, any experimentally observed glass alteration phases, formed as a result of corrosion phenomena, that were identified by x-ray diffraction (XRD) and/or scanning electron microscopy (SEM) were tabulated. The minimum and maximum glass compositions are given in Table 8. The compositions reported in the database are a combination of both target and measured values since measured glass compositions were not present in all the references used to compile the database. The target compositions of some glasses did not contain many of the species for which compositional columns are listed, such as BaO, Ce_2O_3, Li_2O, U_3O_8 or "others"; however, the minimum value for these oxides is not reported as zero but rather as the minimum measured concentration when that particular oxide *is* present in a glass. If the composition of the "others" component was not given in the references from which the data was taken, no additional information is available about the "others" compositions, and these data are not tabulated.

Table 8: The minimum and maximum compositional values of the glasses presented in ALTGLASS.

Oxide	Non-zero Min.	Max.
Al_2O_3	0.19	21.29
B_2O_3	0.10	18.48
BaO	0.01	1.34
CaO	0.01	12.81
CeO_2	1.10	2.07
Ce_2O_3	0.02	0.74
Cr_2O_3	0.01	1.14
Cs_2O	0.03	2.34
CuO	0.01	0.22
Cu_2O	0.11	0.20
FeO	0.07	8.81
Fe_2O_3	0.01	21.86
K_2O	0.01	8.08
Gd_2O_3	0.07	6.39
La_2O_3	0.01	1.94
Li_2O	0.00	14.67
MgO	0.02	7.70
MnO	0.03	3.34
MoO_3	0.01	3.53
Na_2O	1.40	27.50
Nd_2O_3	0.01	8.59
NiO	0.21	2.97
PO_4	0.42	0.75
P_2O_5	0.04	2.64
PbO	0.02	0.03
Pd	0.88	0.88
Pr_2O_3	0.52	0.99
RuO_2	0.43	1.70
SiO_2	32.77	60.60
Sm_2O_3	0.36	0.81
SO_4	0.03	0.08
SrO	0.01	0.68
TeO_2	0.16	0.39
ThO_2	3.34	4.50
TiO_2	0.01	8.83
U_3O_8	0.55	4.42
Y_2O_3	0.02	0.47
ZnO	0.01	5.82
ZrO_2	0.01	6.12
Others	0.05	5.81

4.0 ALTGLASS Version 3.0 Updates

ALTGLASS Version 3.0 (Table 11) is the first issuance of the database to include a major subset of data from a foreign entity. Over 500 rows of data have been added in the newest release composed of entries including MAGNOX and Blend compositions from the NNL in the United Kingdom [26], glasses that were fabricated at the Savannah River National Laboratory and subjected to PCT analysis by NNL [27], Hanford low-activity waste (LAW) glasses that were fabricated and tested at PNNL [28,29], and LAW glasses that were tested by VSL [30].

5.0 Path Forward

Current efforts at SRNL are focused on applying informatics principles to a limited data subset of long-term HLW corrosion experiments in order to hypothesize the fundamental mechanisms responsible for various glass corrosion phenomena [31, 32]. The ALTGLASS database is central to the development of this statistical approach, and researchers have already used the informatics approach to establish a statistically significant correlation between leachate concentration data, such as those provided in ALTGLASS, and potential "trigger" mechanisms for Stage III corrosion.

Given the level of interest in developing glass dissolution models that can adequately predict the rate of radionuclide release at all stages of glass corrosion, longer term corrosion tests are required to provide a broader experimental reference for geochemical, chemical, and atomistic modeling. To date, only a limited number of corrosion experiments reported in the database have been conducted for sufficiently long duration to observe a resumption of glass alteration that is conducive with Stage III corrosion.

Additions will continue to be made to the ALTGLASS database as data becomes available from other groups, laboratories, and institutions within and outside of the United States. A new version of ALTGLASS will be released upon the accumulation of sufficient data to merit revision. SRNL will continue to be responsible for the maintenance and distribution of the database in electronic form upon request.

6.0 References

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Appendix A. Potential Phase Separation Indicators for Anomalous Durability Responses

Table 9: The glass compositions in ALTGLASS delineated by the new discriminators utilized by DWPF. Glass compositions in red italics contain $TiO_2 \geq 2.0$ wt.%.

	$\Sigma_{alkali} \geq 19.3$ wt.%	$\Sigma_{alkali} < 19.3$ wt.%
$Al_2O_3 \geq 4.0$ wt.%	**AH-1, MG-4, MG-13, MG-15, MG-16, MG-17, MG-31, WV203-18-Th Type IIIR, WVUTh186 Type III, A1-AN105R2, A1C1-1, A2-AP101, A88AP101R1, A88Si+15, LAWA104, LAWA105, LAWA112B14, LAWA112B15, LAWA125, LAWA126, LAWA133, LAWA41, LAWA43-1, LAWA44, LAWA44R10, LAWA45, LAWA49, LAWA50, LAWA52, LAWA53, LAWA56, LAWA60, LAWA65, LAWA81, LAWA83, LAWA84, LAWA87, LAWA88, LAWA88R1, LAWA90, LAWA96, WVF-G-21B, M-Area MN-12-A, M-Area MN-12-B, M-Area MN-12-E, M-Area MN-12-F, M-Area MN-12-G, M-Area MN-12-H, M-Area MN-12-I, M-Area MN-12-J, M-Area MN-13-A, M-Area MN-13-B, M-Area MN-13-E, M-Area MN-13-F, M-Area MN-13-G, M-Area MN-13-H, M-Area MN-13-I, M-Area MN-13-J, 12S-G-85C, 12U-G-86A, A3C2, LA44CCCR2, LA44PNCC, LAWA170, LAWCrP1R, LAWCrP2R, LAWCrP3R, LAWCrP4R, LAWE11, LAWE12, LAWE13, LAWE14, LAWE15, LAWE16, LAWE2H, LAWE3, LAWE3Cr2CCC, LAWE3H, LAWE4H, LAWE5H, LAWM17, LAWM20, LAWM22, LAWM24, LAWM32, LAWM34, LAWM52, LAWM57, LAWM58, LAWM59, LAWM60, LAWM61, LAWM62, LAWM63, LAWM64, LAWM65, LAWM66, LAWM67, LAWM68, LAWM69, LAWM70, LAWM71, LAWM72, LAWM73, LAWM74, LAWM75, LAWM76, WVM-G-142C, HLP-14, HLP-27, HLP-29, HLP-31, HLP-47, HLP-52, HLP-53, HLP-64, HLP-66, HLP-67, HLP-68, HLP-71, HLP-73, HLP-76, HLP-77, *A88Si-15, LAWA127R1, LAWA127R2, LAWA128, LAWA129, LAWA130, LAWA134, LAWA135, LAWA136, LAWA42, LAWA82, LAWA89, LAWC12, LAWC15, PNLA126CC, TFA-BASE, LA126CCC, LAWM15, LAWM31, LAWM33R1, HLP-2, HLP-4, HLP-5, HLP-6, HLP-7, HLP-8, HLP-16, HLP-18, HLP-20, HLP-23, HLP-33, HLP-35, HLP-37, HLP-48, HLP-51, HLP-58, HLP-61, HLP-70, HLP-75***	**AH 131AL, AH 131AV, AH 165AL, AH 165AV, AH 168AL, AH 168AV, AH 200AL, AH 200AV, AH 202AL, AH 202AV, AH-10, AH-11, AH-12, AH-13, AH-14, AH-15, AH-16, AH-17, AH-2, AH-4, AH-5, AH-6, AH-7, AH-8, AH-9, MG-1, MG-2, MG-5, MG-6, MG-11, MG-21, MG-22, MG-23, MG-24, MG-25, MG-26, MG-27, MG-28, MG-29, MG-30, MG-32, MG-33, PSON-90 7day, PSON-90 28day, PSON-90 56day, PSON-90 91day, PSON-90 182 day, PSON-90 317 day, PSON-90 450 day, PSON-90 600 day, PAFCI-90-7day, PAFCI-90-28day, PAFCI-90-56day, PAFCI-90-91day, PAFCI-90-182 day, PAFCI-90-317 day, PAFCI-90-450 day, PAFCI-90-600 day, PSON-200 7day, PSON-200 28day, PSON-200 90day, PSON-200 124 day, PSON-200 308 day, PSON-200 509 day, PSON-200 791 day, PAFCI-200 7day, PAFCI-200 28day, PAFCI-200 90day, PAFCI-200 124 day, PAFCI-200 308 day, PAFCI-200 509 day, PAFCI-200 805 day, WVUTh198 Type IR, WVCM59 Type 1R, WVUTh122 Type IIR, WVUTh179 Type I, WVUTh193 Type II, A100CC, A100G115A, A1C1-2, A1C1-3, A2B1-1, A2B1-2, A2B1-3, B1-AZ101, C100-G-136B, C100GCC, C1-AN107, C22AN107, C22Si+15, C22Si-15, LAWA102R1, LAWA51, LAWA76, LAWA93, LAWB30, LAWB31, LAWB32, LAWB33, LAWB34, LAWB35, LAWB37, LAWB38, LAWB40, LAWB41, LAWB60, LAWB61, LAWB62, LAWB63, LAWB64, LAWB65, LAWB66, LAWB67, LAWB68, LAWB69, LAWB70, LAWB71, LAWB72, LAWB73, LAWB74, LAWB75, LAWB76, LAWB77, LAWB78, LAWB79, LAWB80, LAWB81, LAWB82, LAWB83, LAWB84, LAWB85, LAWB86, LAWB87, LAWB88, LAWB89, LAWB90, LAWB91, LAWB92, LAWB93, LAWB94, LAWB95, LAWC21rev2, LAWC22, LAWC23, LAWC24, LAWC25, LAWC26, LAWC27, LAWC28, LAWC29, LAWC30, LAWC31, LAWC32, LAWC33, WVH-G-57B, WVJ-G-109D, M-Area HSi-5-A, M-Area HSi-5-B, M-Area HSi-5-E, M-Area HSi-5-F, M-Area HSi-5-G, M-Area HSi-5-H, M-Area HSi-5-I, M-Area HSi-5J, BATCH 1 AVG, BLEND 1 AVG, HM AVG, MSP 28 wt.% Magnox, G1 25 wt.% Magnox 4% Li2O, G4 32 wt.% Magnox 4% Li2O, MMP 38% Magnox MW, MCP 38% Magnox Ca/Zn, M28R 28 wt.% Magnox, M32 32 wt.% Magnox, G3 25 wt.% Magnox 5.0% Li2O, G6 32 wt.% Magnox 5.0% Li2O, MP 35 wt.% Magnox, M25 25 wt.% Magnox, G2 25**

	$\Sigma_{alkali} \geq 19.3$ wt.%	$\Sigma_{alkali} < 19.3$ wt.%
		wt.% Magnox 4.5% Li2O, G5 32 wt.% Magnox 4.5% Li2O, 25 wt.% NDA VTR Glass, G7 38 wt.% Magnox 4% Li2O, G8 38 wt.% Magnox 4.65% Li2O, M35H 35wt.% Magnox, M25H 25 wt.% Magnox, M25B 25 wt.% Magnox, G10 38 wt.% 50:50 Blend, G11 38 wt.% 25:75 Blend, G7H 38 wt.% Magnox 4.00% Li2O, G8H 38 wt.% Magnox 4.65% Li2O, HSV 25 wt.% NDA Glass, SRS 100/0, A3-AN104, C2-AN102C35, GTSD-1126, GTSD-1437, LA137SRCCC, LAWB96, LAWC21, LAWCrP5, LAWCrP6, LAWCrP7, LAWE10H, LAWE10HCr3CCC, LAWE7H, LAWE9H, LAWE9HCr1CCC, LAWE9HCr2CCC, LAWM19, LAWM25R1, LAWM26, LAWM3, LAWM30, LAWM37, LAWM38, LAWM39, LAWM40, LAWM41, LAWM46, LAWM47, LAWM49, LAWM50, LAWM51, LB83CCC-1, LB83PNCC, LB88CCC, PLTC35CCC, WVB-G-124B, WVR-G-127A, HLP-28, HLP-46, HLP-49, HLP-54, HLP-55, HLP-74, *LAWM1, LAWM10, LAWM16, LAWM18, LAWM21, LAWM23, LAWM27, LAWM28, LAWM29, LAWM35, LAWM36, LAWM42, LAWM43, LAWM44, LAWM45, LAWM48, LAWM5, LAWM53, LAWM56, LAWM6, LAWM7, LAWM8, HLP-1, HLP-3, HLP-9, HLP-10, HLP-11, HLP-12, HLP-13, HLP-15, HLP-17, HLP-19, HLP-21, HLP-22, HLP-24, HLP-25, HLP-26, HLP-30, HLP-32, HLP-36, HLP-38, HLP-40, HLP-40Q, HLP-42, HLP-42Q, HLP-43, HLP-44, HLP-45, HLP-59, HLP-60, HLP-62, HLP-69, HLP-72*
3.0 wt.% ≤ Al_2O_3 < 4.0 wt.%	**MG-19, ANL on EA, EA AVG, LAWM11, *LAWM12, LAWM13, LAWM14, LAWM55, HLP-39, HLP-41, HLP-63, HLP-63***	**MG-8, WVCM60 Type ES, SRS 60/40, LAWM54R1, LAWM9, HLP-65, HLP-65, *LAWM2, LAWM4, HLP-34***
Al_2O_3 < 3.0 wt.%	**MG-7, MG-9, MG-10, MG-18, MG-20, PUREX AVG**	**AH 131FE, AH 165FE, AH 168FE, AH 200FE, AH 202FE, WVUTh123 Type ESR, WVUTh157 Type ESR, BLP 17 wt.% Blend, BP 31 wt.% Blend HP, B31H 31wt.% Blend HP, G9 38 wt.% 75:25 Blend, SRS 0/100, SRS 20/80, SRS 40/60**

Table 10: Comparison of original phase separation discriminator to the ROC durability indicators.

		Reduction of Constraints for Durability Prediction:	
		Predictable	Not Predictable
Original Phase Separation Criterion	Homogeneous	AH 131AL, AH 131AV, AH 165AL, AH 165AV, AH 168AV, AH 200AL, AH 200AV, AH 202AL, AH 202AV, AH-1, AH-10, AH-11, AH-12, AH-13, AH-14, AH-15, AH-16, AH-17, AH-2, AH-4, AH-5, AH-6, AH-7, AH-8, AH-9, B1-AZ101, BATCH 1 AVG, BLEND 1 AVG, C100-G-136B, C100GCC, C22AN107, C22Si-15, G7 38 wt.% Magnox 4% Li2O, G7H 38 wt.% Magnox 4.00% Li2O, G8 38 wt.% Magnox 4.65% Li2O, G8H 38 wt.% Magnox 4.65% Li2O, GTSD-1126, GTSD-1437, HLP-04, HLP-06, HLP-07, HLP-28, HLP-30, HLP-35, HLP-36, HLP-37, HLP-38, HLP-46, HLP-49, HLP-53, HLP-68, HLP-73, HLP-74, HM AVG, LAWA43-1, LAWA50, LAWA52, LAWA53, LAWA76, LAWA81, LAWA93, LAWB30, LAWB41, LAWB60, LAWB61, LAWB62, LAWB65, LAWB66, LAWB68, LAWB82, LAWB83, LAWB84, LAWB87, LAWB89, LAWB90, LAWB91, LAWB92, LAWB93, LAWB94, LAWB95, LAWB96, LAWC12, LAWC21, LAWC21rev2, LAWC22, LAWC23, LAWC24, LAWC25, LAWC28, LAWC31, LAWC32, LAWC33, LAWCrP6, LAWE10H, LAWE10HCr3CCC, LAWE7H, LAWE9H, LAWE9HCr1CCC, LAWE9HCr2CCC, LAWM1, LAWM10, LAWM11, LAWM16, LAWM18, LAWM19, LAWM21, LAWM24, LAWM27, LAWM28, LAWM3, LAWM31, LAWM33R1, LAWM34, LAWM36, LAWM37, LAWM38, LAWM41, LAWM44, LAWM45, LAWM46, LAWM47, LAWM5, LAWM53, LAWM59, LAWM6, LAWM69, LAWM7, LAWM72, LB83CCC-1, LB83PNCC, M35H 35wt.% Magnox, M-Area HSi-5-A, M-Area HSi-5-B, M-Area HSi-5-E, M-Area HSi-5-F, M-Area HSi-5-G, M-Area HSi-5-H, M-Area HSi-5-I, M-Area HSi-5J, M-Area MN-12-A, M-Area MN-12-B, M-Area MN-12-E, M-Area MN-12-F, M-Area MN-12-G, M-Area MN-12-H, M-Area MN-12-I, M-Area MN-12-J, M-Area MN-13-A, M-Area MN-13-B, M-Area MN-13-E, M-Area MN-13-F, M-Area MN-13-G, M-Area MN-13-H, M-Area MN-13-I, M-Area MN-13-J, MCP 38% Magnox Ca/Zn, MG-1, MG-11, MG-13, MG-15, MG-16, MG-17, MG-19, MG-2, MG-21, MG-22, MG-23, MG-24, MG-25, MG-26, MG-27, MG-28, MG-29, MG-30, MG-31, MG-32, MG-33, MG-4, MG-5, MG-6, MMP 38% Magnox MW, MP 35 wt.% Magnox, PAFCI-200 124 day, PLTC35CCC, PSON-200 124 day, WV203-18-Th Type IIIR, WVCM59 Type 1R, WVH-G-57B, WVJ-G-109D, WVUTh122 Type IIR, WVUTh179 Type I, WVUTh193 Type II, WVUTh198 Type IR	AH 131FE , AH 165FE, AH 168FE, AH 200FE, AH 202FE, HLP-63, HLP-63, HLP-65, HLP-65, LAWM13, LAWM2, LAWM4, LAWM54R1, LAWM9, MG-10, MG-20, MG-8, PUREX AVG, WVCM60 Type ES
	Indeterminate	A100CC, A100G115A, A3-AN104, ANL on EA, C1-AN107, C22Si+15, C2-AN102C35, EA AVG, G11 38 wt.% 25:75 Blend, G4 32 wt.% Magnox 4% Li2O, G5 32 wt.% Magnox 4.5% Li2O, HLP-02, HLP-16, HLP-2, HLP-22, HLP-42Q, HLP-59, HLP-59, HLP-70, LA137SRCCC, LAWA102R1, LAWA49, LAWA90, LAWB31, LAWB34, LAWB76, LAWB86, LAWB88, LAWCrP5, LAWCrP7, LAWM30, LAWM75, LB88CCC, WVB-G-124B, WVR-G-127A	WVUTh123 Type ESR
	Potential φ-sep.	12S-G-85C, 12U-G-86A, 25 wt.% NDA VTR Glass, A1-AN105R2, A1C1-1, A1C1-2, A1C1-3, A2-AP101, A2B1-1, A2B1-2, A2B1-3, A3C2, A88AP101R1, A88Si+15, A88Si-15, AH 168AL , G1 25 wt.% Magnox 4% Li2O, G10 38 wt.% 50:50 Blend, G2 25 wt.% Magnox 4.5% Li2O, G3 25 wt.% Magnox 5.0% Li2O, G6 32 wt.% Magnox 5.0% Li2O, HLP-01, HLP-03, HLP-05, HLP-08, HLP-09, HLP-10, HLP-11, HLP-12, HLP-13, HLP-14, HLP-15, HLP-17, HLP-18, HLP-19, HLP-20, HLP-21, HLP-23, HLP-24, HLP-25, HLP-26, HLP-27, HLP-29, HLP-31, HLP-32, HLP-33, HLP-40, HLP-40Q, HLP-42, HLP-43, HLP-44, HLP-45, HLP-47, HLP-48, HLP-5, HLP-51, HLP-52, HLP-54, HLP-55, HLP-58, HLP-60, HLP-61, HLP-62, HLP-64, HLP-66, HLP-67, HLP-69, HLP-71, HLP-72, HLP-75, HLP-76, HLP-77, HSV 25 wt.% NDA Glass, LA126CCC, LA44CCCR2, LA44PNCC, LAWA104, LAWA105, LAWA112B14, LAWA112B15, LAWA125, LAWA126, LAWA127R1, LAWA127R2, LAWA128, LAWA129, LAWA130, LAWA133, LAWA134, LAWA135, LAWA136, LAWA170, LAWA41, LAWA42, LAWA44, LAWA44R10, LAWA45, LAWA51, LAWA56, LAWA60, LAWA65, LAWA82, LAWA83, LAWA84, LAWA87, LAWA88, LAWA88R1, LAWA89, LAWA96, LAWB32, LAWB33, LAWB35, LAWB37, LAWB38, LAWB40, LAWB63, LAWB64, LAWB67, LAWB69, LAWB70, LAWB71, LAWB72, LAWB73, LAWB74, LAWB75, LAWB77, LAWB78, LAWB79, LAWB80, LAWB81, LAWB85, LAWC15, LAWC26, LAWC27, LAWC29, LAWC30, LAWCrP1R, LAWCrP2R, LAWCrP3R, LAWCrP4R, LAWE11, LAWE12, LAWE13, LAWE14, LAWE15, LAWE16, LAWE2H, LAWE3, LAWE3Cr2CCC, LAWE3H, LAWE4H, LAWE5H, LAWM15, LAWM17, LAWM20, LAWM22, LAWM23, LAWM25R1, LAWM26, LAWM29, LAWM32, LAWM35, LAWM39, LAWM40, LAWM42, LAWM43, LAWM48, LAWM49, LAWM50, LAWM51, LAWM52, LAWM56, LAWM57, LAWM58, LAWM60, LAWM61, LAWM62, LAWM63, LAWM64, LAWM65, LAWM66, LAWM67, LAWM68, LAWM70, LAWM71, LAWM73, LAWM74, LAWM76, LAWM8, M25 25 wt.% Magnox, M25B 25 wt.% Magnox, M25H 25 wt.% Magnox, M28R 28 wt.% Magnox, M32 32 wt.% Magnox, MSP 28 wt.% Magnox, PNLA126CC, SRS 100/0 (4-40), TFA-BASE, WVF-G-21B, WVM-G-142C, WVUTh186 Type III	B31H 31wt.% Blend HP, BLP 17 wt.% Blend, BP 31 wt.% Blend HP, G9 38 wt.% 75:25 Blend, HLP-34, HLP-39, HLP-41, LAWM12, LAWM14, LAWM55, MG-18, MG-7, MG-9, SRS 0/100 (8-8), SRS 20/80 (8-8), SRS 40/60 (8-8), SRS 60/40 (4-40), WVUTh157 Type ESR

Appendix B - Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
AH 131AL	HLW	SRNL - JANTZEN	T	14.00	0.08	2.089	29.245	**2.576**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.35
AH 131AL	HLW	SRNL - JANTZEN	T	28.00	0.08	2.089	58.491	**2.576**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.97
AH 131AV	HLW	SRNL - JANTZEN	T	14.00	0.08	2.004	28.058	**2.685**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.86
AH 131AV	HLW	SRNL - JANTZEN	T	28.00	0.08	2.004	56.116	**2.685**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.58
AH 131FE	HLW	SRNL - JANTZEN	T	14.00	0.08	1.939	27.148	**2.775**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.10
AH 131FE	HLW	SRNL - JANTZEN	T	28.00	0.08	1.939	54.296	**2.775**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.86
AH 165AL	HLW	SRNL - THERMO	T	7.00	0.08	2.095	14.668	**2.568**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.58
AH 165AL	HLW	SRNL - JANTZEN	T	14.00	0.08	2.095	29.337	**2.568**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.28
AH 165AL	HLW	SRNL - JANTZEN	T	28.00	0.08	2.095	58.673	**2.568**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.96
AH 165AV	HLW	SRNL - JANTZEN	T	14.00	0.08	1.999	27.982	**2.692**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.41
AH 165AV	HLW	SRNL - JANTZEN	T	28.00	0.08	1.999	55.964	**2.692**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.04
AH 165FE	HLW	SRNL - THERMO	T	7.00	0.08	1.923	13.458	**2.799**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.07
AH 165FE	HLW	SRNL - JANTZEN	T	14.00	0.08	1.923	26.915	**2.799**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.75
AH 165FE	HLW	SRNL - JANTZEN	T	28.00	0.08	1.923	53.831	**2.799**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.29
AH 168AL	HLW	SRNL - THERMO	T	7.00	0.08	2.140	14.977	**2.515**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.17
AH 168AL	HLW	SRNL - JANTZEN	T	14.00	0.08	2.140	29.955	**2.515**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.81
AH 168AL	HLW	SRNL - JANTZEN	T	28.00	0.08	2.140	59.910	**2.515**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.43
AH 168AV	HLW	SRNL - THERMO	T	7.00	0.08	2.027	14.187	**2.655**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.51
AH 168AV	HLW	SRNL - JANTZEN	T	14.00	0.08	2.027	28.374	**2.655**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.05
AH 168AV	HLW	SRNL - JANTZEN	T	28.00	0.08	2.027	56.748	**2.655**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.68
AH 168FE	HLW	SRNL - THERMO	T	7.00	0.08	1.952	13.663	**2.757**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.36
AH 168FE	HLW	SRNL - JANTZEN	T	14.00	0.08	1.952	27.325	**2.757**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.76
AH 168FE	HLW	SRNL - JANTZEN	T	28.00	0.08	1.952	54.651	**2.757**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.34
AH 200AL	HLW	SRNL - JANTZEN	T	14.00	0.08	2.117	29.637	**2.542**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.90
AH 200AL	HLW	SRNL - JANTZEN	T	28.00	0.08	2.117	59.273	**2.542**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.46
AH 200AV	HLW	SRNL - THERMO	T	7.00	0.08	2.030	14.209	**2.651**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.48
AH 200AV	HLW	SRNL - JANTZEN	T	14.00	0.08	2.030	28.418	**2.651**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.92
AH 200AV	HLW	SRNL - JANTZEN	T	28.00	0.08	2.030	56.836	**2.651**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.65
AH 200FE	HLW	SRNL - THERMO	T	7.00	0.08	1.939	13.574	**2.775**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.24
AH 200FE	HLW	SRNL - JANTZEN	T	14.00	0.08	1.939	27.148	**2.775**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.64
AH 200FE	HLW	SRNL - JANTZEN	T	28.00	0.08	1.939	54.296	**2.775**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.87
AH 202AL	HLW	SRNL - JANTZEN	T	14.00	0.08	2.135	29.895	**2.520**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.81
AH 202AL	HLW	SRNL - JANTZEN	T	28.00	0.08	2.135	59.791	**2.520**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.63
AH 202AV	HLW	SRNL - THERMO	T	7.00	0.08	2.035	14.247	**2.644**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.46
AH 202AV	HLW	SRNL - JANTZEN	T	14.00	0.08	2.035	28.493	**2.644**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.87
AH 202AV	HLW	SRNL - JANTZEN	T	28.00	0.08	2.035	56.987	**2.644**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.84
AH 202FE	HLW	SRNL - THERMO	T	7.00	0.08	1.957	13.698	**2.750**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.72
AH 202FE	HLW	SRNL - JANTZEN	T	14.00	0.08	1.957	27.395	**2.750**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.03
AH 202FE	HLW	SRNL - JANTZEN	T	28.00	0.08	1.957	54.790	**2.750**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.94
AH-1	HLW	SRNL - THERMO	T	7.00	0.08	1.957	13.698	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.01
AH-1	HLW	SRNL - JANTZEN	T	14.00	0.08	1.957	27.395	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.56
AH-1	HLW	SRNL - JANTZEN	T	28.00	0.08	1.957	54.790	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.14
AH-10	HLW	SRNL - THERMO	T	7.00	0.08	2.048	14.333	**2.628**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.59
AH-10	HLW	SRNL - JANTZEN	T	14.00	0.08	2.048	28.667	**2.628**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.18
AH-10	HLW	SRNL - JANTZEN	T	28.00	0.08	2.048	57.334	**2.628**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.54
AH-11	HLW	SRNL - THERMO	T	7.00	0.08	1.957	13.698	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.30
AH-11	HLW	SRNL - JANTZEN	T	14.00	0.08	1.957	27.395	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.88
AH-11	HLW	SRNL - JANTZEN	T	28.00	0.08	1.957	54.790	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.24
AH-12	HLW	SRNL - THERMO	T	7.00	0.08	1.957	13.698	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.61
AH-12	HLW	SRNL - JANTZEN	T	14.00	0.08	1.957	27.395	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.21
AH-12	HLW	SRNL - JANTZEN	T	28.00	0.08	1.957	54.790	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.85
AH-13	HLW	SRNL - THERMO	T	7.00	0.08	1.977	13.842	**2.721**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.89
AH-13	HLW	SRNL - JANTZEN	T	14.00	0.08	1.977	27.685	**2.721**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.56
AH-13	HLW	SRNL - JANTZEN	T	28.00	0.08	1.977	55.370	**2.721**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.03
AH-14	HLW	SRNL - THERMO	T	7.00	0.08	1.957	13.698	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.26
AH-14	HLW	SRNL - JANTZEN	T	14.00	0.08	1.957	27.395	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.87
AH-14	HLW	SRNL - JANTZEN	T	28.00	0.08	1.957	54.790	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.37
AH-15	HLW	SRNL - THERMO	T	7.00	0.08	1.957	13.698	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.77
AH-15	HLW	SRNL - JANTZEN	T	14.00	0.08	1.957	27.395	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.39
AH-15	HLW	SRNL - JANTZEN	T	28.00	0.08	1.957	54.790	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.79
AH-16	HLW	SRNL - THERMO	T	7.00	0.08	2.003	14.018	**2.687**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.67
AH-16	HLW	SRNL - JANTZEN	T	14.00	0.08	2.003	28.036	**2.687**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.25
AH-16	HLW	SRNL - JANTZEN	T	28.00	0.08	2.003	56.073	**2.687**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.69
AH-17	HLW	SRNL - THERMO	T	7.00	0.08	1.957	13.698	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.63
AH-17	HLW	SRNL - JANTZEN	T	14.00	0.08	1.957	27.395	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.24
AH-17	HLW	SRNL - JANTZEN	T	28.00	0.08	1.957	54.790	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.66
AH-2	HLW	SRNL - THERMO	T	7.00	0.08	1.957	13.698	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.84

Appendix B - Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
AH 131AL	64.31	41.02	0.11		17.69	107.59	0.19	76.03	1.53					
AH 131AL	66.60	53.42	3.47		21.78	129.79	0.31	82.60	1.60					
AH 131AV	59.11	52.91	0.14		22.26	137.02	0.16	62.65	3.83					
AH 131AV	70.34	77.69	3.09		30.54	186.87	0.37	72.24	5.17					
AH 131FE	65.77	59.67	0.11		23.58	172.84	0.31	59.22	2.37					
AH 131FE	80.20	82.70	3.61		30.84	226.42	0.48	65.45	2.74					
AH 165AL	97.34	11.39	0.19		17.20	28.82		39.54	4.43					
AH 165AL	104.64	14.72	0.23		20.37	32.34	0.21	42.59	4.99					
AH 165AL	118.09	26.53	2.68		23.50	36.03	0.27	49.25	5.73					
AH 165AV	119.18	21.37	0.14		22.64	60.07	0.26	8.77	4.84					
AH 165AV	138.73	25.23	2.56		25.79	68.46	0.38	9.23	6.16					
AH 165FE	646.72	186.71	0.39		125.52	535.13		1.64	23.14					
AH 165FE	705.50	245.13	0.49		136.45	702.73	1.93	1.88	18.35					
AH 165FE	747.24	142.06	5.00		143.33	788.79	2.10	0.96	2.69					
AH 168AL	84.23	19.76	1.28		14.41	26.73		35.74	3.35					
AH 168AL	95.05	27.91	0.17		18.77	32.68	0.19	40.73	4.51					
AH 168AL	105.02	33.75	2.53		21.21	34.32	0.28	45.65	4.95					
AH 168AV	84.07	31.82	0.08		17.09	48.07		14.60	3.51					
AH 168AV	91.52	45.47	0.11		22.99	63.98	0.13	12.43	3.90					
AH 168AV	105.24	58.06	3.34		27.33	75.81	0.26	12.08	4.67					
AH 168FE	386.68	329.06	0.10		127.76	509.77		0.79	7.12					
AH 168FE	373.16		0.11		131.47	606.67	1.55	0.44	0.12					
AH 168FE	405.50		5.62		136.46	667.31	1.86	0.45	0.06					
AH 200AL	53.80	21.23	0.13		7.24	35.33	6.71	25.24	0.85					
AH 200AL	61.69	24.42	2.17		8.49	39.45	6.23	28.76	0.98					
AH 200AV	66.89	19.98	0.11		7.66	43.02		9.11	2.24					
AH 200AV	68.72	25.53	0.13		8.97	52.45	9.39	8.39	2.35					
AH 200AV	79.83	32.77	2.20		10.69	62.95	9.62	8.62	3.10					
AH 200FE	41.74	20.35	2.17		7.58	57.77		52.93	1.62					
AH 200FE	41.13	25.54	0.24		8.85	68.59	13.44	52.90	1.58					
AH 200FE	48.20	32.31	2.06		10.61	81.58	12.65	56.54	1.98					
AH 202AL	71.10	13.17	0.16		13.80	16.86	6.96	26.15	1.91					
AH 202AL	82.74	16.33	2.77		16.44	18.53	6.08	29.39	2.07					
AH 202AV	71.57	10.74	1.93		10.49	21.35		13.68	3.36					
AH 202AV	71.73	13.68	0.18		12.73	25.46	8.02	13.53	3.40					
AH 202AV	81.33	16.52	2.30		14.65	28.67	7.81	14.38	4.18					
AH 202FE	161.04	32.41	1.53		23.22	73.98		1.81	5.96					
AH 202FE	179.71	44.74	0.21		29.99	100.46	31.16	1.42	3.55					
AH 202FE	212.90	54.66	2.46		33.75	120.22	33.53	1.70	7.53					
AH-1	62.92	56.43	2.16		20.96	80.01		16.30	2.92					
AH-1	74.13	88.90	0.11		34.31	127.99	16.89	15.94	4.14					
AH-1	74.95	112.32	0.13		40.47	152.53	17.19	13.10	4.29					
AH-10	86.10	13.50	3.05		12.71	25.47		6.06	3.14					
AH-10	99.39	16.47	0.11		16.78	32.15	10.17	6.48	4.15					
AH-10	104.40	20.53	0.13		19.22	37.23	10.78	6.24	4.13					
AH-11	65.48	22.60	2.68		10.58	24.22		7.38	1.92					
AH-11	79.47	34.23	0.09		16.80	36.65	8.87	7.76	3.10					
AH-11	83.91	45.09	0.10		20.14	45.13	8.69	7.37	3.55					
AH-12	47.40	29.81	3.51		11.62	57.93		41.37	1.65					
AH-12	49.38	38.71	0.17		15.58	75.51	12.05	46.67	1.77					
AH-12	47.74	53.35	0.20		19.68	94.93	12.06	48.85	2.22					
AH-13	75.10	11.76	3.25		10.16	38.31		10.77	3.25					
AH-13	87.20	14.67	0.25		13.63	50.69	10.58	11.29	4.56					
AH-13	89.92	18.22	1.93		14.97	57.47	9.64	10.40	4.55					
AH-14	67.58	16.20	3.36		12.15	50.42		17.68	2.45					
AH-14	73.53	18.78	0.14		15.40	63.79	11.08	19.19	3.53					
AH-14	74.82	22.61	0.18		16.62	72.41	10.85	18.55	4.04					
AH-15	61.72	16.79	2.88		7.93	39.39		14.81	2.28					
AH-15	65.37	19.72	0.13		10.29	49.88	9.20	15.00	2.99					
AH-15	66.08	23.08	0.16		10.86	54.94	8.63	14.15	3.17					
AH-16	82.62	15.12	2.83		12.15	29.64		6.90	2.38					
AH-16	87.00	16.94	0.18		15.31	35.39	9.96	6.76	3.13					
AH-16	93.66	21.33	0.24		17.91	41.75	9.80	6.31	3.66					
AH-17	84.55	13.00	3.03		12.79	23.22		6.76	4.14					
AH-17	88.18	14.52	0.15		16.50	27.83	8.80	7.00	5.02					
AH-17	93.00	17.68	0.18		18.07	31.05	8.51	7.14	4.99					
AH-2	79.75	11.88	1.59		10.21	38.13		10.66	3.42					

Appendix B - Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
AH 131AL		Not Studied		75.39	18.910017	-16.76755901	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH 131AL		Not Studied		75.39	18.910017	-16.76755901	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH 131AV		Not Studied		76.71	17.05791	-8.423849098	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH 131AV		Not Studied		76.71	17.05791	-8.423849098	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH 131FE		Not Studied		73.69	20.660553	-23.92828623	HOMOGENEOUS	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
AH 131FE		Not Studied		73.69	20.660553	-23.92828623	HOMOGENEOUS	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
AH 165AL		Not Studied		75.74	18.746712	-16.40647003	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH 165AL		Not Studied		75.74	18.746712	-16.40647003	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH 165AL		Not Studied		75.74	18.746712	-16.40647003	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH 165AV		Not Studied		76.85	17.812311	-12.90904507	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH 165AV		Not Studied		76.85	17.812311	-12.90904507	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH 165FE		Not Studied		74.03	19.824682	-19.752644	HOMOGENEOUS	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
AH 165FE		Not Studied		74.03	19.824682	-19.752644	HOMOGENEOUS	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
AH 165FE		Not Studied		74.03	19.824682	-19.752644	HOMOGENEOUS	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
AH 168AL		Not Studied		87.24	9.31913663	18.39834014	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH 168AL		Not Studied		87.24	9.31913663	18.39834014	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH 168AL		Not Studied		87.24	9.31913663	18.39834014	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH 168AV		Not Studied		76.54	17.447893	-10.35380009	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH 168AV		Not Studied		76.54	17.447893	-10.35380009	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH 168AV		Not Studied		76.54	17.447893	-10.35380009	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH 168FE		Not Studied		74.62	20.122286	-22.37951687	HOMOGENEOUS	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
AH 168FE		Not Studied		74.62	20.122286	-22.37951687	HOMOGENEOUS	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
AH 168FE		Not Studied		74.62	20.122286	-22.37951687	HOMOGENEOUS	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
AH 200AL		Not Studied		74.97	18.407791	-13.25761701	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH 200AL		Not Studied		74.97	18.407791	-13.25761701	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH 200AV		Not Studied		75.43	17.673407	-9.847573055	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH 200AV		Not Studied		75.43	17.673407	-9.847573055	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH 200AV		Not Studied		75.43	17.673407	-9.847573055	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH 200FE		Not Studied		73.84	19.391122	-16.99931883	HOMOGENEOUS	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
AH 200FE		Not Studied		73.84	19.391122	-16.99931883	HOMOGENEOUS	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
AH 200FE		Not Studied		73.84	19.391122	-16.99931883	HOMOGENEOUS	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
AH 202AL		Not Studied		74.66	18.708904	-14.46115801	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH 202AL		Not Studied		74.66	18.708904	-14.46115801	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH 202AL		Not Studied		74.66	18.708904	-14.46115801	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH 202AV		Not Studied		75.69	17.584503	-9.762371043	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH 202AV		Not Studied		75.69	17.584503	-9.762371043	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH 202AV		Not Studied		75.69	17.584503	-9.762371043	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH 202FE		Not Studied		74.80	18.918964	-15.87202488	HOMOGENEOUS	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
AH 202FE		Not Studied		74.80	18.918964	-15.87202488	HOMOGENEOUS	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
AH 202FE		Not Studied		74.80	18.918964	-15.87202488	HOMOGENEOUS	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
AH-1		Not Studied		74.13	19.94	-20.56108	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
AH-1		Not Studied		74.13	19.94	-20.56108	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
AH-1		Not Studied		74.13	19.94	-20.56108	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
AH-10		Not Studied		76.21	17.12	-7.972771	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-10		Not Studied		76.21	17.12	-7.972771	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-10		Not Studied		76.21	17.12	-7.972771	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-11		Not Studied		75.49	17.35	-8.117245	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-11		Not Studied		75.49	17.35	-8.117245	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-11		Not Studied		75.49	17.35	-8.117245	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-12		Not Studied		75.51	18.33	-13.684159	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-12		Not Studied		75.51	18.33	-13.684159	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-12		Not Studied		75.51	18.33	-13.684159	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-13		Not Studied		70.64	21.33	-22.818514	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-13		Not Studied		70.64	21.33	-22.818514	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-13		Not Studied		70.64	21.33	-22.818514	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-14		Not Studied		69.89	22.23	-26.698909	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-14		Not Studied		69.89	22.23	-26.698909	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-14		Not Studied		69.89	22.23	-26.698909	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-15		Not Studied		70.16	21.74	-24.364432	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-15		Not Studied		70.16	21.74	-24.364432	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-15		Not Studied		70.16	21.74	-24.364432	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-16		Not Studied		71.09	21.02	-21.789271	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-16		Not Studied		71.09	21.02	-21.789271	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-16		Not Studied		71.09	21.02	-21.789271	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-17		Not Studied		75.04	17.77	-9.767746	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-17		Not Studied		75.04	17.77	-9.767746	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-17		Not Studied		75.04	17.77	-9.767746	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-2		Not Studied		75.07	18.59	-14.447047	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti

Appendix B - Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
AH 131AL	HOMOGENEOUS	13.50	10.80	0.00	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.09	4.57	0.00	0.00	0.36
AH 131AL	HOMOGENEOUS	13.50	10.80	0.00	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.09	4.57	0.00	0.00	0.36
AH 131AV	HOMOGENEOUS	4.39	7.60	0.00	0.76	0.00	0.00	0.00	0.00	0.00	0.00	0.70	11.13	0.00	0.00	0.00
AH 131AV	HOMOGENEOUS	4.39	7.60	0.00	0.76	0.00	0.00	0.00	0.00	0.00	0.00	0.70	11.13	0.00	0.00	0.00
AH 131FE	Potential ϕ-sep.	2.25	7.33	0.00	1.01	0.00	0.00	0.00	0.00	0.00	0.00	8.81	7.61	0.00	0.00	0.00
AH 131FE	Potential ϕ-sep.	2.25	7.33	0.00	1.01	0.00	0.00	0.00	0.00	0.00	0.00	8.81	7.61	0.00	0.00	0.00
AH 165AL	HOMOGENEOUS	13.40	7.34	0.00	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.24	4.57	0.00	0.00	0.00
AH 165AL	HOMOGENEOUS	13.40	7.34	0.00	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.24	4.57	0.00	0.00	0.00
AH 165AL	HOMOGENEOUS	13.40	7.34	0.00	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.24	4.57	0.00	0.00	0.00
AH 165AV	HOMOGENEOUS	5.17	6.57	0.00	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.47	11.08	0.00	0.00	0.00
AH 165AV	HOMOGENEOUS	5.17	6.57	0.00	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.47	11.08	0.00	0.00	0.00
AH 165FE	Potential ϕ-sep.	1.42	7.28	0.00	1.40	0.00	0.00	0.00	0.00	0.00	0.00	7.14	9.07	0.00	0.00	0.00
AH 165FE	Potential ϕ-sep.	1.42	7.28	0.00	1.40	0.00	0.00	0.00	0.00	0.00	0.00	7.14	9.07	0.00	0.00	0.00
AH 165FE	Potential ϕ-sep.	1.42	7.28	0.00	1.40	0.00	0.00	0.00	0.00	0.00	0.00	7.14	9.07	0.00	0.00	0.00
AH 168AL	HOMOGENEOUS	6.72	13.70	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.14	2.31	0.00	0.00	0.00
AH 168AL	HOMOGENEOUS	6.72	13.70	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.14	2.31	0.00	0.00	0.00
AH 168AL	HOMOGENEOUS	6.72	13.70	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.14	2.31	0.00	0.00	0.00
AH 168AV	HOMOGENEOUS	5.58	10.60	0.00	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.61	10.51	0.00	0.00	0.00
AH 168AV	HOMOGENEOUS	5.58	10.60	0.00	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.61	10.51	0.00	0.00	0.00
AH 168AV	HOMOGENEOUS	5.58	10.60	0.00	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.61	10.51	0.00	0.00	0.00
AH 168FE	Potential ϕ-sep.	2.47	11.40	0.00	1.35	0.00	0.00	0.00	0.00	0.00	0.00	6.22	9.39	0.00	0.00	0.00
AH 168FE	Potential ϕ-sep.	2.47	11.40	0.00	1.35	0.00	0.00	0.00	0.00	0.00	0.00	6.22	9.39	0.00	0.00	0.00
AH 168FE	Potential ϕ-sep.	2.47	11.40	0.00	1.35	0.00	0.00	0.00	0.00	0.00	0.00	6.22	9.39	0.00	0.00	0.00
AH 200AL	HOMOGENEOUS	13.40	10.20	0.00	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.07	4.39	3.12	0.00	0.00
AH 200AL	HOMOGENEOUS	13.40	10.20	0.00	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.07	4.39	3.12	0.00	0.00
AH 200AV	HOMOGENEOUS	5.14	10.30	0.00	0.63	0.00	0.00	0.00	0.00	0.00	0.00	0.39	11.47	3.18	0.00	0.00
AH 200AV	HOMOGENEOUS	5.14	10.30	0.00	0.63	0.00	0.00	0.00	0.00	0.00	0.00	0.39	11.47	3.18	0.00	0.00
AH 200AV	HOMOGENEOUS	5.14	10.30	0.00	0.63	0.00	0.00	0.00	0.00	0.00	0.00	0.39	11.47	3.18	0.00	0.00
AH 200FE	Potential ϕ-sep.	2.07	10.10	0.00	0.92	0.00	0.00	0.00	0.00	0.00	0.00	5.94	9.80	3.15	0.00	0.00
AH 200FE	Potential ϕ-sep.	2.07	10.10	0.00	0.92	0.00	0.00	0.00	0.00	0.00	0.00	5.94	9.80	3.15	0.00	0.00
AH 200FE	Potential ϕ-sep.	2.07	10.10	0.00	0.92	0.00	0.00	0.00	0.00	0.00	0.00	5.94	9.80	3.15	0.00	0.00
AH 202AL	HOMOGENEOUS	13.90	7.42	0.00	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.08	4.31	3.32	0.00	0.00
AH 202AL	HOMOGENEOUS	13.90	7.42	0.00	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.08	4.31	3.32	0.00	0.00
AH 202AV	HOMOGENEOUS	4.96	7.44	0.00	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.31	11.56	3.33	0.00	0.00
AH 202AV	HOMOGENEOUS	4.96	7.44	0.00	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.31	11.56	3.33	0.00	0.00
AH 202AV	HOMOGENEOUS	4.96	7.44	0.00	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.31	11.56	3.33	0.00	0.00
AH 202FE	Potential ϕ-sep.	1.36	7.08	0.00	0.96	0.00	0.00	0.00	0.00	0.00	0.00	6.28	9.62	3.28	0.00	0.00
AH 202FE	Potential ϕ-sep.	1.36	7.08	0.00	0.96	0.00	0.00	0.00	0.00	0.00	0.00	6.28	9.62	3.28	0.00	0.00
AH 202FE	Potential ϕ-sep.	1.36	7.08	0.00	0.96	0.00	0.00	0.00	0.00	0.00	0.00	6.28	9.62	3.28	0.00	0.00
AH-1	HOMOGENEOUS	6.98	10.30	0.00	0.96	0.00	0.00	0.00	0.07	0.00	0.00	0.00	12.00	3.31	0.00	0.00
AH-1	HOMOGENEOUS	6.98	10.30	0.00	0.96	0.00	0.00	0.00	0.07	0.00	0.00	0.00	12.00	3.31	0.00	0.00
AH-1	HOMOGENEOUS	6.98	10.30	0.00	0.96	0.00	0.00	0.00	0.07	0.00	0.00	0.00	12.00	3.31	0.00	0.00
AH-10	HOMOGENEOUS	5.14	7.59	0.00	0.68	0.00	0.00	0.00	0.06	0.00	0.00	0.00	11.30	3.09	0.00	0.00
AH-10	HOMOGENEOUS	5.14	7.59	0.00	0.68	0.00	0.00	0.00	0.06	0.00	0.00	0.00	11.30	3.09	0.00	0.00
AH-10	HOMOGENEOUS	5.14	7.59	0.00	0.68	0.00	0.00	0.00	0.06	0.00	0.00	0.00	11.30	3.09	0.00	0.00
AH-11	HOMOGENEOUS	5.70	12.00	0.00	0.65	0.00	0.00	0.00	0.06	0.00	0.00	0.00	11.00	2.99	0.00	0.00
AH-11	HOMOGENEOUS	5.70	12.00	0.00	0.65	0.00	0.00	0.00	0.06	0.00	0.00	0.00	11.00	2.99	0.00	0.00
AH-11	HOMOGENEOUS	5.70	12.00	0.00	0.65	0.00	0.00	0.00	0.06	0.00	0.00	0.00	11.00	2.99	0.00	0.00
AH-12	HOMOGENEOUS	6.04	8.75	0.00	0.69	0.00	0.00	0.00	0.06	0.00	0.00	0.00	11.60	3.13	0.00	0.00
AH-12	HOMOGENEOUS	6.04	8.75	0.00	0.69	0.00	0.00	0.00	0.06	0.00	0.00	0.00	11.60	3.13	0.00	0.00
AH-12	HOMOGENEOUS	6.04	8.75	0.00	0.69	0.00	0.00	0.00	0.06	0.00	0.00	0.00	11.60	3.13	0.00	0.00
AH-13	HOMOGENEOUS	6.48	6.41	0.00	1.25	0.00	0.00	0.01	0.05	0.00	0.00	0.00	13.60	3.06	0.00	0.00
AH-13	HOMOGENEOUS	6.48	6.41	0.00	1.25	0.00	0.00	0.01	0.05	0.00	0.00	0.00	13.60	3.06	0.00	0.00
AH-13	HOMOGENEOUS	6.48	6.41	0.00	1.25	0.00	0.00	0.01	0.05	0.00	0.00	0.00	13.60	3.06	0.00	0.00
AH-14	HOMOGENEOUS	7.08	8.25	0.00	1.25	0.00	0.00	0.01	0.06	0.00	0.00	0.00	13.90	3.08	0.00	0.00
AH-14	HOMOGENEOUS	7.08	8.25	0.00	1.25	0.00	0.00	0.01	0.06	0.00	0.00	0.00	13.90	3.08	0.00	0.00
AH-14	HOMOGENEOUS	7.08	8.25	0.00	1.25	0.00	0.00	0.01	0.06	0.00	0.00	0.00	13.90	3.08	0.00	0.00
AH-15	HOMOGENEOUS	6.87	9.20	0.00	1.27	0.00	0.00	0.01	0.05	0.00	0.00	0.00	13.60	3.10	0.00	0.00
AH-15	HOMOGENEOUS	6.87	9.20	0.00	1.27	0.00	0.00	0.01	0.05	0.00	0.00	0.00	13.60	3.10	0.00	0.00
AH-15	HOMOGENEOUS	6.87	9.20	0.00	1.27	0.00	0.00	0.01	0.05	0.00	0.00	0.00	13.60	3.10	0.00	0.00
AH-16	HOMOGENEOUS	6.36	7.20	0.00	1.26	0.00	0.00	0.08	0.03	0.00	0.00	0.00	13.40	3.06	0.00	0.00
AH-16	HOMOGENEOUS	6.36	7.20	0.00	1.26	0.00	0.00	0.08	0.03	0.00	0.00	0.00	13.40	3.06	0.00	0.00
AH-16	HOMOGENEOUS	6.36	7.20	0.00	1.26	0.00	0.00	0.08	0.03	0.00	0.00	0.00	13.40	3.06	0.00	0.00
AH-17	HOMOGENEOUS	5.72	8.12	0.00	0.65	0.00	0.00	0.09	0.06	0.00	0.00	0.00	11.40	3.06	0.00	0.00
AH-17	HOMOGENEOUS	5.72	8.12	0.00	0.65	0.00	0.00	0.09	0.06	0.00	0.00	0.00	11.40	3.06	0.00	0.00
AH-17	HOMOGENEOUS	5.72	8.12	0.00	0.65	0.00	0.00	0.09	0.06	0.00	0.00	0.00	11.40	3.06	0.00	0.00
AH-2	HOMOGENEOUS	6.55	13.30	0.00	0.64	0.00	0.00	0.02	0.05	0.00	0.00	0.00	11.40	3.11	0.00	0.00

Appendix B - Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
AH 131AL	4.09	1.38	2.51	0.00	14.10	0.00	0.63	0.00	0.00	0.00	0.00	0.00	0.00	46.40	0.00	0.00	0.00
AH 131AL	4.09	1.38	2.51	0.00	14.10	0.00	0.63	0.00	0.00	0.00	0.00	0.00	0.00	46.40	0.00	0.00	0.00
AH 131AV	4.25	0.67	2.59	0.00	9.86	0.00	1.04	0.00	0.00	0.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
AH 131AV	4.25	0.67	2.59	0.00	9.86	0.00	1.04	0.00	0.00	0.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
AH 131FE	4.06	0.66	0.93	0.00	10.90	0.00	2.56	0.00	0.00	0.00	0.00	0.00	0.00	51.40	0.00	0.00	0.00
AH 131FE	4.06	0.66	0.93	0.00	10.90	0.00	2.56	0.00	0.00	0.00	0.00	0.00	0.00	51.40	0.00	0.00	0.00
AH 165AL	4.20	0.66	2.62	0.00	10.60	0.00	0.67	0.00	0.00	0.00	0.00	0.00	0.00	53.60	0.00	0.00	0.00
AH 165AL	4.20	0.66	2.62	0.00	10.60	0.00	0.67	0.00	0.00	0.00	0.00	0.00	0.00	53.60	0.00	0.00	0.00
AH 165AL	4.20	0.66	2.62	0.00	10.60	0.00	0.67	0.00	0.00	0.00	0.00	0.00	0.00	53.60	0.00	0.00	0.00
AH 165AV	5.02	0.66	2.57	0.00	9.96	0.00	1.01	0.00	0.00	0.00	0.00	0.00	0.00	55.30	0.00	0.00	0.00
AH 165AV	5.02	0.66	2.57	0.00	9.96	0.00	1.01	0.00	0.00	0.00	0.00	0.00	0.00	55.30	0.00	0.00	0.00
AH 165FE	4.05	0.65	1.07	0.00	10.70	0.00	2.97	0.00	0.00	0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
AH 165FE	4.05	0.65	1.07	0.00	10.70	0.00	2.97	0.00	0.00	0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
AH 165FE	4.05	0.65	1.07	0.00	10.70	0.00	2.97	0.00	0.00	0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
AH 168AL	5.34	0.89	1.09	0.00	11.80	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	56.40	0.00	0.00	0.00
AH 168AL	5.34	0.89	1.09	0.00	11.80	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	56.40	0.00	0.00	0.00
AH 168AL	5.34	0.89	1.09	0.00	11.80	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	56.40	0.00	0.00	0.00
AH 168AV	4.24	0.74	2.64	0.00	10.10	0.00	1.02	0.00	0.00	0.00	0.00	0.00	0.00	51.60	0.00	0.00	0.00
AH 168AV	4.24	0.74	2.64	0.00	10.10	0.00	1.02	0.00	0.00	0.00	0.00	0.00	0.00	51.60	0.00	0.00	0.00
AH 168AV	4.24	0.74	2.64	0.00	10.10	0.00	1.02	0.00	0.00	0.00	0.00	0.00	0.00	51.60	0.00	0.00	0.00
AH 168FE	4.12	0.71	0.98	0.00	10.80	0.00	2.82	0.00	0.00	0.00	0.00	0.00	0.00	48.30	0.00	0.00	0.00
AH 168FE	4.12	0.71	0.98	0.00	10.80	0.00	2.82	0.00	0.00	0.00	0.00	0.00	0.00	48.30	0.00	0.00	0.00
AH 168FE	4.12	0.71	0.98	0.00	10.80	0.00	2.82	0.00	0.00	0.00	0.00	0.00	0.00	48.30	0.00	0.00	0.00
AH 200AL	2.65	1.25	2.49	0.00	10.60	0.00	0.61	0.00	0.00	0.00	0.00	0.00	0.00	48.40	0.00	0.00	0.00
AH 200AL	2.65	1.25	2.49	0.00	10.60	0.00	0.61	0.00	0.00	0.00	0.00	0.00	0.00	48.40	0.00	0.00	0.00
AH 200AV	2.68	1.24	2.55	0.00	9.77	0.00	1.02	0.00	0.00	0.00	0.00	0.00	0.00	49.50	0.00	0.00	0.00
AH 200AV	2.68	1.24	2.55	0.00	9.77	0.00	1.02	0.00	0.00	0.00	0.00	0.00	0.00	49.50	0.00	0.00	0.00
AH 200AV	2.68	1.24	2.55	0.00	9.77	0.00	1.02	0.00	0.00	0.00	0.00	0.00	0.00	49.50	0.00	0.00	0.00
AH 200FE	2.59	1.21	0.95	0.00	10.60	0.00	2.57	0.00	0.00	0.00	0.00	0.00	0.00	47.40	0.00	0.00	0.00
AH 200FE	2.59	1.21	0.95	0.00	10.60	0.00	2.57	0.00	0.00	0.00	0.00	0.00	0.00	47.40	0.00	0.00	0.00
AH 200FE	2.59	1.21	0.95	0.00	10.60	0.00	2.57	0.00	0.00	0.00	0.00	0.00	0.00	47.40	0.00	0.00	0.00
AH 202AL	4.18	1.28	2.51	0.00	7.34	0.00	0.62	0.00	0.00	0.00	0.00	0.00	0.00	52.40	0.00	0.00	0.00
AH 202AL	4.18	1.28	2.51	0.00	7.34	0.00	0.62	0.00	0.00	0.00	0.00	0.00	0.00	52.40	0.00	0.00	0.00
AH 202AV	4.27	1.30	2.59	0.00	6.55	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	54.10	0.00	0.00	0.00
AH 202AV	4.27	1.30	2.59	0.00	6.55	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	54.10	0.00	0.00	0.00
AH 202AV	4.27	1.30	2.59	0.00	6.55	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	54.10	0.00	0.00	0.00
AH 202FE	4.27	1.26	0.95	0.00	7.62	0.00	2.73	0.00	0.00	0.00	0.00	0.00	0.00	52.55	0.00	0.00	0.00
AH 202FE	4.27	1.26	0.95	0.00	7.62	0.00	2.73	0.00	0.00	0.00	0.00	0.00	0.00	52.55	0.00	0.00	0.00
AH 202FE	4.27	1.26	0.95	0.00	7.62	0.00	2.73	0.00	0.00	0.00	0.00	0.00	0.00	52.55	0.00	0.00	0.00
AH-1	4.47	0.66	2.31	0.00	11.90	0.00	0.94	0.00	0.00	0.00	0.00	0.00	0.00	44.08	0.00	0.00	0.04
AH-1	4.47	0.66	2.31	0.00	11.90	0.00	0.94	0.00	0.00	0.00	0.00	0.00	0.00	44.08	0.00	0.00	0.04
AH-1	4.47	0.66	2.31	0.00	11.90	0.00	0.94	0.00	0.00	0.00	0.00	0.00	0.00	44.08	0.00	0.00	0.04
AH-10	4.44	1.11	2.67	0.00	6.83	0.00	0.96	0.00	0.00	0.00	0.00	0.00	0.00	54.20	0.00	0.00	0.05
AH-10	4.44	1.11	2.67	0.00	6.83	0.00	0.96	0.00	0.00	0.00	0.00	0.00	0.00	54.20	0.00	0.00	0.05
AH-10	4.44	1.11	2.67	0.00	6.83	0.00	0.96	0.00	0.00	0.00	0.00	0.00	0.00	54.20	0.00	0.00	0.05
AH-11	3.62	1.11	2.63	0.00	6.42	0.00	0.93	0.00	0.00	0.00	0.00	0.00	0.00	50.40	0.00	0.00	0.04
AH-11	3.62	1.11	2.63	0.00	6.42	0.00	0.93	0.00	0.00	0.00	0.00	0.00	0.00	50.40	0.00	0.00	0.04
AH-11	3.62	1.11	2.63	0.00	6.42	0.00	0.93	0.00	0.00	0.00	0.00	0.00	0.00	50.40	0.00	0.00	0.04
AH-12	3.47	0.58	2.64	0.00	9.20	0.00	0.97	0.00	0.00	0.00	0.00	0.00	0.00	50.90	0.00	0.00	0.05
AH-12	3.47	0.58	2.64	0.00	9.20	0.00	0.97	0.00	0.00	0.00	0.00	0.00	0.00	50.90	0.00	0.00	0.05
AH-12	3.47	0.58	2.64	0.00	9.20	0.00	0.97	0.00	0.00	0.00	0.00	0.00	0.00	50.90	0.00	0.00	0.05
AH-13	3.32	0.49	3.25	0.00	8.80	0.00	1.14	0.00	0.00	0.00	0.00	0.00	0.00	49.00	0.00	0.00	0.05
AH-13	3.32	0.49	3.25	0.00	8.80	0.00	1.14	0.00	0.00	0.00	0.00	0.00	0.00	49.00	0.00	0.00	0.05
AH-13	3.32	0.49	3.25	0.00	8.80	0.00	1.14	0.00	0.00	0.00	0.00	0.00	0.00	49.00	0.00	0.00	0.05
AH-14	3.94	0.53	3.34	0.00	9.76	0.00	1.13	0.00	0.00	0.00	0.00	0.00	0.00	44.80	0.00	0.00	0.07
AH-14	3.94	0.53	3.34	0.00	9.76	0.00	1.13	0.00	0.00	0.00	0.00	0.00	0.00	44.80	0.00	0.00	0.07
AH-14	3.94	0.53	3.34	0.00	9.76	0.00	1.13	0.00	0.00	0.00	0.00	0.00	0.00	44.80	0.00	0.00	0.07
AH-15	2.80	1.02	3.26	0.00	9.41	0.00	1.13	0.00	0.00	0.00	0.00	0.00	0.00	45.60	0.00	0.00	0.06
AH-15	2.80	1.02	3.26	0.00	9.41	0.00	1.13	0.00	0.00	0.00	0.00	0.00	0.00	45.60	0.00	0.00	0.06
AH-15	2.80	1.02	3.26	0.00	9.41	0.00	1.13	0.00	0.00	0.00	0.00	0.00	0.00	45.60	0.00	0.00	0.06
AH-16	4.06	1.00	3.22	0.00	6.54	0.00	1.10	0.00	0.00	0.00	0.00	0.00	0.00	50.20	0.00	0.00	0.07
AH-16	4.06	1.00	3.22	0.00	6.54	0.00	1.10	0.00	0.00	0.00	0.00	0.00	0.00	50.20	0.00	0.00	0.07
AH-16	4.06	1.00	3.22	0.00	6.54	0.00	1.10	0.00	0.00	0.00	0.00	0.00	0.00	50.20	0.00	0.00	0.07
AH-17	4.69	0.58	2.71	0.00	6.61	0.00	0.92	0.00	0.00	0.00	0.00	0.00	0.00	52.50	0.00	0.00	0.03
AH-17	4.69	0.58	2.71	0.00	6.61	0.00	0.92	0.00	0.00	0.00	0.00	0.00	0.00	52.50	0.00	0.00	0.03
AH-17	4.69	0.58	2.71	0.00	6.61	0.00	0.92	0.00	0.00	0.00	0.00	0.00	0.00	52.50	0.00	0.00	0.03
AH-2	3.76	0.58	2.67	0.00	10.30	0.00	0.93	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.04

Appendix B - Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
AH 131AL	0.00	0.00	0.72	0.00	0.00	0.00	0.34	0.00	99.87		
AH 131AL	0.00	0.00	0.72	0.00	0.00	0.00	0.34	0.00	99.87		
AH 131AV	0.00	0.00	0.06	0.00	0.00	0.00	0.88	0.00	98.93		
AH 131AV	0.00	0.00	0.06	0.00	0.00	0.00	0.88	0.00	98.93		
AH 131FE	0.00	0.00	0.01	0.00	0.00	0.00	0.87	0.00	98.40		
AH 131FE	0.00	0.00	0.01	0.00	0.00	0.00	0.87	0.00	98.40		
AH 165AL	0.00	0.00	0.00	0.00	0.00	0.00	0.79	0.00	99.20		
AH 165AL	0.00	0.00	0.00	0.00	0.00	0.00	0.79	0.00	99.20		
AH 165AL	0.00	0.00	0.00	0.00	0.00	0.00	0.79	0.00	99.20		
AH 165AV	0.00	0.00	0.00	0.00	0.00	0.00	0.76	0.00	99.61		
AH 165AV	0.00	0.00	0.00	0.00	0.00	0.00	0.76	0.00	99.61		
AH 165FE	0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.00	98.60		
AH 165FE	0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.00	98.60		
AH 165FE	0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.00	98.60		
AH 168AL	0.00	0.00	0.00	0.00	0.00	0.00	0.87	0.00	99.72		
AH 168AL	0.00	0.00	0.00	0.00	0.00	0.00	0.87	0.00	99.72		
AH 168AL	0.00	0.00	0.00	0.00	0.00	0.00	0.87	0.00	99.72		
AH 168AV	0.00	0.00	0.00	0.00	0.00	0.00	0.69	0.00	99.01		
AH 168AV	0.00	0.00	0.00	0.00	0.00	0.00	0.69	0.00	99.01		
AH 168AV	0.00	0.00	0.00	0.00	0.00	0.00	0.69	0.00	99.01		
AH 168FE	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.00	99.23		
AH 168FE	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.00	99.23		
AH 168FE	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.00	99.23		
AH 200AL	0.00	0.00	1.70	0.00	0.00	0.00	0.03	0.00	99.45		
AH 200AL	0.00	0.00	1.70	0.00	0.00	0.00	0.03	0.00	99.45		
AH 200AV	0.00	0.00	1.41	0.00	0.00	0.00	0.02	0.00	99.30		
AH 200AV	0.00	0.00	1.41	0.00	0.00	0.00	0.02	0.00	99.30		
AH 200AV	0.00	0.00	1.41	0.00	0.00	0.00	0.02	0.00	99.30		
AH 200FE	0.00	0.00	1.78	0.00	0.00	0.00	0.02	0.00	99.10		
AH 200FE	0.00	0.00	1.78	0.00	0.00	0.00	0.02	0.00	99.10		
AH 200FE	0.00	0.00	1.78	0.00	0.00	0.00	0.02	0.00	99.10		
AH 202AL	0.00	0.00	1.71	0.00	0.00	0.00	0.03	0.00	99.51		
AH 202AL	0.00	0.00	1.71	0.00	0.00	0.00	0.03	0.00	99.51		
AH 202AV	0.00	0.00	1.37	0.00	0.00	0.00	0.03	0.00	99.53		
AH 202AV	0.00	0.00	1.37	0.00	0.00	0.00	0.03	0.00	99.53		
AH 202AV	0.00	0.00	1.37	0.00	0.00	0.00	0.03	0.00	99.53		
AH 202FE	0.00	0.00	1.72	0.00	0.00	0.00	0.02	0.00	99.70		
AH 202FE	0.00	0.00	1.72	0.00	0.00	0.00	0.02	0.00	99.70		
AH 202FE	0.00	0.00	1.72	0.00	0.00	0.00	0.02	0.00	99.70		
AH-1	0.00	0.00	1.33	0.00	0.00	0.00	0.66	0.00	100.01		
AH-1	0.00	0.00	1.33	0.00	0.00	0.00	0.66	0.00	100.01		
AH-1	0.00	0.00	1.33	0.00	0.00	0.00	0.66	0.00	100.01		
AH-10	0.00	0.00	1.30	0.00	0.00	0.00	0.01	0.00	99.43		
AH-10	0.00	0.00	1.30	0.00	0.00	0.00	0.01	0.00	99.43		
AH-10	0.00	0.00	1.30	0.00	0.00	0.00	0.01	0.00	99.43		
AH-11	0.00	0.00	1.29	0.00	0.00	0.00	0.01	0.00	98.85		
AH-11	0.00	0.00	1.29	0.00	0.00	0.00	0.01	0.00	98.85		
AH-11	0.00	0.00	1.29	0.00	0.00	0.00	0.01	0.00	98.85		
AH-12	0.00	0.00	1.33	0.00	0.00	0.00	0.01	0.00	99.42		
AH-12	0.00	0.00	1.33	0.00	0.00	0.00	0.01	0.00	99.42		
AH-12	0.00	0.00	1.33	0.00	0.00	0.00	0.01	0.00	99.42		
AH-13	0.00	0.00	1.29	0.00	0.00	0.00	0.03	0.00	98.23		
AH-13	0.00	0.00	1.29	0.00	0.00	0.00	0.03	0.00	98.23		
AH-13	0.00	0.00	1.29	0.00	0.00	0.00	0.03	0.00	98.23		
AH-14	0.00	0.00	1.32	0.00	0.00	0.00	0.58	0.00	99.10		
AH-14	0.00	0.00	1.32	0.00	0.00	0.00	0.58	0.00	99.10		
AH-14	0.00	0.00	1.32	0.00	0.00	0.00	0.58	0.00	99.10		
AH-15	0.00	0.00	1.34	0.00	0.00	0.00	0.01	0.00	98.73		
AH-15	0.00	0.00	1.34	0.00	0.00	0.00	0.01	0.00	98.73		
AH-15	0.00	0.00	1.34	0.00	0.00	0.00	0.01	0.00	98.73		
AH-16	0.00	0.00	1.30	0.00	0.00	0.00	0.01	0.00	98.89		
AH-16	0.00	0.00	1.30	0.00	0.00	0.00	0.01	0.00	98.89		
AH-16	0.00	0.00	1.30	0.00	0.00	0.00	0.01	0.00	98.89		
AH-17	0.00	0.00	1.30	0.00	0.00	0.00	0.66	0.00	99.10		
AH-17	0.00	0.00	1.30	0.00	0.00	0.00	0.66	0.00	99.10		
AH-17	0.00	0.00	1.30	0.00	0.00	0.00	0.66	0.00	99.10		
AH-2	0.00	0.00	1.30	0.00	0.00	0.00	0.63	0.00	99.83		

Appendix B - Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
AH-2	HLW	SRNL - JANTZEN	T	14.00	0.08	1.957	27.395	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.44
AH-2	HLW	SRNL - JANTZEN	T	28.00	0.08	1.957	54.790	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.85
AH-4	HLW	SRNL - THERMO	T	7.00	0.08	1.957	13.698	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.85
AH-4	HLW	SRNL - JANTZEN	T	14.00	0.08	1.957	27.395	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.51
AH-4	HLW	SRNL - JANTZEN	T	28.00	0.08	1.957	54.790	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.92
AH-5	HLW	SRNL - THERMO	T	7.00	0.08	2.032	14.227	**2.648**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.24
AH-5	HLW	SRNL - JANTZEN	T	14.00	0.08	2.032	28.453	**2.648**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.87
AH-5	HLW	SRNL - JANTZEN	T	28.00	0.08	2.032	56.907	**2.648**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.40
AH-6	HLW	SRNL - THERMO	T	7.00	0.08	1.957	13.698	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.56
AH-6	HLW	SRNL - JANTZEN	T	14.00	0.08	1.957	27.395	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.15
AH-6	HLW	SRNL - JANTZEN	T	28.00	0.08	1.957	54.790	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.72
AH-7	HLW	SRNL - THERMO	T	7.00	0.08	1.957	13.698	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.48
AH-7	HLW	SRNL - JANTZEN	T	14.00	0.08	1.957	27.395	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.05
AH-7	HLW	SRNL - JANTZEN	T	28.00	0.08	1.957	54.790	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.43
AH-8	HLW	SRNL - THERMO	T	7.00	0.08	2.035	14.242	**2.645**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.64
AH-8	HLW	SRNL - JANTZEN	T	14.00	0.08	2.035	28.485	**2.645**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.22
AH-8	HLW	SRNL - JANTZEN	T	28.00	0.08	2.035	56.969	**2.645**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.60
AH-9	HLW	SRNL - THERMO	T	7.00	0.08	2.030	14.213	**2.650**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.75
AH-9	HLW	SRNL - JANTZEN	T	14.00	0.08	2.030	28.426	**2.650**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.38
AH-9	HLW	SRNL - JANTZEN	T	28.00	0.08	2.030	56.851	**2.650**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.75
MG-1	HLW	SRNL -Ramsey Thesis	T	7.00	0.09	2.268	15.874	**2.373**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.00
MG-1	HLW	SRNL -Ramsey Thesis	T	14.00	0.09	2.268	31.747	**2.373**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.10
MG-1	HLW	SRNL -Ramsey Thesis	T	28.00	0.09	2.268	63.495	**2.373**	4.00	100-200	1.125E-04	0.040	ASTM I	90	8.90
MG-1	HLW	SRNL -Ramsey Thesis	T	168.00	0.09	2.268	380.967	**2.373**	4.00	100-200	1.125E-04	0.040	ASTM I	90	8.90
MG-2	HLW	SRNL -Ramsey Thesis	T	7.00	0.08	2.140	14.983	**2.514**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.90
MG-2	HLW	SRNL -Ramsey Thesis	T	14.00	0.08	2.140	29.967	**2.514**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.00
MG-2	HLW	SRNL -Ramsey Thesis	T	28.00	0.08	2.140	59.933	**2.514**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.00
MG-2	HLW	SRNL -Ramsey Thesis	T	168.00	0.08	2.140	359.601	**2.514**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.20
MG-4	HLW	SRNL -Ramsey Thesis	T	7.00	0.09	2.163	15.140	**2.488**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.60
MG-4	HLW	SRNL -Ramsey Thesis	T	14.00	0.09	2.163	30.280	**2.488**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.80
MG-4	HLW	SRNL -Ramsey Thesis	T	28.00	0.09	2.163	60.560	**2.488**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.90
MG-4	HLW	SRNL -Ramsey Thesis	T	168.00	0.09	2.163	363.358	**2.488**	4.00	100-200	1.125E-04	0.040	ASTM I	90	12.20
MG-5	HLW	SRNL -Ramsey Thesis	T	7.00	0.08	2.117	14.818	**2.542**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.90
MG-5	HLW	SRNL -Ramsey Thesis	T	14.00	0.08	2.117	29.637	**2.542**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.90
MG-5	HLW	SRNL -Ramsey Thesis	T	28.00	0.08	2.117	59.273	**2.542**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.90
MG-5	HLW	SRNL -Ramsey Thesis	T	168.00	0.08	2.117	355.640	**2.542**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.90
MG-6	HLW	SRNL -Ramsey Thesis	T	7.00	0.08	2.059	14.416	**2.613**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.60
MG-6	HLW	SRNL -Ramsey Thesis	T	14.00	0.08	2.059	28.831	**2.613**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.50
MG-6	HLW	SRNL -Ramsey Thesis	T	28.00	0.08	2.059	57.663	**2.613**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.50
MG-6	HLW	SRNL -Ramsey Thesis	T	168.00	0.08	2.059	345.976	**2.613**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.50
MG-7	HLW	SRNL -Ramsey Thesis	T	7.00	0.08	2.125	14.877	**2.532**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.80
MG-7	HLW	SRNL -Ramsey Thesis	T	14.00	0.08	2.125	29.754	**2.532**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.40
MG-7	HLW	SRNL -Ramsey Thesis	T	28.00	0.08	2.125	59.507	**2.532**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.20
MG-7	HLW	SRNL -Ramsey Thesis	T	168.00	0.08	2.125	357.044	**2.532**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.40
MG-8	HLW	SRNL -Ramsey Thesis	T	7.00	0.08	1.928	13.496	**2.791**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.50
MG-8	HLW	SRNL -Ramsey Thesis	T	14.00	0.08	1.928	26.993	**2.791**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.40
MG-8	HLW	SRNL -Ramsey Thesis	T	28.00	0.08	1.928	53.985	**2.791**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.60
MG-8	HLW	SRNL -Ramsey Thesis	T	168.00	0.08	1.928	323.911	**2.791**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.80
MG-9	HLW	SRNL -Ramsey Thesis	T	7.00	0.08	2.091	14.634	**2.574**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.00
MG-9	HLW	SRNL -Ramsey Thesis	T	14.00	0.08	2.091	29.268	**2.574**	4.00	100-200	1.125E-04	0.040	ASTM I	90	12.60
MG-9	HLW	SRNL -Ramsey Thesis	T	28.00	0.08	2.091	58.536	**2.574**	4.00	100-200	1.125E-04	0.040	ASTM I	90	12.60
MG-9	HLW	SRNL -Ramsey Thesis	T	168.00	0.08	2.091	351.218	**2.574**	4.00	100-200	1.125E-04	0.040	ASTM I	90	12.70
MG-10	HLW	SRNL -Ramsey Thesis	T	7.00	0.08	1.963	13.742	**2.741**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.70
MG-10	HLW	SRNL -Ramsey Thesis	T	14.00	0.08	1.963	27.485	**2.741**	4.00	100-200	1.125E-04	0.040	ASTM I	90	12.00
MG-10	HLW	SRNL -Ramsey Thesis	T	28.00	0.08	1.963	54.970	**2.741**	4.00	100-200	1.125E-04	0.040	ASTM I	90	12.20
MG-10	HLW	SRNL -Ramsey Thesis	T	168.00	0.08	1.963	329.820	**2.741**	4.00	100-200	1.125E-04	0.040	ASTM I	90	12.40
MG-11	HLW	SRNL -Ramsey Thesis	T	7.00	0.09	2.146	15.019	**2.508**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.20
MG-11	HLW	SRNL -Ramsey Thesis	T	14.00	0.09	2.146	30.038	**2.508**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.20
MG-11	HLW	SRNL -Ramsey Thesis	T	28.00	0.09	2.146	60.077	**2.508**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.10
MG-11	HLW	SRNL -Ramsey Thesis	T	168.00	0.09	2.146	360.461	**2.508**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.00
MG-13	HLW	SRNL -Ramsey Thesis	T	7.00	0.09	2.165	15.158	**2.485**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.20
MG-13	HLW	SRNL -Ramsey Thesis	T	14.00	0.09	2.165	30.316	**2.485**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.20
MG-13	HLW	SRNL -Ramsey Thesis	T	28.00	0.09	2.165	60.633	**2.485**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.20
MG-13	HLW	SRNL -Ramsey Thesis	T	168.00	0.09	2.165	363.797	**2.485**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.20
MG-15	HLW	SRNL -Ramsey Thesis	T	7.00	0.08	2.101	14.708	**2.561**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.90
MG-15	HLW	SRNL -Ramsey Thesis	T	14.00	0.08	2.101	29.417	**2.561**	4.00	100-200	1.125E-04	0.040	ASTM I	90	12.00
MG-15	HLW	SRNL -Ramsey Thesis	T	28.00	0.08	2.101	58.834	**2.561**	4.00	100-200	1.125E-04	0.040	ASTM I	90	12.10

Appendix B - Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
AH-2	90.76	14.44	0.17		13.57	48.60	10.69	10.44	4.48					
AH-2	86.83	17.46	0.18		14.00	51.22	9.31	10.01	4.47					
AH-4	91.58	12.40	1.73		11.05	44.03		7.75	4.18					
AH-4	100.92	14.41	0.25		14.13	55.19	12.00	8.02	4.86					
AH-4	102.23	18.03	0.29		15.64	62.58	11.86	7.72	5.05					
AH-5	98.76	22.48	1.97		16.04	71.14		8.05	3.27					
AH-5	110.01	26.33	0.15		20.24	91.20	14.86	8.18	4.06					
AH-5	111.91	31.75	0.19		21.82	102.61	14.18	7.69	4.12					
AH-6	93.52	20.81	2.68		22.37	65.28		19.39	6.89					
AH-6	103.78	24.14	0.22		27.88	81.59	13.31	21.44	8.11					
AH-6	108.97	30.82	0.25		31.59	96.49	13.22	21.50	8.60					
AH-7	72.22	22.11	3.01		9.08	38.07		9.61	3.66					
AH-7	75.46	26.18	0.11		11.51	46.95	8.84	9.76	4.33					
AH-7	76.78	34.00	0.12		13.42	56.07	8.40	9.35	4.59					
AH-8	75.34	19.63	3.14		9.15	41.72		10.36	5.00					
AH-8	74.55	20.57	0.14		10.44	46.85	8.71	10.54	5.39					
AH-8	79.17	27.50	0.17		12.50	57.67	8.57	10.58	6.20					
AH-9	73.37	14.89	3.07		9.50	35.83		12.06	4.51					
AH-9	80.60	19.18	0.19		13.31	48.27	9.12	12.24	5.24					
AH-9	84.11	21.90	0.22		14.10	52.59	8.75	12.58	5.96					
MG-1	52.74	48.52				53.09		17.53						
MG-1	52.83	69.86				68.81		17.61						
MG-1	57.57	97.36				82.63		19.20						
MG-1	56.11	249.89				183.08		16.97						
MG-2	24.97	2.38	4.17			42.46		7.15						
MG-2	27.97	3.80	3.55			59.37		7.12						
MG-2	28.44	3.05	3.84			55.24		7.67						
MG-2	44.86	3.90	2.97			101.48		11.53						
MG-4	105.42	9.90				249.36		38.48						
MG-4	121.36	12.65				292.35		46.39						
MG-4	122.76	15.55				316.27		45.36						
MG-4	186.86	33.87				685.67		63.01						
MG-5	98.60	30.69	18.56			77.59								
MG-5	99.90	31.25	17.60			78.70								
MG-5	104.34	37.19	16.44			82.24								
MG-5	117.65	44.81	16.19			123.09								
MG-6	89.13	66.68				106.89			6.81					
MG-6	91.95	76.69				120.99			6.94					
MG-6	104.11	94.16				135.31			8.18					
MG-6	126.16	132.31				214.00			19.82					
MG-7	8359.70	2685.50				9494.07			1.90					
MG-7	17095.00	5239.80				18531.33								
MG-7	3542.47	3169.60				10539.70								
MG-7	21543.33	6278.93				22026.67								
MG-8	58.70	7.60	0.60			126.13			1.39					
MG-8	64.14	8.35	0.74			145.99			1.56					
MG-8	73.85	9.82	0.78			171.18			2.35					
MG-8	112.84	15.06	1.00			318.93			2.45					
MG-9	8941.30	1186.47	5.23			10499.33								
MG-9	17212.00	2242.80	6.13			19046.00								
MG-9	16404.33	2130.20	4.97			18090.67								
MG-9	14714.67	2174.93	4.13			18350.67								
MG-10	385.17	43.82				572.96			54.19					
MG-10	542.03	70.03				828.54			69.82					
MG-10	768.51	100.50				1115.80			95.11					
MG-10	1438.73	207.40				2296.77			0.07					
MG-11	21.15	24.39	3.49			64.40		8.14						
MG-11	18.79	30.67	3.27			75.57		7.25						
MG-11	23.27	44.77	3.75			98.83		9.02						
MG-11	27.06	88.48	4.78			198.37		9.43						
MG-13	41.41	183.84				405.60		18.75						
MG-13	47.07	279.15				545.85		23.29						
MG-13	45.90	380.01				718.49		20.38						
MG-13	40.60	753.41				1511.63		18.17						
MG-15	59.24	4.95	5.31			272.37		24.76						
MG-15	78.44	6.83	4.60			333.71		34.08						
MG-15	92.91	11.18	2.66			396.62		40.58						

Appendix B - Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
AH-2		Not Studied		75.07	18.59	-14.447047	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-2		Not Studied		75.07	18.59	-14.447047	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-4		Not Studied		77.75	16.69	-8.013607	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-4		Not Studied		77.75	16.69	-8.013607	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-4		Not Studied		77.75	16.69	-8.013607	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-5		Not Studied		76.20	17.54	-10.328812	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-5		Not Studied		76.20	17.54	-10.328812	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-5		Not Studied		76.20	17.54	-10.328812	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-6		Not Studied		74.92	18.04	-11.100232	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-6		Not Studied		74.92	18.04	-11.100232	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-6		Not Studied		74.92	18.04	-11.100232	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-7		Not Studied		76.04	18.21	-13.856278	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-7		Not Studied		76.04	18.21	-13.856278	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-7		Not Studied		76.04	18.21	-13.856278	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-8		Not Studied		75.15	18.17	-12.203251	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-8		Not Studied		75.15	18.17	-12.203251	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-8		Not Studied		75.15	18.17	-12.203251	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-9		Not Studied		75.49	18.33	-13.652089	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-9		Not Studied		75.49	18.33	-13.652089	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
AH-9		Not Studied		75.49	18.33	-13.652089	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-1		amorphous	SEM/TEM ED	81.80	15.583777	-8.261338541	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-1		amorphous	SEM/TEM ED	81.80	15.583777	-8.261338541	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-1		amorphous	SEM/TEM ED	81.80	15.583777	-8.261338541	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-1		amorphous	SEM/TEM ED	81.80	15.583777	-8.261338541	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-2		amorphous	XRD	73.30	24.542591	-45.22172197	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-2		amorphous	XRD	73.30	24.542591	-45.22172197	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-2		amorphous	XRD	73.30	24.542591	-45.22172197	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-2		amorphous	XRD	73.30	24.542591	-45.22172197	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-4		amorphous	XRD	81.58	16.787387	-14.70841448	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
MG-4		amorphous	XRD	81.58	16.787387	-14.70841448	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
MG-4		amorphous	XRD	81.58	16.787387	-14.70841448	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
MG-4		amorphous	XRD	81.58	16.787387	-14.70841448	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
MG-5		amorphous	XRD	84.23	13.870798	-2.483793864	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-5		amorphous	XRD	84.23	13.870798	-2.483793864	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-5		amorphous	XRD	84.23	13.870798	-2.483793864	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-5		amorphous	XRD	84.23	13.870798	-2.483793864	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-6		amorphous	XRD	74.65	26.46066066	-58.23076978	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-6		amorphous	XRD	74.65	26.46066066	-58.23076978	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-6		amorphous	XRD	74.65	26.46066066	-58.23076978	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-6		amorphous	XRD	74.65	26.46066066	-58.23076978	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-7		amorphous	XRD	97.20	0.996837	49.42678061	Potential ϕ-sep	High alkali	Low Al	Potential ϕ-sep.	Low Ti
MG-7		amorphous	XRD	97.20	0.996837	49.42678061	Potential ϕ-sep	High alkali	Low Al	Potential ϕ-sep.	Low Ti
MG-7		amorphous	XRD	97.20	0.996837	49.42678061	Potential ϕ-sep	High alkali	Low Al	Potential ϕ-sep.	Low Ti
MG-7		amorphous	XRD	97.20	0.996837	49.42678061	Potential ϕ-sep	High alkali	Low Al	Potential ϕ-sep.	Low Ti
MG-8		amorphous	XRD	66.65	32.75655501	-80.94857217	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
MG-8		amorphous	XRD	66.65	32.75655501	-80.94857217	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
MG-8		amorphous	XRD	66.65	32.75655501	-80.94857217	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
MG-8		amorphous	XRD	66.65	32.75655501	-80.94857217	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
MG-9		amorphous	XRD	88.45	9.147914	17.41872391	Potential ϕ-sep	High alkali	Low Al	Potential ϕ-sep.	Low Ti
MG-9		amorphous	XRD	88.45	9.147914	17.41872391	Potential ϕ-sep	High alkali	Low Al	Potential ϕ-sep.	Low Ti
MG-9		amorphous	XRD	88.45	9.147914	17.41872391	Potential ϕ-sep	High alkali	Low Al	Potential ϕ-sep.	Low Ti
MG-9		amorphous	XRD	88.45	9.147914	17.41872391	Potential ϕ-sep	High alkali	Low Al	Potential ϕ-sep.	Low Ti
MG-10		Smectite	SEM/TEM ED	70.12	21.71005792	-24.1322675	HOMOGENEOUS	High alkali	Low Al	Potential ϕ-sep.	Low Ti
MG-10		Smectite	SEM/TEM ED	70.12	21.71005792	-24.1322675	HOMOGENEOUS	High alkali	Low Al	Potential ϕ-sep.	Low Ti
MG-10		Smectite	SEM/TEM ED	70.12	21.71005792	-24.1322675	HOMOGENEOUS	High alkali	Low Al	Potential ϕ-sep.	Low Ti
MG-10		Smectite	SEM/TEM ED	70.12	21.71005792	-24.1322675	HOMOGENEOUS	High alkali	Low Al	Potential ϕ-sep.	Low Ti
MG-11		amorphous	XRD	73.44	25.085655	-48.51679239	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-11		amorphous	XRD	73.44	25.085655	-48.51679239	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-11		amorphous	XRD	73.44	25.085655	-48.51679239	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-11		amorphous	XRD	73.44	25.085655	-48.51679239	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-13		amorphous	XRD	80.90	17.956987	-20.22117103	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
MG-13		amorphous	XRD	80.90	17.956987	-20.22117103	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
MG-13		amorphous	XRD	80.90	17.956987	-20.22117103	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
MG-13		amorphous	XRD	80.90	17.956987	-20.22117103	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
MG-15		amorphous	XRD	72.75	25.265367	-48.43330177	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
MG-15		amorphous	XRD	72.75	25.265367	-48.43330177	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
MG-15		amorphous	XRD	72.75	25.265367	-48.43330177	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti

Appendix B - Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
AH-2	HOMOGENEOUS	6.55	13.30	0.00	0.64	0.00	0.00	0.02	0.05	0.00	0.00	0.00	11.40	3.11	0.00	0.00
AH-2	HOMOGENEOUS	6.55	13.30	0.00	0.64	0.00	0.00	0.02	0.05	0.00	0.00	0.00	11.40	3.11	0.00	0.00
AH-4	HOMOGENEOUS	4.69	7.06	0.00	1.00	0.00	0.00	0.05	0.06	0.00	0.00	0.00	11.00	3.16	0.00	0.00
AH-4	HOMOGENEOUS	4.69	7.06	0.00	1.00	0.00	0.00	0.05	0.06	0.00	0.00	0.00	11.00	3.16	0.00	0.00
AH-4	HOMOGENEOUS	4.69	7.06	0.00	1.00	0.00	0.00	0.05	0.06	0.00	0.00	0.00	11.00	3.16	0.00	0.00
AH-5	HOMOGENEOUS	5.48	6.95	0.00	0.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.40	3.16	0.00	0.00
AH-5	HOMOGENEOUS	5.48	6.95	0.00	0.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.40	3.16	0.00	0.00
AH-5	HOMOGENEOUS	5.48	6.95	0.00	0.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.40	3.16	0.00	0.00
AH-6	HOMOGENEOUS	5.56	9.33	0.00	0.68	0.00	0.00	0.00	0.06	0.00	0.00	0.00	11.80	3.14	0.00	0.00
AH-6	HOMOGENEOUS	5.56	9.33	0.00	0.68	0.00	0.00	0.00	0.06	0.00	0.00	0.00	11.80	3.14	0.00	0.00
AH-6	HOMOGENEOUS	5.56	9.33	0.00	0.68	0.00	0.00	0.00	0.06	0.00	0.00	0.00	11.80	3.14	0.00	0.00
AH-7	HOMOGENEOUS	6.27	11.50	0.00	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.30	3.15	0.00	0.00
AH-7	HOMOGENEOUS	6.27	11.50	0.00	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.30	3.15	0.00	0.00
AH-7	HOMOGENEOUS	6.27	11.50	0.00	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.30	3.15	0.00	0.00
AH-8	HOMOGENEOUS	5.88	10.10	0.00	0.69	0.00	0.00	0.02	0.04	0.00	0.00	0.00	11.60	3.08	0.00	0.00
AH-8	HOMOGENEOUS	5.88	10.10	0.00	0.69	0.00	0.00	0.02	0.04	0.00	0.00	0.00	11.60	3.08	0.00	0.00
AH-8	HOMOGENEOUS	5.88	10.10	0.00	0.69	0.00	0.00	0.02	0.04	0.00	0.00	0.00	11.60	3.08	0.00	0.00
AH-9	HOMOGENEOUS	6.04	8.75	0.00	0.69	0.00	0.00	0.01	0.06	0.00	0.00	0.00	11.60	3.13	0.00	0.00
AH-9	HOMOGENEOUS	6.04	8.75	0.00	0.69	0.00	0.00	0.01	0.06	0.00	0.00	0.00	11.60	3.13	0.00	0.00
AH-9	HOMOGENEOUS	6.04	8.75	0.00	0.69	0.00	0.00	0.01	0.06	0.00	0.00	0.00	11.60	3.13	0.00	0.00
MG-1	HOMOGENEOUS	15.57	14.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-1	HOMOGENEOUS	15.57	14.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-1	HOMOGENEOUS	15.57	14.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-1	HOMOGENEOUS	15.57	14.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-2	HOMOGENEOUS	15.84	5.16	0.00	8.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-2	HOMOGENEOUS	15.84	5.16	0.00	8.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-2	HOMOGENEOUS	15.84	5.16	0.00	8.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-2	HOMOGENEOUS	15.84	5.16	0.00	8.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-4	HOMOGENEOUS	16.77	4.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-4	HOMOGENEOUS	16.77	4.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-4	HOMOGENEOUS	16.77	4.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-4	HOMOGENEOUS	16.77	4.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-5	HOMOGENEOUS	5.51	14.72	0.00	8.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-5	HOMOGENEOUS	5.51	14.72	0.00	8.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-5	HOMOGENEOUS	5.51	14.72	0.00	8.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-5	HOMOGENEOUS	5.51	14.72	0.00	8.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-6	HOMOGENEOUS	4.21	12.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.57	19.40	0.00	0.00	0.00
MG-6	HOMOGENEOUS	4.21	12.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.57	19.40	0.00	0.00	0.00
MG-6	HOMOGENEOUS	4.21	12.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.57	19.40	0.00	0.00	0.00
MG-6	HOMOGENEOUS	4.21	12.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.57	19.40	0.00	0.00	0.00
MG-7	Potential ϕ-sep.	0.98	15.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-7	Potential ϕ-sep.	0.98	15.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-7	Potential ϕ-sep.	0.98	15.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-7	Potential ϕ-sep.	0.98	15.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-8	HOMOGENEOUS	3.60	4.62	0.00	7.36	0.00	0.00	0.00	0.00	0.00	0.00	2.92	18.55	0.00	0.00	0.00
MG-8	HOMOGENEOUS	3.60	4.62	0.00	7.36	0.00	0.00	0.00	0.00	0.00	0.00	2.92	18.55	0.00	0.00	0.00
MG-8	HOMOGENEOUS	3.60	4.62	0.00	7.36	0.00	0.00	0.00	0.00	0.00	0.00	2.92	18.55	0.00	0.00	0.00
MG-8	HOMOGENEOUS	3.60	4.62	0.00	7.36	0.00	0.00	0.00	0.00	0.00	0.00	2.92	18.55	0.00	0.00	0.00
MG-9	Potential ϕ-sep.	0.19	5.44	0.00	8.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-9	Potential ϕ-sep.	0.19	5.44	0.00	8.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-9	Potential ϕ-sep.	0.19	5.44	0.00	8.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-9	Potential ϕ-sep.	0.19	5.44	0.00	8.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-10	Potential ϕ-sep.	2.19	3.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.74	16.47	0.00	0.00	0.00
MG-10	Potential ϕ-sep.	2.19	3.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.74	16.47	0.00	0.00	0.00
MG-10	Potential ϕ-sep.	2.19	3.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.74	16.47	0.00	0.00	0.00
MG-10	Potential ϕ-sep.	2.19	3.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.74	16.47	0.00	0.00	0.00
MG-11	HOMOGENEOUS	16.41	15.95	0.00	8.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-11	HOMOGENEOUS	16.41	15.95	0.00	8.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-11	HOMOGENEOUS	16.41	15.95	0.00	8.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-11	HOMOGENEOUS	16.41	15.95	0.00	8.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-13	HOMOGENEOUS	17.94	14.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-13	HOMOGENEOUS	17.94	14.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-13	HOMOGENEOUS	17.94	14.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-13	HOMOGENEOUS	17.94	14.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-15	HOMOGENEOUS	17.05	4.70	0.00	8.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-15	HOMOGENEOUS	17.05	4.70	0.00	8.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-15	HOMOGENEOUS	17.05	4.70	0.00	8.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00

Appendix B - Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
AH-2	3.76	0.58	2.67	0.00	10.30	0.00	0.93	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.04
AH-2	3.76	0.58	2.67	0.00	10.30	0.00	0.93	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.04
AH-4	4.10	0.73	2.12	0.00	9.89	0.00	0.97	0.00	0.00	0.00	0.00	0.00	0.00	53.48	0.00	0.00	0.05
AH-4	4.10	0.73	2.12	0.00	9.89	0.00	0.97	0.00	0.00	0.00	0.00	0.00	0.00	53.48	0.00	0.00	0.05
AH-4	4.10	0.73	2.12	0.00	9.89	0.00	0.97	0.00	0.00	0.00	0.00	0.00	0.00	53.48	0.00	0.00	0.05
AH-5	3.77	0.60	2.64	0.00	9.24	0.00	0.96	0.00	0.00	0.00	0.00	0.00	0.00	53.08	0.00	0.00	0.00
AH-5	3.77	0.60	2.64	0.00	9.24	0.00	0.96	0.00	0.00	0.00	0.00	0.00	0.00	53.08	0.00	0.00	0.00
AH-5	3.77	0.60	2.64	0.00	9.24	0.00	0.96	0.00	0.00	0.00	0.00	0.00	0.00	53.08	0.00	0.00	0.00
AH-6	4.59	0.60	2.72	0.00	10.50	0.00	0.94	0.00	0.00	0.00	0.00	0.00	0.00	47.30	0.00	0.00	0.04
AH-6	4.59	0.60	2.72	0.00	10.50	0.00	0.94	0.00	0.00	0.00	0.00	0.00	0.00	47.30	0.00	0.00	0.04
AH-6	4.59	0.60	2.72	0.00	10.50	0.00	0.94	0.00	0.00	0.00	0.00	0.00	0.00	47.30	0.00	0.00	0.04
AH-7	3.15	0.59	2.62	0.00	9.24	0.00	0.95	0.00	0.00	0.00	0.00	0.00	0.00	49.00	0.00	0.00	0.00
AH-7	3.15	0.59	2.62	0.00	9.24	0.00	0.95	0.00	0.00	0.00	0.00	0.00	0.00	49.00	0.00	0.00	0.00
AH-7	3.15	0.59	2.62	0.00	9.24	0.00	0.95	0.00	0.00	0.00	0.00	0.00	0.00	49.00	0.00	0.00	0.00
AH-8	3.17	1.20	2.68	0.00	9.76	0.00	0.97	0.00	0.00	0.00	0.00	0.00	0.00	49.00	0.00	0.00	0.05
AH-8	3.17	1.20	2.68	0.00	9.76	0.00	0.97	0.00	0.00	0.00	0.00	0.00	0.00	49.00	0.00	0.00	0.05
AH-8	3.17	1.20	2.68	0.00	9.76	0.00	0.97	0.00	0.00	0.00	0.00	0.00	0.00	49.00	0.00	0.00	0.05
AH-9	3.47	0.58	2.64	0.00	9.20	0.00	0.97	0.00	0.00	0.00	0.00	0.00	0.00	50.88	0.00	0.00	0.05
AH-9	3.47	0.58	2.64	0.00	9.20	0.00	0.97	0.00	0.00	0.00	0.00	0.00	0.00	50.88	0.00	0.00	0.05
AH-9	3.47	0.58	2.64	0.00	9.20	0.00	0.97	0.00	0.00	0.00	0.00	0.00	0.00	50.88	0.00	0.00	0.05
MG-1	0.00	0.00	0.00	0.00	13.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.94	0.00	0.00	0.00
MG-1	0.00	0.00	0.00	0.00	13.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.94	0.00	0.00	0.00
MG-1	0.00	0.00	0.00	0.00	13.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.94	0.00	0.00	0.00
MG-1	0.00	0.00	0.00	0.00	13.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.94	0.00	0.00	0.00
MG-2	0.00	0.00	0.00	0.00	14.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.96	0.00	0.00	0.00
MG-2	0.00	0.00	0.00	0.00	14.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.96	0.00	0.00	0.00
MG-2	0.00	0.00	0.00	0.00	14.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.96	0.00	0.00	0.00
MG-2	0.00	0.00	0.00	0.00	14.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.96	0.00	0.00	0.00
MG-4	0.00	0.00	0.00	0.00	22.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	54.53	0.00	0.00	0.00
MG-4	0.00	0.00	0.00	0.00	22.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	54.53	0.00	0.00	0.00
MG-4	0.00	0.00	0.00	0.00	22.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	54.53	0.00	0.00	0.00
MG-4	0.00	0.00	0.00	0.00	22.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	54.53	0.00	0.00	0.00
MG-5	0.00	0.00	0.00	0.00	13.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.70	0.00	0.00	0.00
MG-5	0.00	0.00	0.00	0.00	13.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.70	0.00	0.00	0.00
MG-5	0.00	0.00	0.00	0.00	13.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.70	0.00	0.00	0.00
MG-5	0.00	0.00	0.00	0.00	13.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.70	0.00	0.00	0.00
MG-6	0.00	0.00	0.00	0.00	12.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.77	0.00	0.00	0.00
MG-6	0.00	0.00	0.00	0.00	12.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.77	0.00	0.00	0.00
MG-6	0.00	0.00	0.00	0.00	12.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.77	0.00	0.00	0.00
MG-6	0.00	0.00	0.00	0.00	12.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.77	0.00	0.00	0.00
MG-7	0.00	0.00	0.00	0.00	24.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.72	0.00	0.00	0.00
MG-7	0.00	0.00	0.00	0.00	24.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.72	0.00	0.00	0.00
MG-7	0.00	0.00	0.00	0.00	24.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.72	0.00	0.00	0.00
MG-7	0.00	0.00	0.00	0.00	24.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.72	0.00	0.00	0.00
MG-8	0.00	0.00	0.00	0.00	12.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.64	0.00	0.00	0.00
MG-8	0.00	0.00	0.00	0.00	12.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.64	0.00	0.00	0.00
MG-8	0.00	0.00	0.00	0.00	12.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.64	0.00	0.00	0.00
MG-8	0.00	0.00	0.00	0.00	12.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.64	0.00	0.00	0.00
MG-9	0.00	0.00	0.00	0.00	25.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	57.93	0.00	0.00	0.00
MG-9	0.00	0.00	0.00	0.00	25.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	57.93	0.00	0.00	0.00
MG-9	0.00	0.00	0.00	0.00	25.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	57.93	0.00	0.00	0.00
MG-9	0.00	0.00	0.00	0.00	25.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	57.93	0.00	0.00	0.00
MG-10	0.00	0.00	0.00	0.00	20.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.79	0.00	0.00	0.00
MG-10	0.00	0.00	0.00	0.00	20.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.79	0.00	0.00	0.00
MG-10	0.00	0.00	0.00	0.00	20.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.79	0.00	0.00	0.00
MG-10	0.00	0.00	0.00	0.00	20.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.79	0.00	0.00	0.00
MG-11	0.00	0.00	0.00	0.00	13.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.53	0.00	0.00	0.00
MG-11	0.00	0.00	0.00	0.00	13.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.53	0.00	0.00	0.00
MG-11	0.00	0.00	0.00	0.00	13.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.53	0.00	0.00	0.00
MG-11	0.00	0.00	0.00	0.00	13.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.53	0.00	0.00	0.00
MG-13	0.00	0.00	0.00	0.00	21.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.73	0.00	0.00	0.00
MG-13	0.00	0.00	0.00	0.00	21.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.73	0.00	0.00	0.00
MG-13	0.00	0.00	0.00	0.00	21.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.73	0.00	0.00	0.00
MG-13	0.00	0.00	0.00	0.00	21.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.73	0.00	0.00	0.00
MG-15	0.00	0.00	0.00	0.00	22.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.77	0.00	0.00	0.00
MG-15	0.00	0.00	0.00	0.00	22.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.77	0.00	0.00	0.00
MG-15	0.00	0.00	0.00	0.00	22.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.77	0.00	0.00	0.00

Appendix B - Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
AH-2	0.00	0.00	1.30	0.00	0.00	0.00	0.63	0.00	99.83		
AH-2	0.00	0.00	1.30	0.00	0.00	0.00	0.63	0.00	99.83		
AH-4	0.00	0.00	1.30	0.00	0.00	0.00	0.01	0.00	99.67		
AH-4	0.00	0.00	1.30	0.00	0.00	0.00	0.01	0.00	99.67		
AH-4	0.00	0.00	1.30	0.00	0.00	0.00	0.01	0.00	99.67		
AH-5	0.00	0.00	1.31	0.00	0.00	0.00	0.01	0.00	99.26		
AH-5	0.00	0.00	1.31	0.00	0.00	0.00	0.01	0.00	99.26		
AH-5	0.00	0.00	1.31	0.00	0.00	0.00	0.01	0.00	99.26		
AH-6	0.00	0.00	1.40	0.00	0.00	0.00	0.67	0.00	99.33		
AH-6	0.00	0.00	1.40	0.00	0.00	0.00	0.67	0.00	99.33		
AH-6	0.00	0.00	1.40	0.00	0.00	0.00	0.67	0.00	99.33		
AH-7	0.00	0.00	1.29	0.00	0.00	0.00	0.02	0.00	99.72		
AH-7	0.00	0.00	1.29	0.00	0.00	0.00	0.02	0.00	99.72		
AH-7	0.00	0.00	1.29	0.00	0.00	0.00	0.02	0.00	99.72		
AH-8	0.00	0.00	1.32	0.00	0.00	0.00	0.01	0.00	99.57		
AH-8	0.00	0.00	1.32	0.00	0.00	0.00	0.01	0.00	99.57		
AH-8	0.00	0.00	1.32	0.00	0.00	0.00	0.01	0.00	99.57		
AH-9	0.00	0.00	1.33	0.00	0.00	0.00	0.01	0.00	99.41		
AH-9	0.00	0.00	1.33	0.00	0.00	0.00	0.01	0.00	99.41		
AH-9	0.00	0.00	1.33	0.00	0.00	0.00	0.01	0.00	99.41		
MG-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	97.38		
MG-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	97.38		
MG-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	97.38		
MG-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	97.38		
MG-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	97.84		
MG-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	97.84		
MG-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	97.84		
MG-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	97.84		
MG-4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.37		
MG-4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.37		
MG-4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.37		
MG-4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.37		
MG-5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.10		
MG-5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.10		
MG-5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.10		
MG-5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.10		
MG-6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.83		
MG-6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.83		
MG-6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.83		
MG-6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.83		
MG-7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.20		
MG-7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.20		
MG-7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.20		
MG-7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.20		
MG-8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.08		
MG-8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.08		
MG-8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.08		
MG-8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.08		
MG-9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	97.60		
MG-9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	97.60		
MG-9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	97.60		
MG-9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	97.60		
MG-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	91.53		
MG-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	91.53		
MG-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	91.53		
MG-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	91.53		
MG-11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.52		
MG-11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.52		
MG-11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.52		
MG-11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.52		
MG-13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.86		
MG-13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.86		
MG-13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.86		
MG-13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.86		
MG-15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.02		
MG-15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.02		
MG-15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.02		

Appendix B - Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
MG-15	HLW	SRNL -Ramsey Thesis	T	168.00	0.08	2.101	353.001	**2.561**	4.00	100-200	1.125E-04	0.040	ASTM I	90	12.36
MG-16	HLW	SRNL -Ramsey Thesis	T	7.00	0.08	2.008	14.055	**2.680**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.30
MG-16	HLW	SRNL -Ramsey Thesis	T	14.00	0.08	2.008	28.111	**2.680**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.80
MG-16	HLW	SRNL -Ramsey Thesis	T	28.00	0.08	2.008	56.221	**2.680**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.80
MG-16	HLW	SRNL -Ramsey Thesis	T	168.00	0.08	2.008	337.327	**2.680**	4.00	100-200	1.125E-04	0.040	ASTM I	90	12.12
MG-17	HLW	SRNL -Ramsey Thesis	T	7.00	0.08	1.968	13.773	**2.735**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.20
MG-17	HLW	SRNL -Ramsey Thesis	T	14.00	0.08	1.968	27.545	**2.735**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.30
MG-17	HLW	SRNL -Ramsey Thesis	T	28.00	0.08	1.968	55.091	**2.735**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.40
MG-17	HLW	SRNL -Ramsey Thesis	T	168.00	0.08	1.968	330.543	**2.735**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.56
MG-18	HLW	SRNL -Ramsey Thesis	T	7.00	0.08	2.077	14.538	**2.591**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.30
MG-18	HLW	SRNL -Ramsey Thesis	T	14.00	0.08	2.077	29.076	**2.591**	4.00	100-200	1.125E-04	0.040	ASTM I	90	12.00
MG-18	HLW	SRNL -Ramsey Thesis	T	28.00	0.08	2.077	58.152	**2.591**	4.00	100-200	1.125E-04	0.040	ASTM I	90	12.00
MG-18	HLW	SRNL -Ramsey Thesis	T	168.00	0.08	2.077	348.914	**2.591**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.97
MG-19	HLW	SRNL -Ramsey Thesis	T	7.00	0.08	1.974	13.818	**2.726**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.30
MG-19	HLW	SRNL -Ramsey Thesis	T	14.00	0.08	1.974	27.636	**2.726**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.00
MG-19	HLW	SRNL -Ramsey Thesis	T	28.00	0.08	1.974	55.272	**2.726**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.00
MG-19	HLW	SRNL -Ramsey Thesis	T	168.00	0.08	1.974	331.635	**2.726**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.16
MG-20	HLW	SRNL -Ramsey Thesis	T	7.00	0.08	1.912	13.386	**2.814**	4.00	100-200	1.125E-04	0.040	ASTM I	90	12.20
MG-20	HLW	SRNL -Ramsey Thesis	T	14.00	0.08	1.912	26.772	**2.814**	4.00	100-200	1.125E-04	0.040	ASTM I	90	12.40
MG-20	HLW	SRNL -Ramsey Thesis	T	28.00	0.08	1.912	53.544	**2.814**	4.00	100-200	1.125E-04	0.040	ASTM I	90	12.40
MG-20	HLW	SRNL -Ramsey Thesis	T	168.00	0.08	1.912	321.264	**2.814**	4.00	100-200	1.125E-04	0.040	ASTM I	90	12.53
MG-21	HLW	SRNL -Ramsey Thesis	T	7.00	0.08	2.077	14.538	**2.591**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.60
MG-21	HLW	SRNL -Ramsey Thesis	T	14.00	0.08	2.077	29.076	**2.591**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.20
MG-21	HLW	SRNL -Ramsey Thesis	T	28.00	0.08	2.077	58.152	**2.591**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.10
MG-21	HLW	SRNL -Ramsey Thesis	T	168.00	0.08	2.077	348.914	**2.591**	4.00	100-200	1.125E-04	0.040	ASTM I	90	12.53
MG-22	HLW	SRNL -Ramsey Thesis	T	7.00	0.08	2.048	14.333	**2.628**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.30
MG-22	HLW	SRNL -Ramsey Thesis	T	14.00	0.08	2.048	28.667	**2.628**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.80
MG-22	HLW	SRNL -Ramsey Thesis	T	28.00	0.08	2.048	57.334	**2.628**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.80
MG-22	HLW	SRNL -Ramsey Thesis	T	168.00	0.08	2.048	344.001	**2.628**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.00
MG-23	HLW	SRNL -Ramsey Thesis	T	7.00	0.08	2.106	14.743	**2.555**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.80
MG-23	HLW	SRNL -Ramsey Thesis	T	14.00	0.08	2.106	29.486	**2.555**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.60
MG-23	HLW	SRNL -Ramsey Thesis	T	28.00	0.08	2.106	58.972	**2.555**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.70
MG-23	HLW	SRNL -Ramsey Thesis	T	168.00	0.08	2.106	353.830	**2.555**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.80
MG-24	HLW	SRNL -Ramsey Thesis	T	7.00	0.08	2.024	14.166	**2.659**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.20
MG-24	HLW	SRNL -Ramsey Thesis	T	14.00	0.08	2.024	28.333	**2.659**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.30
MG-24	HLW	SRNL -Ramsey Thesis	T	28.00	0.08	2.024	56.665	**2.659**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.30
MG-24	HLW	SRNL -Ramsey Thesis	T	168.00	0.08	2.024	339.991	**2.659**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.50
MG-25	HLW	SRNL -Ramsey Thesis	T	7.00	0.08	2.127	14.889	**2.530**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.70
MG-25	HLW	SRNL -Ramsey Thesis	T	14.00	0.08	2.127	29.777	**2.530**	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.10
MG-25	HLW	SRNL -Ramsey Thesis	T	28.00	0.08	2.127	59.554	**2.530**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.90
MG-25	HLW	SRNL -Ramsey Thesis	T	168.00	0.08	2.127	357.326	**2.530**	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.90
MG-26	HLW	SRNL -Ramsey Thesis	T	7.00	0.08	1.945	13.618	**2.766**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.30
MG-26	HLW	SRNL -Ramsey Thesis	T	14.00	0.08	1.945	27.237	**2.766**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.50
MG-26	HLW	SRNL -Ramsey Thesis	T	28.00	0.08	1.945	54.473	**2.766**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.50
MG-26	HLW	SRNL -Ramsey Thesis	T	168.00	0.08	1.945	326.839	**2.766**	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.80
MG-27	HLW	SRNL -Ramsey Thesis	T	7.00	0.08	1.957	13.698	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.00
MG-27	HLW	SRNL -Ramsey Thesis	T	14.00	0.08	1.957	27.395	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.10
MG-27	HLW	SRNL -Ramsey Thesis	T	28.00	0.08	1.957	54.790	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.00
MG-27	HLW	SRNL -Ramsey Thesis	T	168.00	0.08	1.957	328.740	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.40
MG-28	HLW	SRNL -Ramsey Thesis	T	7.00	0.08	1.957	13.698	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	9.90
MG-28	HLW	SRNL -Ramsey Thesis	T	14.00	0.08	1.957	27.395	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.80
MG-28	HLW	SRNL -Ramsey Thesis	T	28.00	0.08	1.957	54.790	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.80
MG-28	HLW	SRNL -Ramsey Thesis	T	168.00	0.08	1.957	328.740	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.90
MG-29	HLW	SRNL -Ramsey Thesis	T	7.00	0.08	1.957	13.698	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.30
MG-29	HLW	SRNL -Ramsey Thesis	T	14.00	0.08	1.957	27.395	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.10
MG-29	HLW	SRNL -Ramsey Thesis	T	28.00	0.08	1.957	54.790	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.20
MG-29	HLW	SRNL -Ramsey Thesis	T	168.00	0.08	1.957	328.740	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.60
MG-30	HLW	SRNL -Ramsey Thesis	T	7.00	0.08	1.957	13.698	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.30
MG-30	HLW	SRNL -Ramsey Thesis	T	14.00	0.08	1.957	27.395	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.40
MG-30	HLW	SRNL -Ramsey Thesis	T	28.00	0.08	1.957	54.790	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.60
MG-30	HLW	SRNL -Ramsey Thesis	T	168.00	0.08	1.957	328.740	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.80
MG-31	HLW	SRNL -Ramsey Thesis	T	7.00	0.08	1.957	13.698	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.20
MG-31	HLW	SRNL -Ramsey Thesis	T	14.00	0.08	1.957	27.395	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.50
MG-31	HLW	SRNL -Ramsey Thesis	T	28.00	0.08	1.957	54.790	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.60
MG-31	HLW	SRNL -Ramsey Thesis	T	168.00	0.08	1.957	328.740	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.90
MG-32	HLW	SRNL -Ramsey Thesis	T	7.00	0.08	1.957	13.698	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.10
MG-32	HLW	SRNL -Ramsey Thesis	T	14.00	0.08	1.957	27.395	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.50

Appendix B - Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
MG-15	162.93	27.77	0.96			831.49		73.89						
MG-16	102.78	13.54				214.45		41.12	42.62					
MG-16	116.98	16.81				260.73		47.60	52.30					
MG-16	132.65	18.16				291.67		53.17	60.63					
MG-16	306.06	31.84				544.46		70.53	92.93					
MG-17	33.56	15.39	0.85			95.90		14.67						
MG-17	35.23	17.41	0.97			113.33		15.99						
MG-17	41.66	18.41	0.99			130.26		19.63						
MG-17	57.74	24.93	1.07			230.67		30.06						
MG-18	3517.60	2771.97	6.70			8780.53								
MG-18	6926.23	5408.03	6.97			16186.33								
MG-18	7369.97	5631.47	6.50			16632.00								
MG-18	7937.13	5822.67	5.97			18464.00								
MG-19	159.52	410.99				1061.80			17.38					
MG-19	205.70	586.44				1356.43			23.48					
MG-19	220.91	685.54				1562.53			17.89					
MG-19	319.27	1229.17				3014.83			0.08					
MG-20	166.18	24.30	0.51			638.11		9.47	1.15					
MG-20	208.66	31.50	0.52			815.94		11.60	1.45					
MG-20	236.16	38.73	0.38			912.19		12.51	1.46					
MG-20	361.59	55.30	0.51			1570.40			0.59					
MG-21	67.27	14.77	0.92			104.68		17.49	6.39					
MG-21	72.39	17.97	1.08			124.61		18.52	7.78					
MG-21	78.95	21.06	1.09			138.44		20.63	8.91					
MG-21	361.59	55.30	0.51			1570.40			0.59					
MG-22	37.03	10.05	0.48			65.90		23.05	2.24					
MG-22	42.38	11.40	0.43			71.55		26.02	2.09					
MG-22	44.59	13.89	0.48			85.14		27.51	2.74					
MG-22	58.69	21.52	0.93			140.90		21.75	13.73					
MG-23	41.00	7.36	0.56			54.82		27.43	4.21					
MG-23	37.55	6.13	0.61			42.57		23.33	3.43					
MG-23	49.50	9.42	0.79			71.09		33.07	6.21					
MG-23	54.85	11.78	0.90			106.56		36.50	7.61					
MG-24	63.62	28.15	1.08			150.32			6.58					
MG-24	65.73	28.53	1.00			153.33			7.02					
MG-24	75.39	37.65	1.13			191.16			9.26					
MG-24	90.83	56.88	1.06			301.40			12.88					
MG-25	50.46	35.18	0.63			90.12		17.80	6.72					
MG-25	50.57	44.57	0.69			106.07		17.57	7.33					
MG-25	50.52	59.39	0.62			128.50		17.85	7.30					
MG-25	49.67	122.11	0.79			244.28		16.82	9.59					
MG-26	64.11	6.87	0.94			137.42		23.36	4.41					
MG-26	70.54	7.94	1.07			150.15		26.83	4.73					
MG-26	77.45	8.61	1.16			171.15		32.07	5.42					
MG-26	102.46	12.07	1.86			288.79		45.34	11.29					
MG-27	27.96	6.83	1.18			71.17		17.15	1.13					
MG-27	32.68	7.83	1.20			81.00		20.89	1.17					
MG-27	34.39	8.79	1.00			94.66		24.04	1.01					
MG-27	46.17	12.30	0.93			158.39		35.55	0.97					
MG-28	67.83	17.97				89.27		25.12	21.20					
MG-28	70.06	19.70				97.72		26.00	22.84					
MG-28	75.82	23.15				110.10		27.56	25.28					
MG-28	77.57	40.57				181.15		28.43	27.11					
MG-29	60.27	13.18	0.32			93.03		16.35	3.21					
MG-29	63.08	15.04	0.38			108.88		16.27	1485.90					
MG-29	74.80	18.99	0.65			133.23		18.63	8.69					
MG-29	105.00	47.05	1.45			290.11		17.92	14.52					
MG-30	71.52	59.48	1.29			245.35		10.97						
MG-30	84.06	76.48	1.83			286.31		15.42						
MG-30	87.85	96.10	1.70			350.23		12.62						
MG-30	111.27	157.61	1.74			596.51		18.09						
MG-31	70.30	14.98	1.01			160.14		37.22	7.29					
MG-31	79.24	18.79	1.50			181.92		43.18	8.53					
MG-31	84.80	22.26	1.25			222.43		43.43	9.27					
MG-31	106.69	35.59	1.71			379.62		61.48	16.53					
MG-32	24.92	7.26	0.60			42.07		15.93	1.57					
MG-32	27.08	9.27	0.62			52.06		18.25	2.03					

Appendix B - Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
MG-15		amorphous	XRD	72.75	25.265367	-48.43330177	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
MG-16		amorphous	XRD	64.99	36.14448702	-97.42469236	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
MG-16		amorphous	XRD	64.99	36.14448702	-97.42469236	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
MG-16		amorphous	XRD	64.99	36.14448702	-97.42469236	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
MG-16		amorphous	XRD	64.99	36.14448702	-97.42469236	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
MG-17		amorphous	XRD	70.40	38.12966427	-117.3214724	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
MG-17		amorphous	XRD	70.40	38.12966427	-117.3214724	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
MG-17		amorphous	XRD	70.40	38.12966427	-117.3214724	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
MG-17		amorphous	XRD	70.40	38.12966427	-117.3214724	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
MG-18		amorphous	XRD	86.67	9.854241	16.28335781	Potential ϕ-sep	High alkali	Low Al	Potential ϕ-sep.	Low Ti
MG-18		amorphous	XRD	86.67	9.854241	16.28335781	Potential ϕ-sep	High alkali	Low Al	Potential ϕ-sep.	Low Ti
MG-18		amorphous	XRD	86.67	9.854241	16.28335781	Potential ϕ-sep	High alkali	Low Al	Potential ϕ-sep.	Low Ti
MG-18		amorphous	XRD	86.67	9.854241	16.28335781	Potential ϕ-sep	High alkali	Low Al	Potential ϕ-sep.	Low Ti
MG-19		amorphous	XRD	77.96	26.28292969	-62.53057309	HOMOGENEOUS	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
MG-19		amorphous	XRD	77.96	26.28292969	-62.53057309	HOMOGENEOUS	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
MG-19		amorphous	XRD	77.96	26.28292969	-62.53057309	HOMOGENEOUS	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
MG-19		amorphous	XRD	77.96	26.28292969	-62.53057309	HOMOGENEOUS	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
MG-20		amorphous	XRD	67.89	32.11575931	-79.33185366	HOMOGENEOUS	High alkali	Low Al	Potential ϕ-sep.	Low Ti
MG-20		amorphous	XRD	67.89	32.11575931	-79.33185366	HOMOGENEOUS	High alkali	Low Al	Potential ϕ-sep.	Low Ti
MG-20		amorphous	XRD	67.89	32.11575931	-79.33185366	HOMOGENEOUS	High alkali	Low Al	Potential ϕ-sep.	Low Ti
MG-20		amorphous	XRD	67.89	32.11575931	-79.33185366	HOMOGENEOUS	High alkali	Low Al	Potential ϕ-sep.	Low Ti
MG-21		amorphous	XRD	75.28	23.67362666	-43.49933633	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-21		amorphous	XRD	75.28	23.67362666	-43.49933633	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-21		amorphous	XRD	75.28	23.67362666	-43.49933633	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-21		amorphous	XRD	75.28	23.67362666	-43.49933633	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-22		amorphous	XRD	64.58	34.96574226	-90.114277	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-22		amorphous	XRD	64.58	34.96574226	-90.114277	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-22		amorphous	XRD	64.58	34.96574226	-90.114277	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-22		amorphous	XRD	64.58	34.96574226	-90.114277	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-23		amorphous	XRD	62.96	31.90815383	-70.24615027	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-23		amorphous	XRD	62.96	31.90815383	-70.24615027	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-23		amorphous	XRD	62.96	31.90815383	-70.24615027	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-23		amorphous	XRD	62.96	31.90815383	-70.24615027	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-24		amorphous	XRD	73.99	25.90580324	-54.03495179	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-24		amorphous	XRD	73.99	25.90580324	-54.03495179	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-24		amorphous	XRD	73.99	25.90580324	-54.03495179	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-24		amorphous	XRD	73.99	25.90580324	-54.03495179	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-25		amorphous	XRD	74.91	25.36891667	-52.47460852	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-25		amorphous	XRD	74.91	25.36891667	-52.47460852	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-25		amorphous	XRD	74.91	25.36891667	-52.47460852	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-25		amorphous	XRD	74.91	25.36891667	-52.47460852	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-26		amorphous	XRD	70.24	29.63311187	-69.07632631	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-26		amorphous	XRD	70.24	29.63311187	-69.07632631	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-26		amorphous	XRD	70.24	29.63311187	-69.07632631	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-26		amorphous	XRD	70.24	29.63311187	-69.07632631	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-27		amorphous	XRD	68.10	30.81044065	-72.28840202	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-27		amorphous	XRD	68.10	30.81044065	-72.28840202	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-27		amorphous	XRD	68.10	30.81044065	-72.28840202	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-27		amorphous	XRD	68.10	30.81044065	-72.28840202	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-28		amorphous	XRD	71.58	27.80074317	-60.8792078	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-28		amorphous	XRD	71.58	27.80074317	-60.8792078	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-28		amorphous	XRD	71.58	27.80074317	-60.8792078	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-28		amorphous	XRD	71.58	27.80074317	-60.8792078	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-29		amorphous	XRD	65.49	34.33753206	-88.02046151	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-29		amorphous	XRD	65.49	34.33753206	-88.02046151	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-29		amorphous	XRD	65.49	34.33753206	-88.02046151	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-29		amorphous	XRD	65.49	34.33753206	-88.02046151	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-30		amorphous	XRD	78.91	15.143273	-1.131487899	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-30		amorphous	XRD	78.91	15.143273	-1.131487899	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-30		amorphous	XRD	78.91	15.143273	-1.131487899	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-30		amorphous	XRD	78.91	15.143273	-1.131487899	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-31		amorphous	XRD	70.64	26.01789682	-49.29737363	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
MG-31		amorphous	XRD	70.64	26.01789682	-49.29737363	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
MG-31		amorphous	XRD	70.64	26.01789682	-49.29737363	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
MG-31		amorphous	XRD	70.64	26.01789682	-49.29737363	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
MG-32		amorphous	XRD	64.39	32.4794946	-75.76819454	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-32		amorphous	XRD	64.39	32.4794946	-75.76819454	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti

Appendix B - Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
MG-15	HOMOGENEOUS	17.05	4.70	0.00	8.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-16	HOMOGENEOUS	14.90	4.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.18	18.82	0.00	0.00	0.00
MG-16	HOMOGENEOUS	14.90	4.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.18	18.82	0.00	0.00	0.00
MG-16	HOMOGENEOUS	14.90	4.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.18	18.82	0.00	0.00	0.00
MG-16	HOMOGENEOUS	14.90	4.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.18	18.82	0.00	0.00	0.00
MG-17	HOMOGENEOUS	10.78	12.37	0.00	6.82	0.00	0.00	0.00	0.00	0.00	0.00	3.55	16.58	0.00	0.00	0.00
MG-17	HOMOGENEOUS	10.78	12.37	0.00	6.82	0.00	0.00	0.00	0.00	0.00	0.00	3.55	16.58	0.00	0.00	0.00
MG-17	HOMOGENEOUS	10.78	12.37	0.00	6.82	0.00	0.00	0.00	0.00	0.00	0.00	3.55	16.58	0.00	0.00	0.00
MG-17	HOMOGENEOUS	10.78	12.37	0.00	6.82	0.00	0.00	0.00	0.00	0.00	0.00	3.55	16.58	0.00	0.00	0.00
MG-18	Potential ϕ-sep.	0.91	15.44	0.00	8.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-18	Potential ϕ-sep.	0.91	15.44	0.00	8.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-18	Potential ϕ-sep.	0.91	15.44	0.00	8.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-18	Potential ϕ-sep.	0.91	15.44	0.00	8.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-19	Potential ϕ-sep.	3.83	13.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.51	20.77	0.00	0.00	0.00
MG-19	Potential ϕ-sep.	3.83	13.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.51	20.77	0.00	0.00	0.00
MG-19	Potential ϕ-sep.	3.83	13.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.51	20.77	0.00	0.00	0.00
MG-19	Potential ϕ-sep.	3.83	13.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.51	20.77	0.00	0.00	0.00
MG-20	Potential ϕ-sep.	0.96	4.85	0.00	7.81	0.00	0.00	0.00	0.00	0.00	0.00	1.34	21.86	0.00	0.00	0.00
MG-20	Potential ϕ-sep.	0.96	4.85	0.00	7.81	0.00	0.00	0.00	0.00	0.00	0.00	1.34	21.86	0.00	0.00	0.00
MG-20	Potential ϕ-sep.	0.96	4.85	0.00	7.81	0.00	0.00	0.00	0.00	0.00	0.00	1.34	21.86	0.00	0.00	0.00
MG-20	Potential ϕ-sep.	0.96	4.85	0.00	7.81	0.00	0.00	0.00	0.00	0.00	0.00	1.34	21.86	0.00	0.00	0.00
MG-21	HOMOGENEOUS	11.04	8.65	0.00	3.11	0.00	0.00	0.00	0.00	0.00	0.00	0.83	8.61	0.00	0.00	0.00
MG-21	HOMOGENEOUS	11.04	8.65	0.00	3.11	0.00	0.00	0.00	0.00	0.00	0.00	0.83	8.61	0.00	0.00	0.00
MG-21	HOMOGENEOUS	11.04	8.65	0.00	3.11	0.00	0.00	0.00	0.00	0.00	0.00	0.83	8.61	0.00	0.00	0.00
MG-21	HOMOGENEOUS	11.04	8.65	0.00	3.11	0.00	0.00	0.00	0.00	0.00	0.00	0.83	8.61	0.00	0.00	0.00
MG-22	HOMOGENEOUS	18.23	9.36	0.00	4.12	0.00	0.00	0.00	0.00	0.00	0.00	1.65	10.78	0.00	0.00	0.00
MG-22	HOMOGENEOUS	18.23	9.36	0.00	4.12	0.00	0.00	0.00	0.00	0.00	0.00	1.65	10.78	0.00	0.00	0.00
MG-22	HOMOGENEOUS	18.23	9.36	0.00	4.12	0.00	0.00	0.00	0.00	0.00	0.00	1.65	10.78	0.00	0.00	0.00
MG-22	HOMOGENEOUS	18.23	9.36	0.00	4.12	0.00	0.00	0.00	0.00	0.00	0.00	1.65	10.78	0.00	0.00	0.00
MG-23	HOMOGENEOUS	21.29	7.18	0.00	2.63	0.00	0.00	0.00	0.00	0.00	0.00	1.55	6.27	0.00	0.00	0.00
MG-23	HOMOGENEOUS	21.29	7.18	0.00	2.63	0.00	0.00	0.00	0.00	0.00	0.00	1.55	6.27	0.00	0.00	0.00
MG-23	HOMOGENEOUS	21.29	7.18	0.00	2.63	0.00	0.00	0.00	0.00	0.00	0.00	1.55	6.27	0.00	0.00	0.00
MG-23	HOMOGENEOUS	21.29	7.18	0.00	2.63	0.00	0.00	0.00	0.00	0.00	0.00	1.55	6.27	0.00	0.00	0.00
MG-24	HOMOGENEOUS	7.35	10.40	0.00	4.52	0.00	0.00	0.00	0.00	0.00	0.00	1.72	12.12	0.00	0.00	0.00
MG-24	HOMOGENEOUS	7.35	10.40	0.00	4.52	0.00	0.00	0.00	0.00	0.00	0.00	1.72	12.12	0.00	0.00	0.00
MG-24	HOMOGENEOUS	7.35	10.40	0.00	4.52	0.00	0.00	0.00	0.00	0.00	0.00	1.72	12.12	0.00	0.00	0.00
MG-24	HOMOGENEOUS	7.35	10.40	0.00	4.52	0.00	0.00	0.00	0.00	0.00	0.00	1.72	12.12	0.00	0.00	0.00
MG-25	HOMOGENEOUS	12.90	13.65	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15	8.19	0.00	0.00	0.00
MG-25	HOMOGENEOUS	12.90	13.65	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15	8.19	0.00	0.00	0.00
MG-25	HOMOGENEOUS	12.90	13.65	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15	8.19	0.00	0.00	0.00
MG-25	HOMOGENEOUS	12.90	13.65	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15	8.19	0.00	0.00	0.00
MG-26	HOMOGENEOUS	11.03	4.31	0.00	4.53	0.00	0.00	0.00	0.00	0.00	0.00	2.52	11.28	0.00	0.00	0.00
MG-26	HOMOGENEOUS	11.03	4.31	0.00	4.53	0.00	0.00	0.00	0.00	0.00	0.00	2.52	11.28	0.00	0.00	0.00
MG-26	HOMOGENEOUS	11.03	4.31	0.00	4.53	0.00	0.00	0.00	0.00	0.00	0.00	2.52	11.28	0.00	0.00	0.00
MG-26	HOMOGENEOUS	11.03	4.31	0.00	4.53	0.00	0.00	0.00	0.00	0.00	0.00	2.52	11.28	0.00	0.00	0.00
MG-27	HOMOGENEOUS	14.24	7.95	0.00	7.54	0.00	0.00	0.00	0.00	0.00	0.00	1.26	7.63	0.00	0.00	0.00
MG-27	HOMOGENEOUS	14.24	7.95	0.00	7.54	0.00	0.00	0.00	0.00	0.00	0.00	1.26	7.63	0.00	0.00	0.00
MG-27	HOMOGENEOUS	14.24	7.95	0.00	7.54	0.00	0.00	0.00	0.00	0.00	0.00	1.26	7.63	0.00	0.00	0.00
MG-27	HOMOGENEOUS	14.24	7.95	0.00	7.54	0.00	0.00	0.00	0.00	0.00	0.00	1.26	7.63	0.00	0.00	0.00
MG-28	HOMOGENEOUS	14.42	9.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.12	11.02	0.00	0.00	0.00
MG-28	HOMOGENEOUS	14.42	9.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.12	11.02	0.00	0.00	0.00
MG-28	HOMOGENEOUS	14.42	9.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.12	11.02	0.00	0.00	0.00
MG-28	HOMOGENEOUS	14.42	9.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.12	11.02	0.00	0.00	0.00
MG-29	HOMOGENEOUS	11.36	7.26	0.00	2.63	0.00	0.00	0.00	0.00	0.00	0.00	2.95	17.07	0.00	0.00	0.00
MG-29	HOMOGENEOUS	11.36	7.26	0.00	2.63	0.00	0.00	0.00	0.00	0.00	0.00	2.95	17.07	0.00	0.00	0.00
MG-29	HOMOGENEOUS	11.36	7.26	0.00	2.63	0.00	0.00	0.00	0.00	0.00	0.00	2.95	17.07	0.00	0.00	0.00
MG-29	HOMOGENEOUS	11.36	7.26	0.00	2.63	0.00	0.00	0.00	0.00	0.00	0.00	2.95	17.07	0.00	0.00	0.00
MG-30	HOMOGENEOUS	9.98	11.45	0.00	5.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-30	HOMOGENEOUS	9.98	11.45	0.00	5.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-30	HOMOGENEOUS	9.98	11.45	0.00	5.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-30	HOMOGENEOUS	9.98	11.45	0.00	5.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
MG-31	HOMOGENEOUS	14.24	7.53	0.00	2.87	0.00	0.00	0.00	0.00	0.00	0.00	1.09	7.69	0.00	0.00	0.00
MG-31	HOMOGENEOUS	14.24	7.53	0.00	2.87	0.00	0.00	0.00	0.00	0.00	0.00	1.09	7.69	0.00	0.00	0.00
MG-31	HOMOGENEOUS	14.24	7.53	0.00	2.87	0.00	0.00	0.00	0.00	0.00	0.00	1.09	7.69	0.00	0.00	0.00
MG-31	HOMOGENEOUS	14.24	7.53	0.00	2.87	0.00	0.00	0.00	0.00	0.00	0.00	1.09	7.69	0.00	0.00	0.00
MG-32	HOMOGENEOUS	15.68	8.94	0.00	4.13	0.00	0.00	0.00	0.00	0.00	0.00	2.76	9.60	0.00	0.00	0.00
MG-32	HOMOGENEOUS	15.68	8.94	0.00	4.13	0.00	0.00	0.00	0.00	0.00	0.00	2.76	9.60	0.00	0.00	0.00

Appendix B - Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
MG-15	0.00	0.00	0.00	0.00	22.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.77	0.00	0.00	0.00
MG-16	0.00	0.00	0.00	0.00	19.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.37	0.00	0.00	0.00
MG-16	0.00	0.00	0.00	0.00	19.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.37	0.00	0.00	0.00
MG-16	0.00	0.00	0.00	0.00	19.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.37	0.00	0.00	0.00
MG-16	0.00	0.00	0.00	0.00	19.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.37	0.00	0.00	0.00
MG-17	0.00	0.00	0.00	0.00	20.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	37.61	0.00	0.00	0.00
MG-17	0.00	0.00	0.00	0.00	20.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	37.61	0.00	0.00	0.00
MG-17	0.00	0.00	0.00	0.00	20.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	37.61	0.00	0.00	0.00
MG-17	0.00	0.00	0.00	0.00	20.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	37.61	0.00	0.00	0.00
MG-18	0.00	0.00	0.00	0.00	24.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.46	0.00	0.00	0.00
MG-18	0.00	0.00	0.00	0.00	24.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.46	0.00	0.00	0.00
MG-18	0.00	0.00	0.00	0.00	24.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.46	0.00	0.00	0.00
MG-18	0.00	0.00	0.00	0.00	24.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.46	0.00	0.00	0.00
MG-19	0.00	0.00	0.00	0.00	24.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.28	0.00	0.00	0.00
MG-19	0.00	0.00	0.00	0.00	24.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.28	0.00	0.00	0.00
MG-19	0.00	0.00	0.00	0.00	24.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.28	0.00	0.00	0.00
MG-19	0.00	0.00	0.00	0.00	24.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.28	0.00	0.00	0.00
MG-20	0.00	0.00	0.00	0.00	21.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.63	0.00	0.00	0.00
MG-20	0.00	0.00	0.00	0.00	21.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.63	0.00	0.00	0.00
MG-20	0.00	0.00	0.00	0.00	21.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.63	0.00	0.00	0.00
MG-20	0.00	0.00	0.00	0.00	21.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.63	0.00	0.00	0.00
MG-21	0.00	0.00	0.00	0.00	16.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.97	0.00	0.00	0.00
MG-21	0.00	0.00	0.00	0.00	16.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.97	0.00	0.00	0.00
MG-21	0.00	0.00	0.00	0.00	16.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.97	0.00	0.00	0.00
MG-21	0.00	0.00	0.00	0.00	16.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.97	0.00	0.00	0.00
MG-22	0.00	0.00	0.00	0.00	15.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.39	0.00	0.00	0.00
MG-22	0.00	0.00	0.00	0.00	15.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.39	0.00	0.00	0.00
MG-22	0.00	0.00	0.00	0.00	15.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.39	0.00	0.00	0.00
MG-22	0.00	0.00	0.00	0.00	15.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.39	0.00	0.00	0.00
MG-23	0.00	0.00	0.00	0.00	14.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.91	0.00	0.00	0.00
MG-23	0.00	0.00	0.00	0.00	14.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.91	0.00	0.00	0.00
MG-23	0.00	0.00	0.00	0.00	14.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.91	0.00	0.00	0.00
MG-23	0.00	0.00	0.00	0.00	14.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.91	0.00	0.00	0.00
MG-24	0.00	0.00	0.00	0.00	17.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.54	0.00	0.00	0.00
MG-24	0.00	0.00	0.00	0.00	17.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.54	0.00	0.00	0.00
MG-24	0.00	0.00	0.00	0.00	17.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.54	0.00	0.00	0.00
MG-24	0.00	0.00	0.00	0.00	17.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.54	0.00	0.00	0.00
MG-25	0.00	0.00	0.00	0.00	15.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.86	0.00	0.00	0.00
MG-25	0.00	0.00	0.00	0.00	15.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.86	0.00	0.00	0.00
MG-25	0.00	0.00	0.00	0.00	15.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.86	0.00	0.00	0.00
MG-25	0.00	0.00	0.00	0.00	15.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.86	0.00	0.00	0.00
MG-26	0.00	0.00	0.00	0.00	17.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.52	0.00	0.00	0.00
MG-26	0.00	0.00	0.00	0.00	17.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.52	0.00	0.00	0.00
MG-26	0.00	0.00	0.00	0.00	17.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.52	0.00	0.00	0.00
MG-26	0.00	0.00	0.00	0.00	17.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.52	0.00	0.00	0.00
MG-27	0.00	0.00	0.00	0.00	15.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.73	0.00	0.00	0.00
MG-27	0.00	0.00	0.00	0.00	15.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.73	0.00	0.00	0.00
MG-27	0.00	0.00	0.00	0.00	15.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.73	0.00	0.00	0.00
MG-27	0.00	0.00	0.00	0.00	15.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.73	0.00	0.00	0.00
MG-28	0.00	0.00	0.00	0.00	16.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.88	0.00	0.00	0.00
MG-28	0.00	0.00	0.00	0.00	16.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.88	0.00	0.00	0.00
MG-28	0.00	0.00	0.00	0.00	16.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.88	0.00	0.00	0.00
MG-28	0.00	0.00	0.00	0.00	16.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.88	0.00	0.00	0.00
MG-29	0.00	0.00	0.00	0.00	13.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.37	0.00	0.00	0.00
MG-29	0.00	0.00	0.00	0.00	13.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.37	0.00	0.00	0.00
MG-29	0.00	0.00	0.00	0.00	13.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.37	0.00	0.00	0.00
MG-29	0.00	0.00	0.00	0.00	13.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.37	0.00	0.00	0.00
MG-30	0.00	0.00	0.00	0.00	18.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.20	0.00	0.00	0.00
MG-30	0.00	0.00	0.00	0.00	18.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.20	0.00	0.00	0.00
MG-30	0.00	0.00	0.00	0.00	18.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.20	0.00	0.00	0.00
MG-30	0.00	0.00	0.00	0.00	18.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.20	0.00	0.00	0.00
MG-31	0.00	0.00	0.00	0.00	19.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.25	0.00	0.00	0.00
MG-31	0.00	0.00	0.00	0.00	19.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.25	0.00	0.00	0.00
MG-31	0.00	0.00	0.00	0.00	19.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.25	0.00	0.00	0.00
MG-31	0.00	0.00	0.00	0.00	19.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.25	0.00	0.00	0.00
MG-32	0.00	0.00	0.00	0.00	11.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.64	0.00	0.00	0.00
MG-32	0.00	0.00	0.00	0.00	11.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.64	0.00	0.00	0.00

Appendix B - Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
MG-15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.02		
MG-16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.89		
MG-16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.89		
MG-16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.89		
MG-16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.89		
MG-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	108.14		
MG-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	108.14		
MG-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	108.14		
MG-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	108.14		
MG-18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.53		
MG-18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.53		
MG-18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.53		
MG-18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.53		
MG-19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	104.08		
MG-19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	104.08		
MG-19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	104.08		
MG-19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	104.08		
MG-20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.86		
MG-20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.86		
MG-20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.86		
MG-20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.86		
MG-21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.86		
MG-21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.86		
MG-21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.86		
MG-21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.86		
MG-22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.36		
MG-22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.36		
MG-22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.36		
MG-22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.36		
MG-23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	94.70		
MG-23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	94.70		
MG-23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	94.70		
MG-23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	94.70		
MG-24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.70		
MG-24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.70		
MG-24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.70		
MG-24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.70		
MG-25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.15		
MG-25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.15		
MG-25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.15		
MG-25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.15		
MG-26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.60		
MG-26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.60		
MG-26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.60		
MG-26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.60		
MG-27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.77		
MG-27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.77		
MG-27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.77		
MG-27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.77		
MG-28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.15		
MG-28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.15		
MG-28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.15		
MG-28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.15		
MG-29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.50		
MG-29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.50		
MG-29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.50		
MG-29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.50		
MG-30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	94.05		
MG-30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	94.05		
MG-30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	94.05		
MG-30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	94.05		
MG-31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.54		
MG-31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.54		
MG-31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.54		
MG-31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.54		
MG-32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.56		
MG-32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.56		

Appendix B - Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
MG-32	HLW	SRNL -Ramsey Thesis	T	28.00	0.08	1.957	54.790	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.40
MG-32	HLW	SRNL -Ramsey Thesis	T	168.00	0.08	1.957	328.740	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.60
MG-33	HLW	SRNL -Ramsey Thesis	T	7.00	0.08	1.957	13.698	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.20
MG-33	HLW	SRNL -Ramsey Thesis	T	14.00	0.08	1.957	27.395	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.80
MG-33	HLW	SRNL -Ramsey Thesis	T	28.00	0.08	1.957	54.790	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	10.70
MG-33	HLW	SRNL -Ramsey Thesis	T	168.00	0.08	1.957	328.740	2.750	4.00	100-200	1.125E-04	0.040	ASTM I	90	11.60
PSON-90 7day	HLW	SRNL Crawford FY10-11	SS	7.00	0.16	19.568	136.975	**2.750**	8.00	100-200	1.125E-04	0.008	ASTM I	90	9.86
PSON-90 28day	HLW	SRNL Crawford FY10-11	SS	28.00	0.16	19.568	547.901	**2.750**	8.00	100-200	1.125E-04	0.008	ASTM I	90	9.93
PSON-90 56day	HLW	SRNL Crawford FY10-11	SS	56.00	0.16	19.568	1,095.801	**2.750**	8.00	100-200	1.125E-04	0.008	ASTM I	90	9.83
PSON-90 91day	HLW	SRNL Crawford FY10-11	SS	91.00	0.16	19.568	1,780.677	**2.750**	8.00	100-200	1.125E-04	0.008	ASTM I	90	9.80
PSON-90 182 day	HLW	SRNL Crawford FY10-11	SS	182.00	0.16	19.568	3,561.353	**2.750**	8.00	100-200	1.125E-04	0.008	ASTM I	90	9.79
PSON-90 317 day	HLW	SRNL Crawford FY10-11	SS	317.00	0.16	19.568	6,203.017	**2.750**	8.00	100-200	1.125E-04	0.008	ASTM I	90	9.70
PSON-90 450 day	HLW	SRNL Crawford FY10-11	SS	450.00	0.16	19.568	8,805.544	**2.750**	8.00	100-200	1.125E-04	0.008	ASTM I	90	9.77
PSON-90 600 day	HLW	SRNL Crawford FY10-11	SS	600.00	0.16	19.568	11,740.726	**2.750**	8.00	100-200	1.125E-04	0.008	ASTM I	90	9.82
PAFCI-90-7day	HLW	SRNL Crawford FY10-11	SS	7.00	0.16	20.697	144.878	**2.600**	8.00	100-200	1.125E-04	0.008	ASTM I	90	11.15
PAFCI-90-28day	HLW	SRNL Crawford FY10-11	SS	28.00	0.16	20.697	579.510	**2.600**	8.00	100-200	1.125E-04	0.008	ASTM I	90	11.39
PAFCI-90-56day	HLW	SRNL Crawford FY10-11	SS	56.00	0.16	20.697	1,159.020	**2.600**	8.00	100-200	1.125E-04	0.008	ASTM I	90	11.22
PAFCI-90-91day	HLW	SRNL Crawford FY10-11	SS	91.00	0.16	20.697	1,883.408	**2.600**	8.00	100-200	1.125E-04	0.008	ASTM I	90	11.26
PAFCI-90-182 day	HLW	SRNL Crawford FY10-11	SS	182.00	0.16	20.697	3,766.816	**2.600**	8.00	100-200	1.125E-04	0.008	ASTM I	90	11.28
PAFCI-90-317 day	HLW	SRNL Crawford FY10-11	SS	317.00	0.16	20.697	6,560.883	**2.600**	8.00	100-200	1.125E-04	0.008	ASTM I	90	11.16
PAFCI-90-450 day	HLW	SRNL Crawford FY10-11	SS	450.00	0.16	20.697	9,313.556	**2.600**	8.00	100-200	1.125E-04	0.008	ASTM I	90	11.31
PAFCI-90-600 day	HLW	SRNL Crawford FY10-11	SS	600.00	0.16	20.697	12,418.075	**2.600**	8.00	100-200	1.125E-04	0.008	ASTM I	90	11.00
PSON-200 7day	HLW	SRNL Crawford FY10-11	SS	7.00	0.18	36.980	258.860	**2.750**	5.00	200-325	5.900E-05	0.005	ASTM I	200	9.66
PSON-200 28day	HLW	SRNL Crawford FY10-11	SS	28.00	0.18	36.980	1,035.439	**2.750**	5.00	200-325	5.900E-05	0.005	ASTM I	200	9.55
PSON-200 90day	HLW	SRNL Crawford FY10-11	SS	90.00	0.18	36.980	3,328.197	**2.750**	5.00	200-325	5.900E-05	0.005	ASTM I	200	9.54
PSON-200 124 day	HLW	SRNL Crawford FY10-11	SS	124.00	0.18	36.980	4,585.516	**2.750**	5.00	200-325	5.900E-05	0.005	ASTM I	200	9.59
PSON-200 308 day	HLW	SRNL Crawford FY10-11	SS	308.00	0.18	36.980	11,389.831	**2.750**	5.00	200-325	5.900E-05	0.005	ASTM I	200	9.58

Appendix B - Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
MG-32	29.54	9.34	0.63			55.40		20.52	1.51					
MG-32	35.73	12.30	0.68			89.27		25.71	2.35					
MG-33	42.12	9.21	0.67			63.04		21.75	3.96					
MG-33	44.93	10.29	0.73			71.61		23.36	4.58					
MG-33	51.31	7.99	0.77			82.61		27.52	5.21					
MG-33	57.93	17.83	0.96			131.52		30.73	7.41					
PSON-90 7day	101.50	159.00			35.75	229.00		0.25		28.55				
PSON-90 28day	118.00	207.50			47.65	264.00		1.47		33.50				
PSON-90 56day	129.00	262.50			59.50	354.50		0.25		38.85				
PSON-90 91day	124.50	295.12			66.00	402.50		0.25		40.75				
PSON-90 182 day	133.00	319.00			74.00	439.00		1.06		41.20				
PSON-90 317 day	144.00	404.00	0.25		88.50	520.00		0.25	0.25	34.70				
PSON-90 450 day	131.00	460.00	0.25		104.00	590.00		0.25	0.25	45.70				
PSON-90 600 day	147.00	478.00	0.25		104.00			0.25	0.25	48.10				
PAFCI-90-7day	87.90	25.50	5.30		40.40	45.10		5.51		5.50				
PAFCI-90-28day	121.50	38.90			57.55	60.80		9.76		8.30				
PAFCI-90-56day	155.00	49.75			75.50	72.50		11.95		10.70				
PAFCI-90-91day	159.50	56.15			87.35	83.60		12.55		11.65				
PAFCI-90-182 day	217.00	75.50			110.00	107.00		9.10		17.70				
PAFCI-90-317 day	605.00	347.00	0.25		303.00	361.00		2.50	0.25	88.00				
PAFCI-90-450 day	1065.00	2840.00	0.25		1625.00	1905.00		0.25	0.25	1055.00				
PAFCI-90-600 day	2245.00	13100.00	33.75		6750.00	10000.00		173.00	0.25	8700.00				
PSON-200 7day	458.29	1502.31	5.48		220.94	2308.86		1.90		178.64				
PSON-200 28day	414.55	4706.79	20.78		438.18	4677.25		24.91		824.18				
PSON-200 90day	188.65	6829.00	0.95		631.97	7517.56		0.94		1826.10				
PSON-200 124 day	321.50	10189.22	6.09		877.82	10903.93		41.23		2932.15				
PSON-200 308 day	523.74	17420.08	56.85		1171.10	20575.53		119.71		6937.13				

Appendix B - Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
MG-32		amorphous	XRD	64.39	32.4794946	-75.76819454	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-32		amorphous	XRD	64.39	32.4794946	-75.76819454	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-33		amorphous	XRD	67.13	31.0871044	-72.29820395	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-33		amorphous	XRD	67.13	31.0871044	-72.29820395	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-33		amorphous	XRD	67.13	31.0871044	-72.29820395	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MG-33		amorphous	XRD	67.13	31.0871044	-72.29820395	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
PSON-90 7day		amorphous	XRD	73.32	17.500128	-5.478367256	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
PSON-90 28day		amorphous	XRD	73.32	17.500128	-5.478367256	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
PSON-90 56day		amorphous	XRD	73.32	17.500128	-5.478367256	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
PSON-90 91day		amorphous	XRD	73.32	17.500128	-5.478367256	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
PSON-90 182 day		amorphous	XRD	73.32	17.500128	-5.478367256	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
PSON-90 317 day		amorphous	XRD	73.32	17.500128	-5.478367256	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
PSON-90 450 day		amorphous	XRD	73.32	17.500128	-5.478367256	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
PSON-90 600 day		amorphous	XRD	73.32	17.500128	-5.478367256	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
PAFCI-90-7day		amorphous	XRD	68.98	24.639731	-38.8443004	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
PAFCI-90-28day		amorphous	XRD	68.98	24.639731	-38.8443004	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
PAFCI-90-56day		amorphous	XRD	68.98	24.639731	-38.8443004	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
PAFCI-90-91day		amorphous	XRD	68.98	24.639731	-38.8443004	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
PAFCI-90-182 day		amorphous	XRD	68.98	24.639731	-38.8443004	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
PAFCI-90-317 day		amorphous	XRD	68.98	24.639731	-38.8443004	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
PAFCI-90-450 day		Na1.46Al2Si7.67O19.07.xH2O (49-0919); Albite NaAlSi3O8 (09-0466); 1A kaolinite Al2Si2O5(OH)4 (00-014-0164)	XRD	68.98	24.639731	-38.8443004	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
PAFCI-90-600 day		Na6Al6Si10O32.12H2O (39-0219) a pseudocubic zeolite; Na Chabazite NaAlSi2O6.3H2O (00-019-1178)	XRD	68.98	24.639731	-38.8443004	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
PSON-200 7day		amorphous		73.32	17.500128	-5.478367256	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
PSON-200 28day		Analcime (041-1478) and Nontronite-15A (00-029-1497)		73.32	17.500128	-5.478367256	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
PSON-200 90day		Beidellite (00-043-0688)		73.32	17.500128	-5.478367256	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
PSON-200 124 day		Analcime C Na(Si2Al)O6.H2O (00-041-1478), Beidellite 12A (00-043-0688), Beidellite (Na,Ca)0.3Al2(Si,Al)4O10 (OH)2.xH2O (00-058-2019) and Nacrite Al2Si2O5(OH)4 (1-075-1879)		73.32	17.500128	-5.478367256	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
PSON-200 308 day		Analcime (041-1478); Nontronite 15A Na0.3Fe2Si4O10(OH)2.4H2O (029-1497); Sodium Aluminosilicate similar to Phillipsite (0.95Na2OAl2O33.35SiO2.4.79H2O,038-0327)		73.32	17.500128	-5.478367256	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti

Appendix B - Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
MG-32	HOMOGENEOUS	15.68	8.94	0.00	4.13	0.00	0.00	0.00	0.00	0.00	0.00	2.76	9.60	0.00	0.00	0.00
MG-32	HOMOGENEOUS	15.68	8.94	0.00	4.13	0.00	0.00	0.00	0.00	0.00	0.00	2.76	9.60	0.00	0.00	0.00
MG-33	HOMOGENEOUS	17.48	8.48	0.00	3.35	0.00	0.00	0.00	0.00	0.00	0.00	1.81	8.25	0.00	0.00	0.00
MG-33	HOMOGENEOUS	17.48	8.48	0.00	3.35	0.00	0.00	0.00	0.00	0.00	0.00	1.81	8.25	0.00	0.00	0.00
MG-33	HOMOGENEOUS	17.48	8.48	0.00	3.35	0.00	0.00	0.00	0.00	0.00	0.00	1.81	8.25	0.00	0.00	0.00
MG-33	HOMOGENEOUS	17.48	8.48	0.00	3.35	0.00	0.00	0.00	0.00	0.00	0.00	1.81	8.25	0.00	0.00	0.00
PSON-90 7day	HOMOGENEOUS	5.14	14.01	0.41	4.32	0.00	0.45	0.47	0.46	0.00	0.00	0.00	2.99	0.01	0.00	0.74
PSON-90 28day	HOMOGENEOUS	5.14	14.01	0.41	4.32	0.00	0.45	0.47	0.46	0.00	0.00	0.00	2.99	0.01	0.00	0.74
PSON-90 56day	HOMOGENEOUS	5.14	14.01	0.41	4.32	0.00	0.45	0.47	0.46	0.00	0.00	0.00	2.99	0.01	0.00	0.74
PSON-90 91day	HOMOGENEOUS	5.14	14.01	0.41	4.32	0.00	0.45	0.47	0.46	0.00	0.00	0.00	2.99	0.01	0.00	0.74
PSON-90 182 day	HOMOGENEOUS	5.14	14.01	0.41	4.32	0.00	0.45	0.47	0.46	0.00	0.00	0.00	2.99	0.01	0.00	0.74
PSON-90 317 day	HOMOGENEOUS	5.14	14.01	0.41	4.32	0.00	0.45	0.47	0.46	0.00	0.00	0.00	2.99	0.01	0.00	0.74
PSON-90 450 day	HOMOGENEOUS	5.14	14.01	0.41	4.32	0.00	0.45	0.47	0.46	0.00	0.00	0.00	2.99	0.01	0.00	0.74
PSON-90 600 day	HOMOGENEOUS	5.14	14.01	0.41	4.32	0.00	0.45	0.47	0.46	0.00	0.00	0.00	2.99	0.01	0.00	0.74
PAFCI-90-7day	HOMOGENEOUS	9.37	9.66	0.83	5.44	0.00	0.53	0.00	0.41	0.00	0.00	0.00	0.01	0.01	0.00	0.48
PAFCI-90-28day	HOMOGENEOUS	9.37	9.66	0.83	5.44	0.00	0.53	0.00	0.41	0.00	0.00	0.00	0.01	0.01	0.00	0.48
PAFCI-90-56day	HOMOGENEOUS	9.37	9.66	0.83	5.44	0.00	0.53	0.00	0.41	0.00	0.00	0.00	0.01	0.01	0.00	0.48
PAFCI-90-91day	HOMOGENEOUS	9.37	9.66	0.83	5.44	0.00	0.53	0.00	0.41	0.00	0.00	0.00	0.01	0.01	0.00	0.48
PAFCI-90-182 day	HOMOGENEOUS	9.37	9.66	0.83	5.44	0.00	0.53	0.00	0.41	0.00	0.00	0.00	0.01	0.01	0.00	0.48
PAFCI-90-317 day	HOMOGENEOUS	9.37	9.66	0.83	5.44	0.00	0.53	0.00	0.41	0.00	0.00	0.00	0.01	0.01	0.00	0.48
PAFCI-90-450 day	HOMOGENEOUS	9.37	9.66	0.83	5.44	0.00	0.53	0.00	0.41	0.00	0.00	0.00	0.01	0.01	0.00	0.48
PAFCI-90-600 day	HOMOGENEOUS	9.37	9.66	0.83	5.44	0.00	0.53	0.00	0.41	0.00	0.00	0.00	0.01	0.01	0.00	0.48
PSON-200 7day	HOMOGENEOUS	5.14	14.01	0.41	4.32	0.00	0.45	0.47	0.46	0.00	0.00	0.00	2.99	0.01	0.00	0.74
PSON-200 28day	HOMOGENEOUS	5.14	14.01	0.41	4.32	0.00	0.45	0.47	0.46	0.00	0.00	0.00	2.99	0.01	0.00	0.74
PSON-200 90day	HOMOGENEOUS	5.14	14.01	0.41	4.32	0.00	0.45	0.47	0.46	0.00	0.00	0.00	2.99	0.01	0.00	0.74
PSON-200 124 day	HOMOGENEOUS	5.14	14.01	0.41	4.32	0.00	0.45	0.47	0.46	0.00	0.00	0.00	2.99	0.01	0.00	0.74
PSON-200 308 day	HOMOGENEOUS	5.14	14.01	0.41	4.32	0.00	0.45	0.47	0.46	0.00	0.00	0.00	2.99	0.01	0.00	0.74

Appendix B - Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
MG-32	0.00	0.00	0.00	0.00	11.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.64	0.00	0.00	0.00
MG-32	0.00	0.00	0.00	0.00	11.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.64	0.00	0.00	0.00
MG-33	0.00	0.00	0.00	0.00	15.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.25	0.00	0.00	0.00
MG-33	0.00	0.00	0.00	0.00	15.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.25	0.00	0.00	0.00
MG-33	0.00	0.00	0.00	0.00	15.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.25	0.00	0.00	0.00
MG-33	0.00	0.00	0.00	0.00	15.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.25	0.00	0.00	0.00
PSON-90 7day	2.05	0.02	0.30	1.64	10.77	2.05	0.36	0.00	0.23	0.00	0.00	0.00	0.00	46.02	0.00	0.00	0.38
PSON-90 28day	2.05	0.02	0.30	1.64	10.77	2.05	0.36	0.00	0.23	0.00	0.00	0.00	0.00	46.02	0.00	0.00	0.38
PSON-90 56day	2.05	0.02	0.30	1.64	10.77	2.05	0.36	0.00	0.23	0.00	0.00	0.00	0.00	46.02	0.00	0.00	0.38
PSON-90 91day	2.05	0.02	0.30	1.64	10.77	2.05	0.36	0.00	0.23	0.00	0.00	0.00	0.00	46.02	0.00	0.00	0.38
PSON-90 182 day	2.05	0.02	0.30	1.64	10.77	2.05	0.36	0.00	0.23	0.00	0.00	0.00	0.00	46.02	0.00	0.00	0.38
PSON-90 317 day	2.05	0.02	0.30	1.64	10.77	2.05	0.36	0.00	0.23	0.00	0.00	0.00	0.00	46.02	0.00	0.00	0.38
PSON-90 450 day	2.05	0.02	0.30	1.64	10.77	2.05	0.36	0.00	0.23	0.00	0.00	0.00	0.00	46.02	0.00	0.00	0.38
PSON-90 600 day	2.05	0.02	0.30	1.64	10.77	2.05	0.36	0.00	0.23	0.00	0.00	0.00	0.00	46.02	0.00	0.00	0.38
PAFCI-90-7day	4.41	0.02	0.00	0.00	1.40	8.59	2.01	0.00	0.00	0.00	0.00	0.00	0.00	53.08	0.00	0.00	0.40
PAFCI-90-28day	4.41	0.02	0.00	0.00	1.40	8.59	2.01	0.00	0.00	0.00	0.00	0.00	0.00	53.08	0.00	0.00	0.40
PAFCI-90-56day	4.41	0.02	0.00	0.00	1.40	8.59	2.01	0.00	0.00	0.00	0.00	0.00	0.00	53.08	0.00	0.00	0.40
PAFCI-90-91day	4.41	0.02	0.00	0.00	1.40	8.59	2.01	0.00	0.00	0.00	0.00	0.00	0.00	53.08	0.00	0.00	0.40
PAFCI-90-182 day	4.41	0.02	0.00	0.00	1.40	8.59	2.01	0.00	0.00	0.00	0.00	0.00	0.00	53.08	0.00	0.00	0.40
PAFCI-90-317 day	4.41	0.02	0.00	0.00	1.40	8.59	2.01	0.00	0.00	0.00	0.00	0.00	0.00	53.08	0.00	0.00	0.40
PAFCI-90-450 day	4.41	0.02	0.00	0.00	1.40	8.59	2.01	0.00	0.00	0.00	0.00	0.00	0.00	53.08	0.00	0.00	0.40
PAFCI-90-600 day	4.41	0.02	0.00	0.00	1.40	8.59	2.01	0.00	0.00	0.00	0.00	0.00	0.00	53.08	0.00	0.00	0.40
PSON-200 7day	2.05	0.02	0.30	1.64	10.77	2.05	0.36	0.00	0.23	0.00	0.00	0.00	0.00	46.02	0.00	0.00	0.38
PSON-200 28day	2.05	0.02	0.30	1.64	10.77	2.05	0.36	0.00	0.23	0.00	0.00	0.00	0.00	46.02	0.00	0.00	0.38
PSON-200 90day	2.05	0.02	0.30	1.64	10.77	2.05	0.36	0.00	0.23	0.00	0.00	0.00	0.00	46.02	0.00	0.00	0.38
PSON-200 124 day	2.05	0.02	0.30	1.64	10.77	2.05	0.36	0.00	0.23	0.00	0.00	0.00	0.00	46.02	0.00	0.00	0.38
PSON-200 308 day	2.05	0.02	0.30	1.64	10.77	2.05	0.36	0.00	0.23	0.00	0.00	0.00	0.00	46.02	0.00	0.00	0.38

Appendix B - Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
MG-32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.56		
MG-32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.56		
MG-33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.02		
MG-33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.02		
MG-33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.02		
MG-33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.02		
PSON-90 7day	0.00	0.00	0.00	0.00	0.18	2.12	2.66	0.00	97.75		
PSON-90 28day	0.00	0.00	0.00	0.00	0.18	2.12	2.66	0.00	97.75		
PSON-90 56day	0.00	0.00	0.00	0.00	0.18	2.12	2.66	0.00	97.75		
PSON-90 91day	0.00	0.00	0.00	0.00	0.18	2.12	2.66	0.00	97.75		
PSON-90 182 day	0.00	0.00	0.00	0.00	0.18	2.12	2.66	0.00	97.75		
PSON-90 317 day	0.00	0.00	0.00	0.00	0.18	2.12	2.66	0.00	97.75		
PSON-90 450 day	0.00	0.00	0.00	0.00	0.18	2.12	2.66	0.00	97.75		
PSON-90 600 day	0.00	0.00	0.00	0.00	0.18	2.12	2.66	0.00	97.75		
PAFCI-90-7day	0.00	0.00	0.00	0.00	0.22	0.00	1.08	0.00	97.94		
PAFCI-90-28day	0.00	0.00	0.00	0.00	0.22	0.00	1.08	0.00	97.94		
PAFCI-90-56day	0.00	0.00	0.00	0.00	0.22	0.00	1.08	0.00	97.94		
PAFCI-90-91day	0.00	0.00	0.00	0.00	0.22	0.00	1.08	0.00	97.94		
PAFCI-90-182 day	0.00	0.00	0.00	0.00	0.22	0.00	1.08	0.00	97.94		
PAFCI-90-317 day	0.00	0.00	0.00	0.00	0.22	0.00	1.08	0.00	97.94		
PAFCI-90-450 day	0.00	0.00	0.00	0.00	0.22	0.00	1.08	0.00	97.94		
PAFCI-90-600 day	0.00	0.00	0.00	0.00	0.22	0.00	1.08	0.00	97.94		
PSON-200 7day	0.00	0.00	0.00	0.00	0.18	2.12	2.66	0.00	97.75		
PSON-200 28day	0.00	0.00	0.00	0.00	0.18	2.12	2.66	0.00	97.75		
PSON-200 90day	0.00	0.00	0.00	0.00	0.18	2.12	2.66	0.00	97.75		
PSON-200 124 day	0.00	0.00	0.00	0.00	0.18	2.12	2.66	0.00	97.75		
PSON-200 308 day	0.00	0.00	0.00	0.00	0.18	2.12	2.66	0.00	97.75		

Appendix B - Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
PSON-200 509 day	HLW	SRNL Crawford FY10-11	SS	509.00	0.18	36.980	18,822.804	**2.750**	5.00	200-325	5.900E-05	0.005	ASTM I	200	9.36
PSON-200 791 day	HLW	SRNL Crawford FY10-11	SS	791.00	0.18	36.980	29,251.156	**2.750**	5.00	200-325	5.900E-05	0.005	ASTM I	200	9.36
PAFCI-200 7day	HLW	SRNL Crawford FY10-11	SS	7.00	0.20	39.113	273.794	**2.600**	5.00	200-325	5.900E-05	0.005	ASTM I	200	9.55
PAFCI-200 28day	HLW	SRNL Crawford FY10-11	SS	28.00	0.20	39.113	1,095.176	**2.600**	5.00	200-325	5.900E-05	0.005	ASTM I	200	9.19
PAFCI-200 90day	HLW	SRNL Crawford FY10-11	SS	90.00	0.20	39.113	3,520.209	**2.600**	5.00	200-325	5.900E-05	0.005	ASTM I	200	9.42
PAFCI-200 124 day	HLW	SRNL Crawford FY10-11	SS	124.00	0.20	39.113	4,850.065	**2.600**	5.00	200-325	5.900E-05	0.005	ASTM I	200	9.44
PAFCI-200 308 day	HLW	SRNL Crawford FY10-11	SS	308.00	0.20	39.113	12,046.936	**2.600**	5.00	200-325	5.900E-05	0.005	ASTM I	200	9.27
PAFCI-200 509 day	HLW	SRNL Crawford FY10-11	SS	509.00	0.20	39.113	19,908.735	**2.600**	5.00	200-325	5.900E-05	0.005	ASTM I	200	9.16

Appendix B - Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
PSON-200 509 day	603.63	12609.96	19.50		386.72	20762.32		160.73		7603.51				
PSON-200 791 day	375.55	8709.95	22.11		231.43	17349.89		125.66		2580.54				
PAFCI-200 7day	930.26	14292.60	19.77		4467.06	7619.40		91.38		8276.76				
PAFCI-200 28day	807.71	19660.88	25.17		5033.40	8569.62		94.37		9219.73				
PAFCI-200 90day	186.41	35230.62	0.93		4604.21	9031.35		26.47		7987.47				
PAFCI-200 124 day	470.72	14751.84	0.93		4697.98	5170.56		26.97		8562.00				
PAFCI-200 308 day	261.58	7413.83	7.23		2138.88	2529.09		60.19		3454.01				
PAFCI-200 509 day	140.16	5016.06	13.67		1887.51	2271.35		52.21		2600.00				

Appendix B - Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
PSON-200 509 day		Analcime (041-1478); Nontronite 15A Na0.3Fe2Si4O10(OH)2.4 H2O (029-1497; Sodium Aluminosilicate similar to Phillipsite (0.95Na2OAl2O33.35SiO 2.4.79H2O,038-0327)		73.32	17.500128	-5.478367256	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
PSON-200 791 day		Analcime (041-1478); Nontronite 15A Na0.3Fe2Si4O10(OH)2.4 H2O; (029-1497); Sodium Aluminosilicate similar to Phillipsite (0.95Na2OAl2O33.35SiO 2.4.79H2O,038-0327); Halloysite 10A Al2Si2O5(OH4)2H2O 029-1429)		73.32	17.500128	-5.478367256	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
PAFCI-200 7day		Analcime (041-1478), Clinotobermorite (04-012-1762) and Montmorillonite (013-0135)		68.98	24.639731	-38.8443004	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
PAFCI-200 28day		Analcime (041-1478), Clinotobermorite (04-012-1762) and Montmorillonite (013-0135)		68.98	24.639731	-38.8443004	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
PAFCI-200 90day		Analcime (041-1478), Clinotobermorite (04-012-1762), Beidellite (00-043-0688) , Li2Si2O5 (00-040-0376), Li2SiO3 (00-029-0829)		68.98	24.639731	-38.8443004	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
PAFCI-200 124 day		Analcime (041-1478), Clinotobermorite (04-012-1762), Beidellite (00-043-0688) , Li2Si2O5 (00-040-0376), Li2SiO3 (00-029-0829)		68.98	24.639731	-38.8443004	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
PAFCI-200 308 day		Analcime Na(Si2Al)O6.H2O (41-1478); Diaoyudaoite Al10.35Mg0.65O16(Na1.6 5O) (73-9548);Montmorillonite 15A Ca0.2(Al,Mg)2Si4O10(O H)2.4H2O (013-0135)		68.98	24.639731	-38.8443004	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
PAFCI-200 509 day		Analcime Na(Si2Al)O6.H2O (41-1478); Diaoyudaoite Al10.35Mg0.65O16(Na1.6 5O) (73-9548);Montmorillonite (15A Ca0.2(Al,Mg)2Si4O10(O H)2.4H2O (013-0135)		68.98	24.639731	-38.8443004	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti

Appendix B - Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
PSON-200 509 day	HOMOGENEOUS	5.14	14.01	0.41	4.32	0.00	0.45	0.47	0.46	0.00	0.00	0.00	2.99	0.01	0.00	0.74
PSON-200 791 day	HOMOGENEOUS	5.14	14.01	0.41	4.32	0.00	0.45	0.47	0.46	0.00	0.00	0.00	2.99	0.01	0.00	0.74
PAFCI-200 7day	HOMOGENEOUS	9.37	9.66	0.83	5.44	0.00	0.53	0.00	0.41	0.00	0.00	0.00	0.01	0.01	0.00	0.48
PAFCI-200 28day	HOMOGENEOUS	9.37	9.66	0.83	5.44	0.00	0.53	0.00	0.41	0.00	0.00	0.00	0.01	0.01	0.00	0.48
PAFCI-200 90day	HOMOGENEOUS	9.37	9.66	0.83	5.44	0.00	0.53	0.00	0.41	0.00	0.00	0.00	0.01	0.01	0.00	0.48
PAFCI-200 124 day	HOMOGENEOUS	9.37	9.66	0.83	5.44	0.00	0.53	0.00	0.41	0.00	0.00	0.00	0.01	0.01	0.00	0.48
PAFCI-200 308 day	HOMOGENEOUS	9.37	9.66	0.83	5.44	0.00	0.53	0.00	0.41	0.00	0.00	0.00	0.01	0.01	0.00	0.48
PAFCI-200 509 day	HOMOGENEOUS	9.37	9.66	0.83	5.44	0.00	0.53	0.00	0.41	0.00	0.00	0.00	0.01	0.01	0.00	0.48

Appendix B - Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
PSON-200 509 day	2.05	0.02	0.30	1.64	10.77	2.05	0.36	0.00	0.23	0.00	0.00	0.00	0.00	46.02	0.00	0.00	0.38
PSON-200 791 day	2.05	0.02	0.30	1.64	10.77	2.05	0.36	0.00	0.23	0.00	0.00	0.00	0.00	46.02	0.00	0.00	0.38
PAFCI-200 7day	4.41	0.02	0.00	0.00	1.40	8.59	2.01	0.00	0.00	0.00	0.00	0.00	0.00	53.08	0.00	0.00	0.40
PAFCI-200 28day	4.41	0.02	0.00	0.00	1.40	8.59	2.01	0.00	0.00	0.00	0.00	0.00	0.00	53.08	0.00	0.00	0.40
PAFCI-200 90day	4.41	0.02	0.00	0.00	1.40	8.59	2.01	0.00	0.00	0.00	0.00	0.00	0.00	53.08	0.00	0.00	0.40
PAFCI-200 124 day	4.41	0.02	0.00	0.00	1.40	8.59	2.01	0.00	0.00	0.00	0.00	0.00	0.00	53.08	0.00	0.00	0.40
PAFCI-200 308 day	4.41	0.02	0.00	0.00	1.40	8.59	2.01	0.00	0.00	0.00	0.00	0.00	0.00	53.08	0.00	0.00	0.40
PAFCI-200 509 day	4.41	0.02	0.00	0.00	1.40	8.59	2.01	0.00	0.00	0.00	0.00	0.00	0.00	53.08	0.00	0.00	0.40

Appendix B - Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
PSON-200 509 day	0.00	0.00	0.00	0.00	0.18	2.12	2.66	0.00	97.75		
PSON-200 791 day	0.00	0.00	0.00	0.00	0.18	2.12	2.66	0.00	97.75		
PAFCI-200 7day	0.00	0.00	0.00	0.00	0.22	0.00	1.08	0.00	97.94		
PAFCI-200 28day	0.00	0.00	0.00	0.00	0.22	0.00	1.08	0.00	97.94		
PAFCI-200 90day	0.00	0.00	0.00	0.00	0.22	0.00	1.08	0.00	97.94		
PAFCI-200 124 day	0.00	0.00	0.00	0.00	0.22	0.00	1.08	0.00	97.94		
PAFCI-200 308 day	0.00	0.00	0.00	0.00	0.22	0.00	1.08	0.00	97.94		
PAFCI-200 509 day	0.00	0.00	0.00	0.00	0.22	0.00	1.08	0.00	97.94		

Appendix B - Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
PAFCI-200 805 day	HLW	SRNL Crawford FY10-11	SS	791.00	0.20	39.113	30,938.722	**2.600**	5.00	200-325	5.900E-05	0.005	ASTM I	200	9.16
WV203-18-Th Type IIIR	HLW	VSL-Muller	SS	7.00	0.19	1.957	13.698	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.58
WV203-18-Th Type IIIR	HLW	VSL-Muller	SS	28.00	0.19	1.957	54.790	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.73
WV203-18-Th Type IIIR	HLW	VSL-Muller	SS	56.00	0.19	1.957	109.580	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.79
WV203-18-Th Type IIIR	HLW	VSL-Muller	SS	119.00	0.19	1.957	232.858	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.70
WV203-18-Th Type IIIR	HLW	VSL-Muller	SS	181.00	0.19	1.957	354.179	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.84
WV203-18-Th Type IIIR	HLW	VSL-Muller	SS	273.00	0.19	1.957	534.203	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.98
WV203-18-Th Type IIIR	HLW	VSL-Muller	SS	363.00	0.19	1.957	710.314	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.81
WV203-18-Th Type IIIR	HLW	VSL-Muller	SS	549.00	0.19	1.957	1,074.276	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.86
WV203-18-Th Type IIIR	HLW	VSL-Muller	SS	734.00	0.19	1.957	1,436.282	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.76
WV203-18-Th Type IIIR	HLW	VSL-Muller	SS	1167.00	0.19	1.957	2,283.571	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.91
WV203-18-Th Type IIIR	HLW	VSL-Muller	SS	1539.00	0.19	1.957	3,011.496	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.94
WV203-18-Th Type IIIR	HLW	VSL-Muller	SS	1903.00	0.19	1.957	3,723.767	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.83
WV203-18-Th Type IIIR	HLW	VSL-Muller	SS	2271.00	0.19	1.957	4,443.865	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.71
WV203-18-Th Type IIIR	HLW	VSL-Muller	SS	2768.00	0.19	1.957	5,416.388	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.64
WV203-18-Th Type IIIR	HLW	VSL-Muller	SS	3132.00	0.19	1.957	6,128.659	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.45
WV203-18-Th Type IIIR	HLW	VSL-Muller	SS	3497.00	0.19	1.957	6,842.886	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.52
WV203-18-Th Type IIIR	HLW	VSL-Muller	SS	3814.00	0.19	1.957	7,463.188	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.55
WV203-18-Th Type IIIR	HLW	VSL-Muller	SS	4336.00	0.19	1.957	8,484.631	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.55
WVUTh198 Type IR	HLW	VSL-Muller	SS	2.00	0.19	1.957	3.914	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.69
WVUTh198 Type IR	HLW	VSL-Muller	SS	7.00	0.19	1.957	13.698	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.69
WVUTh198 Type IR	HLW	VSL-Muller	SS	28.00	0.19	1.957	54.790	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.78

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
PAFCI-200 805 day	146.81	4474.63	3.97		1789.85	1417.80		26.35		1327.31				
WV203-18-Th Type IIIR	368.13	1056.67			574.10	1062.33	478.07	3.33	0.24					
WV203-18-Th Type IIIR	380.63	1064.33			517.13	1050.33	454.43	4.39	0.24					
WV203-18-Th Type IIIR	414.33	1226.33			556.27	1227.67	513.90	4.20	2.16					
WV203-18-Th Type IIIR	443.67	1597.67			689.27	1551.33	659.30	3.56	0.20					
WV203-18-Th Type IIIR	473.63	1882.67			775.17	1818.67	777.37	2.55	0.13					
WV203-18-Th Type IIIR	472.63	1933.00			912.57	1838.00	851.30	2.88	0.03					
WV203-18-Th Type IIIR	431.67	2196.67			963.57	2345.00	987.57	1.80						
WV203-18-Th Type IIIR	514.77	2434.33			957.05	2198.33	1048.50	2.43	0.04					
WV203-18-Th Type IIIR	534.00	2332.67			1022.20	2733.33	1145.00	1.56	0.19					
WV203-18-Th Type IIIR	605.50	2692.19			1025.84	2859.21	1179.77	1.10	0.18					
WV203-18-Th Type IIIR	722.90	3162.51			1131.51	3233.23	1409.42	1.65	0.46					
WV203-18-Th Type IIIR	496.65	1941.15			713.97	2120.50	829.08	1.32	0.21					
WV203-18-Th Type IIIR	590.17	1967.70			714.90	2023.23	896.17	1.17						
WV203-18-Th Type IIIR	595.57	2263.63			878.83	2493.47	1021.57	1.10	0.10					
WV203-18-Th Type IIIR	675.39	2181.43			815.25	2211.43	913.18	1.15	0.46					
WV203-18-Th Type IIIR	664.17	1833.50			755.01	3052.57	903.26	1.11	0.59					
WV203-18-Th Type IIIR	608.98	1668.03			652.22	1839.63	853.77	1.32	0.19					
WV203-18-Th Type IIIR	421.93	1864.80			641.02	1890.10	852.99	5.95	0.13					
WVUTh198 Type IR	93.75	28.74			16.23	102.12	23.68	13.90	1.24					
WVUTh198 Type IR	70.85	27.40			14.87	94.69	22.21	10.63	1.86					
WVUTh198 Type IR	96.80	40.87			19.52	139.60	28.57	11.57	3.82					

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
PAFCI-200 805 day		Analcime Na(Si2Al)O6.H2O (41-1478); Diaoyudaoite Al10.35Mg0.65O16(Na1.65O) (73-9548); Montmorillonite (15A Ca0.2(Al,Mg)2Si4O10(OH)2.4H2O (013-0135)		68.98	24.639731	-38.8443004	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WV203-18-Th Type IIIR	0.70	Nontronite and zeolite (Phillipsite) and Analcime		72.06	17.49256	-3.422390368	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
WV203-18-Th Type IIIR	4.64	Nontronite and zeolite (Phillipsite) and Analcime	XRD/SEM	72.06	17.49256	-3.422390368	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
WV203-18-Th Type IIIR	3.52	Nontronite and zeolite (Phillipsite) and Analcime	XRD/SEM	72.06	17.49256	-3.422390368	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
WV203-18-Th Type IIIR	3.35	Nontronite and zeolite (Phillipsite) and Analcime	XRD/SEM	72.06	17.49256	-3.422390368	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
WV203-18-Th Type IIIR	3.74	Nontronite and zeolite (Phillipsite) and Analcime	XRD/SEM	72.06	17.49256	-3.422390368	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
WV203-18-Th Type IIIR	3.26	Nontronite and zeolite (Phillipsite) and Analcime	XRD/SEM	72.06	17.49256	-3.422390368	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
WV203-18-Th Type IIIR	3.23	Nontronite and zeolite (Phillipsite) and Analcime	XRD/SEM	72.06	17.49256	-3.422390368	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
WV203-18-Th Type IIIR	3.22	Nontronite and zeolite (Phillipsite) and Analcime	XRD/SEM	72.06	17.49256	-3.422390368	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
WV203-18-Th Type IIIR	6.01	Nontronite and zeolite (Phillipsite) and Analcime	XRD/SEM	72.06	17.49256	-3.422390368	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
WV203-18-Th Type IIIR	4.24	Nontronite and zeolite (Phillipsite) and Analcime	XRD/SEM	72.06	17.49256	-3.422390368	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
WV203-18-Th Type IIIR	5.63	Nontronite and zeolite (Phillipsite) and Analcime	XRD/SEM	72.06	17.49256	-3.422390368	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
WV203-18-Th Type IIIR	6.54	Nontronite and zeolite (Phillipsite) and Analcime	XRD/SEM	72.06	17.49256	-3.422390368	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
WV203-18-Th Type IIIR	5.13	Nontronite and zeolite (Phillipsite) and Analcime	XRD/SEM	72.06	17.49256	-3.422390368	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
WV203-18-Th Type IIIR	3.71	Nontronite and zeolite (Phillipsite) and Analcime	XRD/SEM	72.06	17.49256	-3.422390368	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
WV203-18-Th Type IIIR	8.31	Nontronite and zeolite (Phillipsite) and Analcime	XRD/SEM	72.06	17.49256	-3.422390368	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
WV203-18-Th Type IIIR	5.44	Nontronite and zeolite (Phillipsite) and Analcime	XRD/SEM	72.06	17.49256	-3.422390368	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
WV203-18-Th Type IIIR	4.99	Nontronite and zeolite (Phillipsite) and Analcime	XRD/SEM	72.06	17.49256	-3.422390368	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
WV203-18-Th Type IIIR		Nontronite and zeolite (Phillipsite) and Analcime	XRD/SEM	72.06	17.49256	-3.422390368	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh198 Type IR		Nontronite	XRD/SEM	69.33	20.06745	-13.58729911	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh198 Type IR		Nontronite	XRD/SEM	69.33	20.06745	-13.58729911	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh198 Type IR		Nontronite	XRD/SEM	69.33	20.06745	-13.58729911	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
PAFCI-200 805 day	HOMOGENEOUS	9.37	9.66	0.83	5.44	0.00	0.53	0.00	0.41	0.00	0.00	0.00	0.01	0.01	0.00	0.48
WV203-18-Th Type IIIR	HOMOGENEOUS	4.60	12.89	0.16	0.48	0.00	0.15	0.14	0.08	0.03	0.00	0.00	12.02	5.00	0.00	0.04
WV203-18-Th Type IIIR	HOMOGENEOUS	4.60	12.89	0.16	0.48	0.00	0.15	0.14	0.08	0.03	0.00	0.00	12.02	5.00	0.00	0.04
WV203-18-Th Type IIIR	HOMOGENEOUS	4.60	12.89	0.16	0.48	0.00	0.15	0.14	0.08	0.03	0.00	0.00	12.02	5.00	0.00	0.04
WV203-18-Th Type IIIR	HOMOGENEOUS	4.60	12.89	0.16	0.48	0.00	0.15	0.14	0.08	0.03	0.00	0.00	12.02	5.00	0.00	0.04
WV203-18-Th Type IIIR	HOMOGENEOUS	4.60	12.89	0.16	0.48	0.00	0.15	0.14	0.08	0.03	0.00	0.00	12.02	5.00	0.00	0.04
WV203-18-Th Type IIIR	HOMOGENEOUS	4.60	12.89	0.16	0.48	0.00	0.15	0.14	0.08	0.03	0.00	0.00	12.02	5.00	0.00	0.04
WV203-18-Th Type IIIR	HOMOGENEOUS	4.60	12.89	0.16	0.48	0.00	0.15	0.14	0.08	0.03	0.00	0.00	12.02	5.00	0.00	0.04
WV203-18-Th Type IIIR	HOMOGENEOUS	4.60	12.89	0.16	0.48	0.00	0.15	0.14	0.08	0.03	0.00	0.00	12.02	5.00	0.00	0.04
WV203-18-Th Type IIIR	HOMOGENEOUS	4.60	12.89	0.16	0.48	0.00	0.15	0.14	0.08	0.03	0.00	0.00	12.02	5.00	0.00	0.04
WV203-18-Th Type IIIR	HOMOGENEOUS	4.60	12.89	0.16	0.48	0.00	0.15	0.14	0.08	0.03	0.00	0.00	12.02	5.00	0.00	0.04
WV203-18-Th Type IIIR	HOMOGENEOUS	4.60	12.89	0.16	0.48	0.00	0.15	0.14	0.08	0.03	0.00	0.00	12.02	5.00	0.00	0.04
WV203-18-Th Type IIIR	HOMOGENEOUS	4.60	12.89	0.16	0.48	0.00	0.15	0.14	0.08	0.03	0.00	0.00	12.02	5.00	0.00	0.04
WV203-18-Th Type IIIR	HOMOGENEOUS	4.60	12.89	0.16	0.48	0.00	0.15	0.14	0.08	0.03	0.00	0.00	12.02	5.00	0.00	0.04
WV203-18-Th Type IIIR	HOMOGENEOUS	4.60	12.89	0.16	0.48	0.00	0.15	0.14	0.08	0.03	0.00	0.00	12.02	5.00	0.00	0.04
WV203-18-Th Type IIIR	HOMOGENEOUS	4.60	12.89	0.16	0.48	0.00	0.15	0.14	0.08	0.03	0.00	0.00	12.02	5.00	0.00	0.04
WV203-18-Th Type IIIR	HOMOGENEOUS	4.60	12.89	0.16	0.48	0.00	0.15	0.14	0.08	0.03	0.00	0.00	12.02	5.00	0.00	0.04
WV203-18-Th Type IIIR	HOMOGENEOUS	4.60	12.89	0.16	0.48	0.00	0.15	0.14	0.08	0.03	0.00	0.00	12.02	5.00	0.00	0.04
WV203-18-Th Type IIIR	HOMOGENEOUS	4.60	12.89	0.16	0.48	0.00	0.15	0.14	0.08	0.03	0.00	0.00	12.02	5.00	0.00	0.04
WVUTh198 Type IR	HOMOGENEOUS	6.47	10.74	0.16	0.68	0.00	0.67	0.00	0.09	0.06	0.00	0.00	12.05	3.82	0.00	0.04
WVUTh198 Type IR	HOMOGENEOUS	6.47	10.74	0.16	0.68	0.00	0.67	0.00	0.09	0.06	0.00	0.00	12.05	3.82	0.00	0.04
WVUTh198 Type IR	HOMOGENEOUS	6.47	10.74	0.16	0.68	0.00	0.67	0.00	0.09	0.06	0.00	0.00	12.05	3.82	0.00	0.04

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
PAFCI-200 805 day	4.41	0.02	0.00	0.00	1.40	8.59	2.01	0.00	0.00	0.00	0.00	0.00	0.00	53.08	0.00	0.00	0.40
WV203-18-Th Type IIIR	7.91	0.89	0.90	0.04	8.00	0.14	0.25	0.00	1.20	0.00	0.00	0.00	0.00	38.18	0.00	0.00	0.02
WV203-18-Th Type IIIR	7.91	0.89	0.90	0.04	8.00	0.14	0.25	0.00	1.20	0.00	0.00	0.00	0.00	38.18	0.00	0.00	0.02
WV203-18-Th Type IIIR	7.91	0.89	0.90	0.04	8.00	0.14	0.25	0.00	1.20	0.00	0.00	0.00	0.00	38.18	0.00	0.00	0.02
WV203-18-Th Type IIIR	7.91	0.89	0.90	0.04	8.00	0.14	0.25	0.00	1.20	0.00	0.00	0.00	0.00	38.18	0.00	0.00	0.02
WV203-18-Th Type IIIR	7.91	0.89	0.90	0.04	8.00	0.14	0.25	0.00	1.20	0.00	0.00	0.00	0.00	38.18	0.00	0.00	0.02
WV203-18-Th Type IIIR	7.91	0.89	0.90	0.04	8.00	0.14	0.25	0.00	1.20	0.00	0.00	0.00	0.00	38.18	0.00	0.00	0.02
WV203-18-Th Type IIIR	7.91	0.89	0.90	0.04	8.00	0.14	0.25	0.00	1.20	0.00	0.00	0.00	0.00	38.18	0.00	0.00	0.02
WV203-18-Th Type IIIR	7.91	0.89	0.90	0.04	8.00	0.14	0.25	0.00	1.20	0.00	0.00	0.00	0.00	38.18	0.00	0.00	0.02
WV203-18-Th Type IIIR	7.91	0.89	0.90	0.04	8.00	0.14	0.25	0.00	1.20	0.00	0.00	0.00	0.00	38.18	0.00	0.00	0.02
WV203-18-Th Type IIIR	7.91	0.89	0.90	0.04	8.00	0.14	0.25	0.00	1.20	0.00	0.00	0.00	0.00	38.18	0.00	0.00	0.02
WV203-18-Th Type IIIR	7.91	0.89	0.90	0.04	8.00	0.14	0.25	0.00	1.20	0.00	0.00	0.00	0.00	38.18	0.00	0.00	0.02
WV203-18-Th Type IIIR	7.91	0.89	0.90	0.04	8.00	0.14	0.25	0.00	1.20	0.00	0.00	0.00	0.00	38.18	0.00	0.00	0.02
WV203-18-Th Type IIIR	7.91	0.89	0.90	0.04	8.00	0.14	0.25	0.00	1.20	0.00	0.00	0.00	0.00	38.18	0.00	0.00	0.02
WV203-18-Th Type IIIR	7.91	0.89	0.90	0.04	8.00	0.14	0.25	0.00	1.20	0.00	0.00	0.00	0.00	38.18	0.00	0.00	0.02
WV203-18-Th Type IIIR	7.91	0.89	0.90	0.04	8.00	0.14	0.25	0.00	1.20	0.00	0.00	0.00	0.00	38.18	0.00	0.00	0.02
WV203-18-Th Type IIIR	7.91	0.89	0.90	0.04	8.00	0.14	0.25	0.00	1.20	0.00	0.00	0.00	0.00	38.18	0.00	0.00	0.02
WV203-18-Th Type IIIR	7.91	0.89	0.90	0.04	8.00	0.14	0.25	0.00	1.20	0.00	0.00	0.00	0.00	38.18	0.00	0.00	0.02
WV203-18-Th Type IIIR	7.91	0.89	0.90	0.04	8.00	0.14	0.25	0.00	1.20	0.00	0.00	0.00	0.00	38.18	0.00	0.00	0.02
WVUTh198 Type IR	3.29	0.90	0.00	0.00	11.79	0.14	0.25	0.00	2.35	0.00	0.00	0.00	0.00	39.60	0.00	0.00	0.03
WVUTh198 Type IR	3.29	0.90	0.00	0.00	11.79	0.14	0.25	0.00	2.35	0.00	0.00	0.00	0.00	39.60	0.00	0.00	0.03
WVUTh198 Type IR	3.29	0.90	0.00	0.00	11.79	0.14	0.25	0.00	2.35	0.00	0.00	0.00	0.00	39.60	0.00	0.00	0.03

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
PAFCI-200 805 day	0.00	0.00	0.00	0.00	0.22	0.00	1.08	0.00	97.94		
WV203-18-Th Type IIIR	0.00	3.56	0.80	0.59	0.02	0.02	1.32	0.00	99.43		
WV203-18-Th Type IIIR	0.00	3.56	0.80	0.59	0.02	0.02	1.32	0.00	99.43		
WV203-18-Th Type IIIR	0.00	3.56	0.80	0.59	0.02	0.02	1.32	0.00	99.43		
WV203-18-Th Type IIIR	0.00	3.56	0.80	0.59	0.02	0.02	1.32	0.00	99.43		
WV203-18-Th Type IIIR	0.00	3.56	0.80	0.59	0.02	0.02	1.32	0.00	99.43		
WV203-18-Th Type IIIR	0.00	3.56	0.80	0.59	0.02	0.02	1.32	0.00	99.43		
WV203-18-Th Type IIIR	0.00	3.56	0.80	0.59	0.02	0.02	1.32	0.00	99.43		
WV203-18-Th Type IIIR	0.00	3.56	0.80	0.59	0.02	0.02	1.32	0.00	99.43		
WV203-18-Th Type IIIR	0.00	3.56	0.80	0.59	0.02	0.02	1.32	0.00	99.43		
WV203-18-Th Type IIIR	0.00	3.56	0.80	0.59	0.02	0.02	1.32	0.00	99.43		
WV203-18-Th Type IIIR	0.00	3.56	0.80	0.59	0.02	0.02	1.32	0.00	99.43		
WV203-18-Th Type IIIR	0.00	3.56	0.80	0.59	0.02	0.02	1.32	0.00	99.43		
WV203-18-Th Type IIIR	0.00	3.56	0.80	0.59	0.02	0.02	1.32	0.00	99.43		
WV203-18-Th Type IIIR	0.00	3.56	0.80	0.59	0.02	0.02	1.32	0.00	99.43		
WV203-18-Th Type IIIR	0.00	3.56	0.80	0.59	0.02	0.02	1.32	0.00	99.43		
WV203-18-Th Type IIIR	0.00	3.56	0.80	0.59	0.02	0.02	1.32	0.00	99.43		
WV203-18-Th Type IIIR	0.00	3.56	0.80	0.59	0.02	0.02	1.32	0.00	99.43		
WV203-18-Th Type IIIR	0.00	3.56	0.80	0.59	0.02	0.02	1.32	0.00	99.43		
WVUTh198 Type IR	0.00	3.55	0.77	0.60	0.02	0.02	0.32	0.00	98.41		
WVUTh198 Type IR	0.00	3.55	0.77	0.60	0.02	0.02	0.32	0.00	98.41		
WVUTh198 Type IR	0.00	3.55	0.77	0.60	0.02	0.02	0.32	0.00	98.41		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
WVUTh198 Type IR	HLW	VSL-Muller	SS	56.00	0.19	1.957	109.580	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.93
WVUTh198 Type IR	HLW	VSL-Muller	SS	121.00	0.19	1.957	236.771	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.83
WVUTh198 Type IR	HLW	VSL-Muller	SS	181.00	0.19	1.957	354.179	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.14
WVUTh198 Type IR	HLW	VSL-Muller	SS	272.00	0.19	1.957	532.246	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.12
WVUTh198 Type IR	HLW	VSL-Muller	SS	372.00	0.19	1.957	727.925	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.06
WVUTh198 Type IR	HLW	VSL-Muller	SS	556.00	0.19	1.957	1,087.974	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.15
WVUTh198 Type IR	HLW	VSL-Muller	SS	730.00	0.19	1.957	1,428.455	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.16
WVUTh198 Type IR	HLW	VSL-Muller	SS	937.00	0.19	1.957	1,833.510	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.15
WVUTh198 Type IR	HLW	VSL-Muller	SS	1295.00	0.19	1.957	2,534.040	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.33
WVUTh198 Type IR	HLW	VSL-Muller	SS	1665.00	0.19	1.957	3,258.051	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.33
WVUTh198 Type IR	HLW	VSL-Muller	SS	2029.00	0.19	1.957	3,970.322	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.18
WVUTh198 Type IR	HLW	VSL-Muller	SS	2395.00	0.19	1.957	4,686.506	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.27
WVUTh198 Type IR	HLW	VSL-Muller	SS	2787.00	0.19	1.957	5,453.567	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.15
WVUTh198 Type IR	HLW	VSL-Muller	SS	3149.00	0.19	1.957	6,161.924	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.37
WVUTh198 Type IR	HLW	VSL-Muller	SS	3520.00	0.19	1.957	6,887.892	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.46
WVUTh198 Type IR	HLW	VSL-Muller	SS	3816.00	0.19	1.957	7,467.102	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.54
WVCM59 Type 1R	HLW	VSL-Muller	SS	7.00	0.19	1.957	13.698	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.86
WVCM59 Type 1R	HLW	VSL-Muller	SS	28.00	0.19	1.957	54.790	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.79
WVCM59 Type 1R	HLW	VSL-Muller	SS	56.00	0.19	1.957	109.580	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.88
WVCM59 Type 1R	HLW	VSL-Muller	SS	120.00	0.19	1.957	234.815	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.84
WVCM59 Type 1R	HLW	VSL-Muller	SS	183.00	0.19	1.957	358.092	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.91
WVCM59 Type 1R	HLW	VSL-Muller	SS	274.00	0.19	1.957	536.160	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.89
WVCM59 Type 1R	HLW	VSL-Muller	SS	363.00	0.19	1.957	710.314	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.76
WVCM59 Type 1R	HLW	VSL-Muller	SS	547.00	0.19	1.957	1,070.363	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.76
WVCM59 Type 1R	HLW	VSL-Muller	SS	730.00	0.19	1.957	1,428.455	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.82
WVCM59 Type 1R	HLW	VSL-Muller	SS	1097.00	0.19	1.957	2,146.596	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.69
WVCM59 Type 1R	HLW	VSL-Muller	SS	1280.00	0.19	1.957	2,504.688	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.91
WVCM59 Type 1R	HLW	VSL-Muller	SS	1463.00	0.19	1.957	2,862.780	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.99
WVCM59 Type 1R	HLW	VSL-Muller	SS	2198.00	0.19	1.957	4,301.019	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.88
WVCM59 Type 1R	HLW	VSL-Muller	SS	2556.00	0.19	1.957	5,001.549	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.82
WVCM59 Type 1R	HLW	VSL-Muller	SS	2910.00	0.19	1.957	5,694.252	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.66
WVCM59 Type 1R	HLW	VSL-Muller	SS	3271.00	0.19	1.957	6,400.652	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.33
WVCM59 Type 1R	HLW	VSL-Muller	SS	3613.00	0.19	1.957	7,069.874	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.22
WVCM59 Type 1R	HLW	VSL-Muller	SS	3974.00	0.19	1.957	7,776.274	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.27
WVCM59 Type 1R	HLW	VSL-Muller	SS	4345.00	0.19	1.957	8,502.242	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.35
WVCM59 Type 1R	HLW	VSL-Muller	SS	4641.00	0.19	1.957	9,081.451	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.43
WVCM59 Type 1R	HLW	VSL-Muller	SS	5038.00	0.19	1.957	9,858.296	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.47
WVCM59 Type 1R	HLW	VSL-Muller	SS	5397.00	0.19	1.957	10,560.783	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.47
WVCM59 Type 1R	HLW	VSL-Muller	SS	5802.00	0.19	1.957	11,353.282	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.46
WVCM59 Type 1R	HLW	VSL-Muller	SS	6159.00	0.19	1.957	12,051.855	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.43
WVCM59 Type 1R	HLW	VSL-Muller	SS	6406.00	0.19	1.957	12,535.181	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.37

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
WVUTh198 Type IR	104.80	46.78			23.54	142.77	33.20	11.80	4.56					
WVUTh198 Type IR	123.83	57.94			25.89	191.80	32.54	10.72	5.92					
WVUTh198 Type IR	128.17	63.88			28.21	210.57	34.79	10.43	5.53					
WVUTh198 Type IR	133.03	68.51			28.16	209.83	35.83	9.76	6.02					
WVUTh198 Type IR	139.47	70.31			29.14	199.17	37.05	9.71	6.50					
WVUTh198 Type IR	153.80	81.24			31.67	249.85	39.29	9.02	5.69					
WVUTh198 Type IR	167.60	86.18			33.92	243.37	42.00	8.29	5.03					
WVUTh198 Type IR	173.25	88.65			36.18	274.15	43.80	6.96	4.26					
WVUTh198 Type IR	248.29	105.50			41.01	310.09	50.18	8.27	7.66					
WVUTh198 Type IR	254.75	116.09			45.03	338.81	46.33	6.69	5.55					
WVUTh198 Type IR	266.27	127.70			48.34	336.03	54.35	7.66	7.92					
WVUTh198 Type IR	258.53	129.07			50.91	347.57	51.57	6.12	4.13					
WVUTh198 Type IR	283.83	148.13			52.56	374.70	54.49	5.18	4.08					
WVUTh198 Type IR	386.59	178.90			72.78	508.29	80.72	8.13	7.39					
WVUTh198 Type IR	345.60	205.22			69.79	586.93	72.51	3.86	1.11					
WVUTh198 Type IR	387.98	254.41			84.55	672.43	86.89	5.16	4.55					
WVCM59 Type 1R	78.39	31.39			34.24	82.80	18.75	11.01	4.39					
WVCM59 Type 1R	99.50	47.38			36.69	117.27	24.07	10.09	6.36					
WVCM59 Type 1R	102.01	55.73			39.83	150.70	29.24	9.87	7.02					
WVCM59 Type 1R	106.40	67.96			35.85	160.17	33.86	8.75	7.87					
WVCM59 Type 1R	130.13	80.48			45.90	205.43	39.80	10.04	8.39					
WVCM59 Type 1R	145.40	97.50			49.61	222.10	45.74	9.73	9.24					
WVCM59 Type 1R	139.23	104.27			49.61	232.87	48.07	8.94	8.97					
WVCM59 Type 1R	154.83	118.97			53.19	278.20	55.19	8.70	9.16					
WVCM59 Type 1R	174.97	133.00			53.86	292.13	58.39	9.28	10.42					
WVCM59 Type 1R	207.30	161.70			57.06	327.90	63.52	5.00	3.46					
WVCM59 Type 1R	216.70	169.53			56.09	348.43	67.20	6.99	6.44					
WVCM59 Type 1R	222.87	174.27			61.58	368.87	62.63	3.58	1.07					
WVCM59 Type 1R	295.38	212.40			74.85	456.90	76.04	2.34	1.79					
WVCM59 Type 1R	307.91	227.55			74.94	500.17	72.10	1.87	2.53					
WVCM59 Type 1R	317.68	238.91			76.47	543.86	70.28	2.12	2.59					
WVCM59 Type 1R	310.50	266.13			79.84	482.50	80.03	1.71	1.27					
WVCM59 Type 1R	348.17	315.33			89.80	608.63	98.36	1.77	1.48					
WVCM59 Type 1R	369.53	380.13			99.70	710.40	109.77	1.77	1.54					
WVCM59 Type 1R	436.16	536.92			129.57	981.00	181.37	1.72	1.31					
WVCM59 Type 1R	449.11	720.93			151.00	1275.63	198.93	1.30	1.11					
WVCM59 Type 1R	435.73	1368.67			231.04	2335.63	406.45	0.69	0.53					
WVCM59 Type 1R	401.20	1540.30			175.30	2592.00	404.70	3.00	0.38					
WVCM59 Type 1R	392.70	944.97			150.50	1647.00	249.30	0.96	0.58					
WVCM59 Type 1R	408.50	1497.37			192.30	2619.00	381.10	3.62	0.39					
WVCM59 Type 1R	419.40	2158.00			210.90	3611.00	510.40	0.39	0.44					

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
WVUTh198 Type IR		Nontronite	XRD/SEM	69.33	20.06745	-13.58729911	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh198 Type IR		Nontronite	XRD/SEM	69.33	20.06745	-13.58729911	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh198 Type IR		Nontronite	XRD/SEM	69.33	20.06745	-13.58729911	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh198 Type IR		Nontronite	XRD/SEM	69.33	20.06745	-13.58729911	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh198 Type IR		Nontronite	XRD/SEM	69.33	20.06745	-13.58729911	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh198 Type IR		Nontronite	XRD/SEM	69.33	20.06745	-13.58729911	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh198 Type IR		Nontronite	XRD/SEM	69.33	20.06745	-13.58729911	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh198 Type IR		Nontronite	XRD/SEM	69.33	20.06745	-13.58729911	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh198 Type IR		Nontronite	XRD/SEM	69.33	20.06745	-13.58729911	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh198 Type IR		Nontronite	XRD/SEM	69.33	20.06745	-13.58729911	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh198 Type IR		Nontronite	XRD/SEM	69.33	20.06745	-13.58729911	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh198 Type IR		Nontronite	XRD/SEM	69.33	20.06745	-13.58729911	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh198 Type IR		Nontronite	XRD/SEM	69.33	20.06745	-13.58729911	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh198 Type IR		Nontronite	XRD/SEM	69.33	20.06745	-13.58729911	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh198 Type IR		Nontronite	XRD/SEM	69.33	20.06745	-13.58729911	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh198 Type IR		Nontronite	XRD/SEM	69.33	20.06745	-13.58729911	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVCM59 Type 1R		Nontronite, Phillipsite, Analcime	XRD/SEM	69.25	20.037437	-13.28949405	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVCM59 Type 1R		Nontronite, Phillipsite, Analcime	XRD/SEM	69.25	20.037437	-13.28949405	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVCM59 Type 1R		Nontronite, Phillipsite, Analcime	XRD/SEM	69.25	20.037437	-13.28949405	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVCM59 Type 1R		Nontronite, Phillipsite, Analcime	XRD/SEM	69.25	20.037437	-13.28949405	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVCM59 Type 1R		Nontronite, Phillipsite, Analcime	XRD/SEM	69.25	20.037437	-13.28949405	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVCM59 Type 1R		Nontronite, Phillipsite, Analcime	XRD/SEM	69.25	20.037437	-13.28949405	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVCM59 Type 1R		Nontronite, Phillipsite, Analcime	XRD/SEM	69.25	20.037437	-13.28949405	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVCM59 Type 1R		Nontronite, Phillipsite, Analcime	XRD/SEM	69.25	20.037437	-13.28949405	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVCM59 Type 1R		Nontronite, Phillipsite, Analcime	XRD/SEM	69.25	20.037437	-13.28949405	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVCM59 Type 1R		Nontronite, Phillipsite, Analcime	XRD/SEM	69.25	20.037437	-13.28949405	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVCM59 Type 1R		Nontronite, Phillipsite, Analcime	XRD/SEM	69.25	20.037437	-13.28949405	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVCM59 Type 1R		Nontronite, Phillipsite, Analcime	XRD/SEM	69.25	20.037437	-13.28949405	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVCM59 Type 1R		Nontronite, Phillipsite, Analcime	XRD/SEM	69.25	20.037437	-13.28949405	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVCM59 Type 1R		Nontronite, Phillipsite, Analcime	XRD/SEM	69.25	20.037437	-13.28949405	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVCM59 Type 1R		Nontronite, Phillipsite, Analcime	XRD/SEM	69.25	20.037437	-13.28949405	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVCM59 Type 1R		Nontronite, Phillipsite, Analcime	XRD/SEM	69.25	20.037437	-13.28949405	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVCM59 Type 1R		Nontronite, Phillipsite, Analcime	XRD/SEM	69.25	20.037437	-13.28949405	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVCM59 Type 1R		Nontronite, Phillipsite, Analcime	XRD/SEM	69.25	20.037437	-13.28949405	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVCM59 Type 1R		Nontronite, Phillipsite, Analcime	XRD/SEM	69.25	20.037437	-13.28949405	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVCM59 Type 1R		Nontronite, Phillipsite, Analcime	XRD/SEM	69.25	20.037437	-13.28949405	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVCM59 Type 1R		Nontronite, Phillipsite, Analcime	XRD/SEM	69.25	20.037437	-13.28949405	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVCM59 Type 1R		Nontronite, Phillipsite, Analcime	XRD/SEM	69.25	20.037437	-13.28949405	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVCM59 Type 1R		Nontronite, Phillipsite, Analcime	XRD/SEM	69.25	20.037437	-13.28949405	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVCM59 Type 1R		Nontronite, Phillipsite, Analcime	XRD/SEM	69.25	20.037437	-13.28949405	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVCM59 Type 1R		Nontronite, Phillipsite, Analcime	XRD/SEM	69.25	20.037437	-13.28949405	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
WVUTh198 Type IR	HOMOGENEOUS	6.47	10.74	0.16	0.68	0.00	0.67	0.00	0.09	0.06	0.00	0.00	12.05	3.82	0.00	0.04
WVUTh198 Type IR	HOMOGENEOUS	6.47	10.74	0.16	0.68	0.00	0.67	0.00	0.09	0.06	0.00	0.00	12.05	3.82	0.00	0.04
WVUTh198 Type IR	HOMOGENEOUS	6.47	10.74	0.16	0.68	0.00	0.67	0.00	0.09	0.06	0.00	0.00	12.05	3.82	0.00	0.04
WVUTh198 Type IR	HOMOGENEOUS	6.47	10.74	0.16	0.68	0.00	0.67	0.00	0.09	0.06	0.00	0.00	12.05	3.82	0.00	0.04
WVUTh198 Type IR	HOMOGENEOUS	6.47	10.74	0.16	0.68	0.00	0.67	0.00	0.09	0.06	0.00	0.00	12.05	3.82	0.00	0.04
WVUTh198 Type IR	HOMOGENEOUS	6.47	10.74	0.16	0.68	0.00	0.67	0.00	0.09	0.06	0.00	0.00	12.05	3.82	0.00	0.04
WVUTh198 Type IR	HOMOGENEOUS	6.47	10.74	0.16	0.68	0.00	0.67	0.00	0.09	0.06	0.00	0.00	12.05	3.82	0.00	0.04
WVUTh198 Type IR	HOMOGENEOUS	6.47	10.74	0.16	0.68	0.00	0.67	0.00	0.09	0.06	0.00	0.00	12.05	3.82	0.00	0.04
WVUTh198 Type IR	HOMOGENEOUS	6.47	10.74	0.16	0.68	0.00	0.67	0.00	0.09	0.06	0.00	0.00	12.05	3.82	0.00	0.04
WVUTh198 Type IR	HOMOGENEOUS	6.47	10.74	0.16	0.68	0.00	0.67	0.00	0.09	0.06	0.00	0.00	12.05	3.82	0.00	0.04
WVUTh198 Type IR	HOMOGENEOUS	6.47	10.74	0.16	0.68	0.00	0.67	0.00	0.09	0.06	0.00	0.00	12.05	3.82	0.00	0.04
WVUTh198 Type IR	HOMOGENEOUS	6.47	10.74	0.16	0.68	0.00	0.67	0.00	0.09	0.06	0.00	0.00	12.05	3.82	0.00	0.04
WVUTh198 Type IR	HOMOGENEOUS	6.47	10.74	0.16	0.68	0.00	0.67	0.00	0.09	0.06	0.00	0.00	12.05	3.82	0.00	0.04
WVUTh198 Type IR	HOMOGENEOUS	6.47	10.74	0.16	0.68	0.00	0.67	0.00	0.09	0.06	0.00	0.00	12.05	3.82	0.00	0.04
WVUTh198 Type IR	HOMOGENEOUS	6.47	10.74	0.16	0.68	0.00	0.67	0.00	0.09	0.06	0.00	0.00	12.05	3.82	0.00	0.04
WVUTh198 Type IR	HOMOGENEOUS	6.47	10.74	0.16	0.68	0.00	0.67	0.00	0.09	0.06	0.00	0.00	12.05	3.82	0.00	0.04
WVCM59 Type 1R	HOMOGENEOUS	6.47	10.29	0.16	0.68	0.00	0.67	0.02	0.08	0.00	0.00	0.00	12.04	3.62	0.00	0.04
WVCM59 Type 1R	HOMOGENEOUS	6.47	10.29	0.16	0.68	0.00	0.67	0.02	0.08	0.00	0.00	0.00	12.04	3.62	0.00	0.04
WVCM59 Type 1R	HOMOGENEOUS	6.47	10.29	0.16	0.68	0.00	0.67	0.02	0.08	0.00	0.00	0.00	12.04	3.62	0.00	0.04
WVCM59 Type 1R	HOMOGENEOUS	6.47	10.29	0.16	0.68	0.00	0.67	0.02	0.08	0.00	0.00	0.00	12.04	3.62	0.00	0.04
WVCM59 Type 1R	HOMOGENEOUS	6.47	10.29	0.16	0.68	0.00	0.67	0.02	0.08	0.00	0.00	0.00	12.04	3.62	0.00	0.04
WVCM59 Type 1R	HOMOGENEOUS	6.47	10.29	0.16	0.68	0.00	0.67	0.02	0.08	0.00	0.00	0.00	12.04	3.62	0.00	0.04
WVCM59 Type 1R	HOMOGENEOUS	6.47	10.29	0.16	0.68	0.00	0.67	0.02	0.08	0.00	0.00	0.00	12.04	3.62	0.00	0.04
WVCM59 Type 1R	HOMOGENEOUS	6.47	10.29	0.16	0.68	0.00	0.67	0.02	0.08	0.00	0.00	0.00	12.04	3.62	0.00	0.04
WVCM59 Type 1R	HOMOGENEOUS	6.47	10.29	0.16	0.68	0.00	0.67	0.02	0.08	0.00	0.00	0.00	12.04	3.62	0.00	0.04
WVCM59 Type 1R	HOMOGENEOUS	6.47	10.29	0.16	0.68	0.00	0.67	0.02	0.08	0.00	0.00	0.00	12.04	3.62	0.00	0.04
WVCM59 Type 1R	HOMOGENEOUS	6.47	10.29	0.16	0.68	0.00	0.67	0.02	0.08	0.00	0.00	0.00	12.04	3.62	0.00	0.04
WVCM59 Type 1R	HOMOGENEOUS	6.47	10.29	0.16	0.68	0.00	0.67	0.02	0.08	0.00	0.00	0.00	12.04	3.62	0.00	0.04
WVCM59 Type 1R	HOMOGENEOUS	6.47	10.29	0.16	0.68	0.00	0.67	0.02	0.08	0.00	0.00	0.00	12.04	3.62	0.00	0.04
WVCM59 Type 1R	HOMOGENEOUS	6.47	10.29	0.16	0.68	0.00	0.67	0.02	0.08	0.00	0.00	0.00	12.04	3.62	0.00	0.04
WVCM59 Type 1R	HOMOGENEOUS	6.47	10.29	0.16	0.68	0.00	0.67	0.02	0.08	0.00	0.00	0.00	12.04	3.62	0.00	0.04
WVCM59 Type 1R	HOMOGENEOUS	6.47	10.29	0.16	0.68	0.00	0.67	0.02	0.08	0.00	0.00	0.00	12.04	3.62	0.00	0.04
WVCM59 Type 1R	HOMOGENEOUS	6.47	10.29	0.16	0.68	0.00	0.67	0.02	0.08	0.00	0.00	0.00	12.04	3.62	0.00	0.04
WVCM59 Type 1R	HOMOGENEOUS	6.47	10.29	0.16	0.68	0.00	0.67	0.02	0.08	0.00	0.00	0.00	12.04	3.62	0.00	0.04
WVCM59 Type 1R	HOMOGENEOUS	6.47	10.29	0.16	0.68	0.00	0.67	0.02	0.08	0.00	0.00	0.00	12.04	3.62	0.00	0.04
WVCM59 Type 1R	HOMOGENEOUS	6.47	10.29	0.16	0.68	0.00	0.67	0.02	0.08	0.00	0.00	0.00	12.04	3.62	0.00	0.04
WVCM59 Type 1R	HOMOGENEOUS	6.47	10.29	0.16	0.68	0.00	0.67	0.02	0.08	0.00	0.00	0.00	12.04	3.62	0.00	0.04
WVCM59 Type 1R	HOMOGENEOUS	6.47	10.29	0.16	0.68	0.00	0.67	0.02	0.08	0.00	0.00	0.00	12.04	3.62	0.00	0.04
WVCM59 Type 1R	HOMOGENEOUS	6.47	10.29	0.16	0.68	0.00	0.67	0.02	0.08	0.00	0.00	0.00	12.04	3.62	0.00	0.04
WVCM59 Type 1R	HOMOGENEOUS	6.47	10.29	0.16	0.68	0.00	0.67	0.02	0.08	0.00	0.00	0.00	12.04	3.62	0.00	0.04
WVCM59 Type 1R	HOMOGENEOUS	6.47	10.29	0.16	0.68	0.00	0.67	0.02	0.08	0.00	0.00	0.00	12.04	3.62	0.00	0.04
WVCM59 Type 1R	HOMOGENEOUS	6.47	10.29	0.16	0.68	0.00	0.67	0.02	0.08	0.00	0.00	0.00	12.04	3.62	0.00	0.04
WVCM59 Type 1R	HOMOGENEOUS	6.47	10.29	0.16	0.68	0.00	0.67	0.02	0.08	0.00	0.00	0.00	12.04	3.62	0.00	0.04
WVCM59 Type 1R	HOMOGENEOUS	6.47	10.29	0.16	0.68	0.00	0.67	0.02	0.08	0.00	0.00	0.00	12.04	3.62	0.00	0.04

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
WVUTh198 Type IR	3.29	0.90	0.00	0.00	11.79	0.14	0.25	0.00	2.35	0.00	0.00	0.00	0.00	39.60	0.00	0.00	0.03
WVUTh198 Type IR	3.29	0.90	0.00	0.00	11.79	0.14	0.25	0.00	2.35	0.00	0.00	0.00	0.00	39.60	0.00	0.00	0.03
WVUTh198 Type IR	3.29	0.90	0.00	0.00	11.79	0.14	0.25	0.00	2.35	0.00	0.00	0.00	0.00	39.60	0.00	0.00	0.03
WVUTh198 Type IR	3.29	0.90	0.00	0.00	11.79	0.14	0.25	0.00	2.35	0.00	0.00	0.00	0.00	39.60	0.00	0.00	0.03
WVUTh198 Type IR	3.29	0.90	0.00	0.00	11.79	0.14	0.25	0.00	2.35	0.00	0.00	0.00	0.00	39.60	0.00	0.00	0.03
WVUTh198 Type IR	3.29	0.90	0.00	0.00	11.79	0.14	0.25	0.00	2.35	0.00	0.00	0.00	0.00	39.60	0.00	0.00	0.03
WVUTh198 Type IR	3.29	0.90	0.00	0.00	11.79	0.14	0.25	0.00	2.35	0.00	0.00	0.00	0.00	39.60	0.00	0.00	0.03
WVUTh198 Type IR	3.29	0.90	0.00	0.00	11.79	0.14	0.25	0.00	2.35	0.00	0.00	0.00	0.00	39.60	0.00	0.00	0.03
WVUTh198 Type IR	3.29	0.90	0.00	0.00	11.79	0.14	0.25	0.00	2.35	0.00	0.00	0.00	0.00	39.60	0.00	0.00	0.03
WVUTh198 Type IR	3.29	0.90	0.00	0.00	11.79	0.14	0.25	0.00	2.35	0.00	0.00	0.00	0.00	39.60	0.00	0.00	0.03
WVUTh198 Type IR	3.29	0.90	0.00	0.00	11.79	0.14	0.25	0.00	2.35	0.00	0.00	0.00	0.00	39.60	0.00	0.00	0.03
WVUTh198 Type IR	3.29	0.90	0.00	0.00	11.79	0.14	0.25	0.00	2.35	0.00	0.00	0.00	0.00	39.60	0.00	0.00	0.03
WVUTh198 Type IR	3.29	0.90	0.00	0.00	11.79	0.14	0.25	0.00	2.35	0.00	0.00	0.00	0.00	39.60	0.00	0.00	0.03
WVUTh198 Type IR	3.29	0.90	0.00	0.00	11.79	0.14	0.25	0.00	2.35	0.00	0.00	0.00	0.00	39.60	0.00	0.00	0.03
WVUTh198 Type IR	3.29	0.90	0.00	0.00	11.79	0.14	0.25	0.00	2.35	0.00	0.00	0.00	0.00	39.60	0.00	0.00	0.03
WVUTh198 Type IR	3.29	0.90	0.00	0.00	11.79	0.14	0.25	0.00	2.35	0.00	0.00	0.00	0.00	39.60	0.00	0.00	0.03
WVCM59 Type 1R	3.16	0.89	0.82	0.00	11.17	0.14	0.25	0.00	2.38	0.00	0.00	0.00	0.00	40.93	0.00	0.00	0.01
WVCM59 Type 1R	3.16	0.89	0.82	0.00	11.17	0.14	0.25	0.00	2.38	0.00	0.00	0.00	0.00	40.93	0.00	0.00	0.01
WVCM59 Type 1R	3.16	0.89	0.82	0.00	11.17	0.14	0.25	0.00	2.38	0.00	0.00	0.00	0.00	40.93	0.00	0.00	0.01
WVCM59 Type 1R	3.16	0.89	0.82	0.00	11.17	0.14	0.25	0.00	2.38	0.00	0.00	0.00	0.00	40.93	0.00	0.00	0.01
WVCM59 Type 1R	3.16	0.89	0.82	0.00	11.17	0.14	0.25	0.00	2.38	0.00	0.00	0.00	0.00	40.93	0.00	0.00	0.01
WVCM59 Type 1R	3.16	0.89	0.82	0.00	11.17	0.14	0.25	0.00	2.38	0.00	0.00	0.00	0.00	40.93	0.00	0.00	0.01
WVCM59 Type 1R	3.16	0.89	0.82	0.00	11.17	0.14	0.25	0.00	2.38	0.00	0.00	0.00	0.00	40.93	0.00	0.00	0.01
WVCM59 Type 1R	3.16	0.89	0.82	0.00	11.17	0.14	0.25	0.00	2.38	0.00	0.00	0.00	0.00	40.93	0.00	0.00	0.01
WVCM59 Type 1R	3.16	0.89	0.82	0.00	11.17	0.14	0.25	0.00	2.38	0.00	0.00	0.00	0.00	40.93	0.00	0.00	0.01
WVCM59 Type 1R	3.16	0.89	0.82	0.00	11.17	0.14	0.25	0.00	2.38	0.00	0.00	0.00	0.00	40.93	0.00	0.00	0.01
WVCM59 Type 1R	3.16	0.89	0.82	0.00	11.17	0.14	0.25	0.00	2.38	0.00	0.00	0.00	0.00	40.93	0.00	0.00	0.01
WVCM59 Type 1R	3.16	0.89	0.82	0.00	11.17	0.14	0.25	0.00	2.38	0.00	0.00	0.00	0.00	40.93	0.00	0.00	0.01
WVCM59 Type 1R	3.16	0.89	0.82	0.00	11.17	0.14	0.25	0.00	2.38	0.00	0.00	0.00	0.00	40.93	0.00	0.00	0.01
WVCM59 Type 1R	3.16	0.89	0.82	0.00	11.17	0.14	0.25	0.00	2.38	0.00	0.00	0.00	0.00	40.93	0.00	0.00	0.01
WVCM59 Type 1R	3.16	0.89	0.82	0.00	11.17	0.14	0.25	0.00	2.38	0.00	0.00	0.00	0.00	40.93	0.00	0.00	0.01
WVCM59 Type 1R	3.16	0.89	0.82	0.00	11.17	0.14	0.25	0.00	2.38	0.00	0.00	0.00	0.00	40.93	0.00	0.00	0.01
WVCM59 Type 1R	3.16	0.89	0.82	0.00	11.17	0.14	0.25	0.00	2.38	0.00	0.00	0.00	0.00	40.93	0.00	0.00	0.01
WVCM59 Type 1R	3.16	0.89	0.82	0.00	11.17	0.14	0.25	0.00	2.38	0.00	0.00	0.00	0.00	40.93	0.00	0.00	0.01
WVCM59 Type 1R	3.16	0.89	0.82	0.00	11.17	0.14	0.25	0.00	2.38	0.00	0.00	0.00	0.00	40.93	0.00	0.00	0.01
WVCM59 Type 1R	3.16	0.89	0.82	0.00	11.17	0.14	0.25	0.00	2.38	0.00	0.00	0.00	0.00	40.93	0.00	0.00	0.01
WVCM59 Type 1R	3.16	0.89	0.82	0.00	11.17	0.14	0.25	0.00	2.38	0.00	0.00	0.00	0.00	40.93	0.00	0.00	0.01
WVCM59 Type 1R	3.16	0.89	0.82	0.00	11.17	0.14	0.25	0.00	2.38	0.00	0.00	0.00	0.00	40.93	0.00	0.00	0.01
WVCM59 Type 1R	3.16	0.89	0.82	0.00	11.17	0.14	0.25	0.00	2.38	0.00	0.00	0.00	0.00	40.93	0.00	0.00	0.01
WVCM59 Type 1R	3.16	0.89	0.82	0.00	11.17	0.14	0.25	0.00	2.38	0.00	0.00	0.00	0.00	40.93	0.00	0.00	0.01
WVCM59 Type 1R	3.16	0.89	0.82	0.00	11.17	0.14	0.25	0.00	2.38	0.00	0.00	0.00	0.00	40.93	0.00	0.00	0.01

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
WVUTh198 Type IR	0.00	3.55	0.77	0.60	0.02	0.02	0.32	0.00	98.41		
WVUTh198 Type IR	0.00	3.55	0.77	0.60	0.02	0.02	0.32	0.00	98.41		
WVUTh198 Type IR	0.00	3.55	0.77	0.60	0.02	0.02	0.32	0.00	98.41		
WVUTh198 Type IR	0.00	3.55	0.77	0.60	0.02	0.02	0.32	0.00	98.41		
WVUTh198 Type IR	0.00	3.55	0.77	0.60	0.02	0.02	0.32	0.00	98.41		
WVUTh198 Type IR	0.00	3.55	0.77	0.60	0.02	0.02	0.32	0.00	98.41		
WVUTh198 Type IR	0.00	3.55	0.77	0.60	0.02	0.02	0.32	0.00	98.41		
WVUTh198 Type IR	0.00	3.55	0.77	0.60	0.02	0.02	0.32	0.00	98.41		
WVUTh198 Type IR	0.00	3.55	0.77	0.60	0.02	0.02	0.32	0.00	98.41		
WVUTh198 Type IR	0.00	3.55	0.77	0.60	0.02	0.02	0.32	0.00	98.41		
WVUTh198 Type IR	0.00	3.55	0.77	0.60	0.02	0.02	0.32	0.00	98.41		
WVUTh198 Type IR	0.00	3.55	0.77	0.60	0.02	0.02	0.32	0.00	98.41		
WVUTh198 Type IR	0.00	3.55	0.77	0.60	0.02	0.02	0.32	0.00	98.41		
WVUTh198 Type IR	0.00	3.55	0.77	0.60	0.02	0.02	0.32	0.00	98.41		
WVUTh198 Type IR	0.00	3.55	0.77	0.60	0.02	0.02	0.32	0.00	98.41		
WVUTh198 Type IR	0.00	3.55	0.77	0.60	0.02	0.02	0.32	0.00	98.41		
WVCM59 Type 1R	0.00	3.60	0.77	0.60	0.00	0.00	0.32	0.00	99.11		
WVCM59 Type 1R	0.00	3.60	0.77	0.60	0.00	0.00	0.32	0.00	99.11		
WVCM59 Type 1R	0.00	3.60	0.77	0.60	0.00	0.00	0.32	0.00	99.11		
WVCM59 Type 1R	0.00	3.60	0.77	0.60	0.00	0.00	0.32	0.00	99.11		
WVCM59 Type 1R	0.00	3.60	0.77	0.60	0.00	0.00	0.32	0.00	99.11		
WVCM59 Type 1R	0.00	3.60	0.77	0.60	0.00	0.00	0.32	0.00	99.11		
WVCM59 Type 1R	0.00	3.60	0.77	0.60	0.00	0.00	0.32	0.00	99.11		
WVCM59 Type 1R	0.00	3.60	0.77	0.60	0.00	0.00	0.32	0.00	99.11		
WVCM59 Type 1R	0.00	3.60	0.77	0.60	0.00	0.00	0.32	0.00	99.11		
WVCM59 Type 1R	0.00	3.60	0.77	0.60	0.00	0.00	0.32	0.00	99.11		
WVCM59 Type 1R	0.00	3.60	0.77	0.60	0.00	0.00	0.32	0.00	99.11		
WVCM59 Type 1R	0.00	3.60	0.77	0.60	0.00	0.00	0.32	0.00	99.11		
WVCM59 Type 1R	0.00	3.60	0.77	0.60	0.00	0.00	0.32	0.00	99.11		
WVCM59 Type 1R	0.00	3.60	0.77	0.60	0.00	0.00	0.32	0.00	99.11		
WVCM59 Type 1R	0.00	3.60	0.77	0.60	0.00	0.00	0.32	0.00	99.11		
WVCM59 Type 1R	0.00	3.60	0.77	0.60	0.00	0.00	0.32	0.00	99.11		
WVCM59 Type 1R	0.00	3.60	0.77	0.60	0.00	0.00	0.32	0.00	99.11		
WVCM59 Type 1R	0.00	3.60	0.77	0.60	0.00	0.00	0.32	0.00	99.11		
WVCM59 Type 1R	0.00	3.60	0.77	0.60	0.00	0.00	0.32	0.00	99.11		
WVCM59 Type 1R	0.00	3.60	0.77	0.60	0.00	0.00	0.32	0.00	99.11		
WVCM59 Type 1R	0.00	3.60	0.77	0.60	0.00	0.00	0.32	0.00	99.11		
WVCM59 Type 1R	0.00	3.60	0.77	0.60	0.00	0.00	0.32	0.00	99.11		
WVCM59 Type 1R	0.00	3.60	0.77	0.60	0.00	0.00	0.32	0.00	99.11		
WVCM59 Type 1R	0.00	3.60	0.77	0.60	0.00	0.00	0.32	0.00	99.11		
WVCM59 Type 1R	0.00	3.60	0.77	0.60	0.00	0.00	0.32	0.00	99.11		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
WVCM60 Type ES	HLW	VSL-Muller	SS	2.00	0.19	1.957	3.914	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.30
WVCM60 Type ES	HLW	VSL-Muller	SS	7.00	0.19	1.957	13.698	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.52
WVCM60 Type ES	HLW	VSL-Muller	SS	28.00	0.19	1.957	54.790	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.55
WVCM60 Type ES	HLW	VSL-Muller	SS	56.00	0.19	1.957	109.580	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.57
WVCM60 Type ES	HLW	VSL-Muller	SS	121.00	0.19	1.957	236.771	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.47
WVCM60 Type ES	HLW	VSL-Muller	SS	181.00	0.19	1.957	354.179	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.63
WVCM60 Type ES	HLW	VSL-Muller	SS	272.00	0.19	1.957	532.246	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.60
WVCM60 Type ES	HLW	VSL-Muller	SS	372.00	0.19	1.957	727.925	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.60
WVCM60 Type ES	HLW	VSL-Muller	SS	556.00	0.19	1.957	1,087.974	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.58
WVCM60 Type ES	HLW	VSL-Muller	SS	730.00	0.19	1.957	1,428.455	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.65
WVCM60 Type ES	HLW	VSL-Muller	SS	937.00	0.19	1.957	1,833.510	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.64
WVCM60 Type ES	HLW	VSL-Muller	SS	1295.00	0.19	1.957	2,534.040	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.67
WVCM60 Type ES	HLW	VSL-Muller	SS	1665.00	0.19	1.957	3,258.051	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.63
WVCM60 Type ES	HLW	VSL-Muller	SS	2029.00	0.19	1.957	3,970.322	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.51
WVCM60 Type ES	HLW	VSL-Muller	SS	2395.00	0.19	1.957	4,686.506	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.43
WVCM60 Type ES	HLW	VSL-Muller	SS	2787.00	0.19	1.957	5,453.567	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.31
WVCM60 Type ES	HLW	VSL-Muller	SS	3149.00	0.19	1.957	6,161.924	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.42
WVCM60 Type ES	HLW	VSL-Muller	SS	3520.00	0.19	1.957	6,887.892	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.37
WVCM60 Type ES	HLW	VSL-Muller	SS	3816.00	0.19	1.957	7,467.102	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.35
WVUTh122 Type IIR	HLW	VSL-Muller	SS	7.00	0.19	1.957	13.698	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.68
WVUTh122 Type IIR	HLW	VSL-Muller	SS	28.00	0.19	1.957	54.790	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.79
WVUTh122 Type IIR	HLW	VSL-Muller	SS	56.00	0.19	1.957	109.580	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.86
WVUTh122 Type IIR	HLW	VSL-Muller	SS	120.00	0.19	1.957	234.815	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.96
WVUTh122 Type IIR	HLW	VSL-Muller	SS	183.00	0.19	1.957	358.092	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.95
WVUTh122 Type IIR	HLW	VSL-Muller	SS	274.00	0.19	1.957	536.160	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.98
WVUTh122 Type IIR	HLW	VSL-Muller	SS	363.00	0.19	1.957	710.314	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.88
WVUTh122 Type IIR	HLW	VSL-Muller	SS	547.00	0.19	1.957	1,070.363	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.88
WVUTh122 Type IIR	HLW	VSL-Muller	SS	730.00	0.19	1.957	1,428.455	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.94
WVUTh122 Type IIR	HLW	VSL-Muller	SS	1097.00	0.19	1.957	2,146.596	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.87
WVUTh122 Type IIR	HLW	VSL-Muller	SS	1280.00	0.19	1.957	2,504.688	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.05
WVUTh122 Type IIR	HLW	VSL-Muller	SS	1463.00	0.19	1.957	2,862.780	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.14
WVUTh122 Type IIR	HLW	VSL-Muller	SS	2198.00	0.19	1.957	4,301.019	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.08
WVUTh122 Type IIR	HLW	VSL-Muller	SS	2556.00	0.19	1.957	5,001.549	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.05
WVUTh122 Type IIR	HLW	VSL-Muller	SS	2910.00	0.19	1.957	5,694.252	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.87
WVUTh122 Type IIR	HLW	VSL-Muller	SS	3271.00	0.19	1.957	6,400.652	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.65
WVUTh122 Type IIR	HLW	VSL-Muller	SS	3613.00	0.19	1.957	7,069.874	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.56
WVUTh122 Type IIR	HLW	VSL-Muller	SS	3974.00	0.19	1.957	7,776.274	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.57
WVUTh122 Type IIR	HLW	VSL-Muller	SS	4345.00	0.19	1.957	8,502.242	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.55
WVUTh122 Type IIR	HLW	VSL-Muller	SS	4641.00	0.19	1.957	9,081.451	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.66
WVUTh122 Type IIR	HLW	VSL-Muller	SS	5060.00	0.19	1.957	9,901.345	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.75
WVUTh122 Type IIR	HLW	VSL-Muller	SS	5397.00	0.19	1.957	10,560.783	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.76
WVUTh122 Type IIR	HLW	VSL-Muller	SS	5802.00	0.19	1.957	11,353.282	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.62
WVUTh122 Type IIR	HLW	VSL-Muller	SS	6159.00	0.19	1.957	12,051.855	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.61
WVUTh122 Type IIR	HLW	VSL-Muller	SS	6406.00	0.19	1.957	12,535.181	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.54
WVUTh122 Type IIR	HLW	VSL-Muller	SS	6705.00	0.19	1.957	13,120.261	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.56
WVUTh123 Type ESR	HLW	VSL-Muller	SS	7.00	0.19	1.957	13.698	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.11

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
WVCM60 Type ES	123.93	82.04			22.18	205.77	52.01	2.70	2.04					
WVCM60 Type ES	169.80	265.97			60.35	535.77	149.10	0.92	4.91					
WVCM60 Type ES	257.60	382.83			79.87	826.40	205.17	1.15	8.87					
WVCM60 Type ES	249.90	368.27			81.19	674.30	181.70	1.33	5.52					
WVCM60 Type ES	261.17	371.40			70.34	757.87	198.10	0.99	4.35					
WVCM60 Type ES	244.07	355.73			69.73	782.70	184.20	0.66	0.41					
WVCM60 Type ES	239.10	346.70			65.38	736.43	170.90	0.72	0.43					
WVCM60 Type ES	229.23	317.27			64.74	628.90	135.60	0.90	0.74					
WVCM60 Type ES	239.43	320.00			62.65	720.67	125.50	0.67						
WVCM60 Type ES	239.57	313.17			59.68	629.23	130.87	0.66						
WVCM60 Type ES	236.05	297.35			58.47	638.10	126.35	0.59						
WVCM60 Type ES	295.53	331.02			63.89	680.29	140.03	0.80	0.04					
WVCM60 Type ES	293.56	322.09			64.31	680.54	124.64	0.59	0.22					
WVCM60 Type ES	286.66	311.57			59.82	586.22	120.18	0.70	0.10					
WVCM60 Type ES	283.57	330.53			64.63	635.37	128.20	0.53						
WVCM60 Type ES	302.13	335.63			64.44	614.33	130.50	0.95	0.48					
WVCM60 Type ES	369.77	387.39			75.65	730.62	159.96	0.81						
WVCM60 Type ES	337.48	378.44			73.81	801.74	147.39	0.48						
WVCM60 Type ES	315.92	389.63			76.24	781.56	153.67	0.75						
WVUTh122 Type IIR	73.15	20.77			12.93	65.56	8.83	12.10	4.76					
WVUTh122 Type IIR	90.70	26.99			17.08	86.38	10.77	11.00	7.18					
WVUTh122 Type IIR	106.43	32.43			21.91	105.50	11.37	12.22	8.81					
WVUTh122 Type IIR	124.80	35.54			23.92	117.63	11.07	12.78	10.15					
WVUTh122 Type IIR	140.20	36.03			27.77	131.03	10.96	12.61	10.57					
WVUTh122 Type IIR	153.53	39.96			29.61	141.77	10.64	11.99	11.30					
WVUTh122 Type IIR	157.73	45.42			31.67	150.10	11.71	12.01	11.16					
WVUTh122 Type IIR	180.17	45.88			35.08	163.73	14.55	12.54	11.24					
WVUTh122 Type IIR	199.50	48.28			34.75	165.00	13.27	11.54	11.14					
WVUTh122 Type IIR	221.70	57.03			38.70	194.53	14.47	8.42	6.89					
WVUTh122 Type IIR	233.23	57.78			38.80	180.20	14.56	10.29	9.91					
WVUTh122 Type IIR	262.80	59.66			39.52	197.80	12.56	8.45	7.43					
WVUTh122 Type IIR	327.71	85.87			53.23	248.40	14.80	5.91	8.85					
WVUTh122 Type IIR	333.34	94.09			58.10	301.89	16.72	6.60	13.77					
WVUTh122 Type IIR	324.80	113.65			60.06	306.36	19.62	7.22	15.81					
WVUTh122 Type IIR	311.27	139.27			65.78	290.40	27.46	5.94	13.64					
WVUTh122 Type IIR	320.30	165.80			71.36	364.50	40.35	5.55	12.53					
WVUTh122 Type IIR	301.83	193.40			72.45	393.40	42.96	4.14	8.78					
WVUTh122 Type IIR	356.33	299.20			103.20	524.72	78.45	4.95	6.53					
WVUTh122 Type IIR	321.96	373.71			115.40	656.56	91.23	4.06	5.99					
WVUTh122 Type IIR	257.60	487.72			124.70	831.11	121.40	1.87	0.52					
WVUTh122 Type IIR	311.10	329.20			100.40	572.80	75.76	4.07	3.05					
WVUTh122 Type IIR	273.30	414.81			115.50	714.40	103.30	2.40	2.11					
WVUTh122 Type IIR	240.10	612.35			138.70	949.00	123.00	3.55	0.59					
WVUTh122 Type IIR	232.30	1189.00			168.10	1772.00	222.90	1.22	0.85					
WVUTh122 Type IIR	284.91	1785.63			211.90	2796.10	414.01	1.25						
WVUTh123 Type ESR	301.97	315.77			104.10	671.40	132.93	1.15	4.37					

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
WVCM60 Type ES		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.78	18.39	-4.834972	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
WVCM60 Type ES		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.78	18.39	-4.834972	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
WVCM60 Type ES		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.78	18.39	-4.834972	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
WVCM60 Type ES		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.78	18.39	-4.834972	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
WVCM60 Type ES		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.78	18.39	-4.834972	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
WVCM60 Type ES		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.78	18.39	-4.834972	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
WVCM60 Type ES		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.78	18.39	-4.834972	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
WVCM60 Type ES		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.78	18.39	-4.834972	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
WVCM60 Type ES		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.78	18.39	-4.834972	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
WVCM60 Type ES		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.78	18.39	-4.834972	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
WVCM60 Type ES		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.78	18.39	-4.834972	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
WVCM60 Type ES		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.78	18.39	-4.834972	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
WVCM60 Type ES		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.78	18.39	-4.834972	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
WVCM60 Type ES		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.78	18.39	-4.834972	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
WVCM60 Type ES		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.78	18.39	-4.834972	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
WVCM60 Type ES		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.78	18.39	-4.834972	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
WVCM60 Type ES		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.78	18.39	-4.834972	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
WVCM60 Type ES		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.78	18.39	-4.834972	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
WVCM60 Type ES		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.78	18.39	-4.834972	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
WVUTh122 Type IIR			XRD/SEM	67.55	21.788	-20.4503914	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh122 Type IIR			XRD/SEM	67.55	21.788	-20.4503914	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh122 Type IIR			XRD/SEM	67.55	21.788	-20.4503914	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh122 Type IIR			XRD/SEM	67.55	21.788	-20.4503914	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh122 Type IIR			XRD/SEM	67.55	21.788	-20.4503914	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh122 Type IIR			XRD/SEM	67.55	21.788	-20.4503914	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh122 Type IIR			XRD/SEM	67.55	21.788	-20.4503914	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh122 Type IIR			XRD/SEM	67.55	21.788	-20.4503914	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh122 Type IIR			XRD/SEM	67.55	21.788	-20.4503914	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh122 Type IIR			XRD/SEM	67.55	21.788	-20.4503914	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh122 Type IIR			XRD/SEM	67.55	21.788	-20.4503914	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh122 Type IIR			XRD/SEM	67.55	21.788	-20.4503914	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh122 Type IIR			XRD/SEM	67.55	21.788	-20.4503914	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh122 Type IIR			XRD/SEM	67.55	21.788	-20.4503914	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh122 Type IIR			XRD/SEM	67.55	21.788	-20.4503914	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh122 Type IIR			XRD/SEM	67.55	21.788	-20.4503914	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh122 Type IIR			XRD/SEM	67.55	21.788	-20.4503914	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh122 Type IIR			XRD/SEM	67.55	21.788	-20.4503914	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh122 Type IIR			XRD/SEM	67.55	21.788	-20.4503914	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh122 Type IIR			XRD/SEM	67.55	21.788	-20.4503914	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh122 Type IIR			XRD/SEM	67.55	21.788	-20.4503914	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh122 Type IIR			XRD/SEM	67.55	21.788	-20.4503914	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh122 Type IIR			XRD/SEM	67.55	21.788	-20.4503914	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh122 Type IIR			XRD/SEM	67.55	21.788	-20.4503914	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh122 Type IIR			XRD/SEM	67.55	21.788	-20.4503914	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh122 Type IIR			XRD/SEM	67.55	21.788	-20.4503914	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh123 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.81	16.538	0.7661486	Indeterminate	Low alkali	Low Al	Potential ϕ-sep.	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
WVCM60 Type ES	HOMOGENEOUS	3.32	10.42	0.18	0.76	0.00	0.74	0.16	0.09	0.00	0.00	0.00	13.36	3.68	0.00	0.05
WVCM60 Type ES	HOMOGENEOUS	3.32	10.42	0.18	0.76	0.00	0.74	0.16	0.09	0.00	0.00	0.00	13.36	3.68	0.00	0.05
WVCM60 Type ES	HOMOGENEOUS	3.32	10.42	0.18	0.76	0.00	0.74	0.16	0.09	0.00	0.00	0.00	13.36	3.68	0.00	0.05
WVCM60 Type ES	HOMOGENEOUS	3.32	10.42	0.18	0.76	0.00	0.74	0.16	0.09	0.00	0.00	0.00	13.36	3.68	0.00	0.05
WVCM60 Type ES	HOMOGENEOUS	3.32	10.42	0.18	0.76	0.00	0.74	0.16	0.09	0.00	0.00	0.00	13.36	3.68	0.00	0.05
WVCM60 Type ES	HOMOGENEOUS	3.32	10.42	0.18	0.76	0.00	0.74	0.16	0.09	0.00	0.00	0.00	13.36	3.68	0.00	0.05
WVCM60 Type ES	HOMOGENEOUS	3.32	10.42	0.18	0.76	0.00	0.74	0.16	0.09	0.00	0.00	0.00	13.36	3.68	0.00	0.05
WVCM60 Type ES	HOMOGENEOUS	3.32	10.42	0.18	0.76	0.00	0.74	0.16	0.09	0.00	0.00	0.00	13.36	3.68	0.00	0.05
WVCM60 Type ES	HOMOGENEOUS	3.32	10.42	0.18	0.76	0.00	0.74	0.16	0.09	0.00	0.00	0.00	13.36	3.68	0.00	0.05
WVCM60 Type ES	HOMOGENEOUS	3.32	10.42	0.18	0.76	0.00	0.74	0.16	0.09	0.00	0.00	0.00	13.36	3.68	0.00	0.05
WVCM60 Type ES	HOMOGENEOUS	3.32	10.42	0.18	0.76	0.00	0.74	0.16	0.09	0.00	0.00	0.00	13.36	3.68	0.00	0.05
WVCM60 Type ES	HOMOGENEOUS	3.32	10.42	0.18	0.76	0.00	0.74	0.16	0.09	0.00	0.00	0.00	13.36	3.68	0.00	0.05
WVCM60 Type ES	HOMOGENEOUS	3.32	10.42	0.18	0.76	0.00	0.74	0.16	0.09	0.00	0.00	0.00	13.36	3.68	0.00	0.05
WVCM60 Type ES	HOMOGENEOUS	3.32	10.42	0.18	0.76	0.00	0.74	0.16	0.09	0.00	0.00	0.00	13.36	3.68	0.00	0.05
WVCM60 Type ES	HOMOGENEOUS	3.32	10.42	0.18	0.76	0.00	0.74	0.16	0.09	0.00	0.00	0.00	13.36	3.68	0.00	0.05
WVCM60 Type ES	HOMOGENEOUS	3.32	10.42	0.18	0.76	0.00	0.74	0.16	0.09	0.00	0.00	0.00	13.36	3.68	0.00	0.05
WVCM60 Type ES	HOMOGENEOUS	3.32	10.42	0.18	0.76	0.00	0.74	0.16	0.09	0.00	0.00	0.00	13.36	3.68	0.00	0.05
WVCM60 Type ES	HOMOGENEOUS	3.32	10.42	0.18	0.76	0.00	0.74	0.16	0.09	0.00	0.00	0.00	13.36	3.68	0.00	0.05
WVCM60 Type ES	HOMOGENEOUS	3.32	10.42	0.18	0.76	0.00	0.74	0.16	0.09	0.00	0.00	0.00	13.36	3.68	0.00	0.05
WVUTh122 Type IIR	HOMOGENEOUS	8.25	9.37	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.01	3.36	0.00	0.04
WVUTh122 Type IIR	HOMOGENEOUS	8.25	9.37	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.01	3.36	0.00	0.04
WVUTh122 Type IIR	HOMOGENEOUS	8.25	9.37	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.01	3.36	0.00	0.04
WVUTh122 Type IIR	HOMOGENEOUS	8.25	9.37	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.01	3.36	0.00	0.04
WVUTh122 Type IIR	HOMOGENEOUS	8.25	9.37	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.01	3.36	0.00	0.04
WVUTh122 Type IIR	HOMOGENEOUS	8.25	9.37	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.01	3.36	0.00	0.04
WVUTh122 Type IIR	HOMOGENEOUS	8.25	9.37	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.01	3.36	0.00	0.04
WVUTh122 Type IIR	HOMOGENEOUS	8.25	9.37	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.01	3.36	0.00	0.04
WVUTh122 Type IIR	HOMOGENEOUS	8.25	9.37	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.01	3.36	0.00	0.04
WVUTh122 Type IIR	HOMOGENEOUS	8.25	9.37	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.01	3.36	0.00	0.04
WVUTh122 Type IIR	HOMOGENEOUS	8.25	9.37	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.01	3.36	0.00	0.04
WVUTh122 Type IIR	HOMOGENEOUS	8.25	9.37	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.01	3.36	0.00	0.04
WVUTh122 Type IIR	HOMOGENEOUS	8.25	9.37	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.01	3.36	0.00	0.04
WVUTh122 Type IIR	HOMOGENEOUS	8.25	9.37	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.01	3.36	0.00	0.04
WVUTh122 Type IIR	HOMOGENEOUS	8.25	9.37	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.01	3.36	0.00	0.04
WVUTh122 Type IIR	HOMOGENEOUS	8.25	9.37	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.01	3.36	0.00	0.04
WVUTh122 Type IIR	HOMOGENEOUS	8.25	9.37	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.01	3.36	0.00	0.04
WVUTh122 Type IIR	HOMOGENEOUS	8.25	9.37	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.01	3.36	0.00	0.04
WVUTh122 Type IIR	HOMOGENEOUS	8.25	9.37	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.01	3.36	0.00	0.04
WVUTh122 Type IIR	HOMOGENEOUS	8.25	9.37	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.01	3.36	0.00	0.04
WVUTh122 Type IIR	HOMOGENEOUS	8.25	9.37	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.01	3.36	0.00	0.04
WVUTh122 Type IIR	HOMOGENEOUS	8.25	9.37	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.01	3.36	0.00	0.04
WVUTh122 Type IIR	HOMOGENEOUS	8.25	9.37	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.01	3.36	0.00	0.04
WVUTh122 Type IIR	HOMOGENEOUS	8.25	9.37	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.01	3.36	0.00	0.04
WVUTh122 Type IIR	HOMOGENEOUS	8.25	9.37	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.01	3.36	0.00	0.04
WVUTh122 Type IIR	HOMOGENEOUS	8.25	9.37	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.01	3.36	0.00	0.04
WVUTh123 Type ESR	Potential ϕ-sep.	2.99	10.20	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.02	3.64	0.00	0.04

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
WVCM60 Type ES	2.05	0.99	0.91	0.00	11.37	0.16	0.28	0.00	2.64	0.00	0.00	0.00	0.00	42.17	0.00	0.00	0.02
WVCM60 Type ES	2.05	0.99	0.91	0.00	11.37	0.16	0.28	0.00	2.64	0.00	0.00	0.00	0.00	42.17	0.00	0.00	0.02
WVCM60 Type ES	2.05	0.99	0.91	0.00	11.37	0.16	0.28	0.00	2.64	0.00	0.00	0.00	0.00	42.17	0.00	0.00	0.02
WVCM60 Type ES	2.05	0.99	0.91	0.00	11.37	0.16	0.28	0.00	2.64	0.00	0.00	0.00	0.00	42.17	0.00	0.00	0.02
WVCM60 Type ES	2.05	0.99	0.91	0.00	11.37	0.16	0.28	0.00	2.64	0.00	0.00	0.00	0.00	42.17	0.00	0.00	0.02
WVCM60 Type ES	2.05	0.99	0.91	0.00	11.37	0.16	0.28	0.00	2.64	0.00	0.00	0.00	0.00	42.17	0.00	0.00	0.02
WVCM60 Type ES	2.05	0.99	0.91	0.00	11.37	0.16	0.28	0.00	2.64	0.00	0.00	0.00	0.00	42.17	0.00	0.00	0.02
WVCM60 Type ES	2.05	0.99	0.91	0.00	11.37	0.16	0.28	0.00	2.64	0.00	0.00	0.00	0.00	42.17	0.00	0.00	0.02
WVCM60 Type ES	2.05	0.99	0.91	0.00	11.37	0.16	0.28	0.00	2.64	0.00	0.00	0.00	0.00	42.17	0.00	0.00	0.02
WVCM60 Type ES	2.05	0.99	0.91	0.00	11.37	0.16	0.28	0.00	2.64	0.00	0.00	0.00	0.00	42.17	0.00	0.00	0.02
WVCM60 Type ES	2.05	0.99	0.91	0.00	11.37	0.16	0.28	0.00	2.64	0.00	0.00	0.00	0.00	42.17	0.00	0.00	0.02
WVCM60 Type ES	2.05	0.99	0.91	0.00	11.37	0.16	0.28	0.00	2.64	0.00	0.00	0.00	0.00	42.17	0.00	0.00	0.02
WVCM60 Type ES	2.05	0.99	0.91	0.00	11.37	0.16	0.28	0.00	2.64	0.00	0.00	0.00	0.00	42.17	0.00	0.00	0.02
WVCM60 Type ES	2.05	0.99	0.91	0.00	11.37	0.16	0.28	0.00	2.64	0.00	0.00	0.00	0.00	42.17	0.00	0.00	0.02
WVCM60 Type ES	2.05	0.99	0.91	0.00	11.37	0.16	0.28	0.00	2.64	0.00	0.00	0.00	0.00	42.17	0.00	0.00	0.02
WVCM60 Type ES	2.05	0.99	0.91	0.00	11.37	0.16	0.28	0.00	2.64	0.00	0.00	0.00	0.00	42.17	0.00	0.00	0.02
WVCM60 Type ES	2.05	0.99	0.91	0.00	11.37	0.16	0.28	0.00	2.64	0.00	0.00	0.00	0.00	42.17	0.00	0.00	0.02
WVCM60 Type ES	2.05	0.99	0.91	0.00	11.37	0.16	0.28	0.00	2.64	0.00	0.00	0.00	0.00	42.17	0.00	0.00	0.02
WVCM60 Type ES	2.05	0.99	0.91	0.00	11.37	0.16	0.28	0.00	2.64	0.00	0.00	0.00	0.00	42.17	0.00	0.00	0.02
WVUTh122 Type IIR	2.87	0.89	0.82	0.00	10.29	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	41.58	0.00	0.00	0.02
WVUTh122 Type IIR	2.87	0.89	0.82	0.00	10.29	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	41.58	0.00	0.00	0.02
WVUTh122 Type IIR	2.87	0.89	0.82	0.00	10.29	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	41.58	0.00	0.00	0.02
WVUTh122 Type IIR	2.87	0.89	0.82	0.00	10.29	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	41.58	0.00	0.00	0.02
WVUTh122 Type IIR	2.87	0.89	0.82	0.00	10.29	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	41.58	0.00	0.00	0.02
WVUTh122 Type IIR	2.87	0.89	0.82	0.00	10.29	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	41.58	0.00	0.00	0.02
WVUTh122 Type IIR	2.87	0.89	0.82	0.00	10.29	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	41.58	0.00	0.00	0.02
WVUTh122 Type IIR	2.87	0.89	0.82	0.00	10.29	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	41.58	0.00	0.00	0.02
WVUTh122 Type IIR	2.87	0.89	0.82	0.00	10.29	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	41.58	0.00	0.00	0.02
WVUTh122 Type IIR	2.87	0.89	0.82	0.00	10.29	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	41.58	0.00	0.00	0.02
WVUTh122 Type IIR	2.87	0.89	0.82	0.00	10.29	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	41.58	0.00	0.00	0.02
WVUTh122 Type IIR	2.87	0.89	0.82	0.00	10.29	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	41.58	0.00	0.00	0.02
WVUTh122 Type IIR	2.87	0.89	0.82	0.00	10.29	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	41.58	0.00	0.00	0.02
WVUTh122 Type IIR	2.87	0.89	0.82	0.00	10.29	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	41.58	0.00	0.00	0.02
WVUTh122 Type IIR	2.87	0.89	0.82	0.00	10.29	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	41.58	0.00	0.00	0.02
WVUTh122 Type IIR	2.87	0.89	0.82	0.00	10.29	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	41.58	0.00	0.00	0.02
WVUTh122 Type IIR	2.87	0.89	0.82	0.00	10.29	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	41.58	0.00	0.00	0.02
WVUTh122 Type IIR	2.87	0.89	0.82	0.00	10.29	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	41.58	0.00	0.00	0.02
WVUTh122 Type IIR	2.87	0.89	0.82	0.00	10.29	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	41.58	0.00	0.00	0.02
WVUTh122 Type IIR	2.87	0.89	0.82	0.00	10.29	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	41.58	0.00	0.00	0.02
WVUTh122 Type IIR	2.87	0.89	0.82	0.00	10.29	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	41.58	0.00	0.00	0.02
WVUTh122 Type IIR	2.87	0.89	0.82	0.00	10.29	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	41.58	0.00	0.00	0.02
WVUTh122 Type IIR	2.87	0.89	0.82	0.00	10.29	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	41.58	0.00	0.00	0.02
WVUTh122 Type IIR	2.87	0.89	0.82	0.00	10.29	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	41.58	0.00	0.00	0.02
WVUTh122 Type IIR	2.87	0.89	0.82	0.00	10.29	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	41.58	0.00	0.00	0.02
WVUTh122 Type IIR	2.87	0.89	0.82	0.00	10.29	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	41.58	0.00	0.00	0.02
WVUTh122 Type IIR	2.87	0.89	0.82	0.00	10.29	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	41.58	0.00	0.00	0.02
WVUTh123 Type ESR	3.12	0.89	0.82	0.00	11.20	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.02

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
WVCM60 Type ES	0.00	3.95	0.85	0.68	0.00	0.00	0.36	0.00	99.19		
WVCM60 Type ES	0.00	3.95	0.85	0.68	0.00	0.00	0.36	0.00	99.19		
WVCM60 Type ES	0.00	3.95	0.85	0.68	0.00	0.00	0.36	0.00	99.19		
WVCM60 Type ES	0.00	3.95	0.85	0.68	0.00	0.00	0.36	0.00	99.19		
WVCM60 Type ES	0.00	3.95	0.85	0.68	0.00	0.00	0.36	0.00	99.19		
WVCM60 Type ES	0.00	3.95	0.85	0.68	0.00	0.00	0.36	0.00	99.19		
WVCM60 Type ES	0.00	3.95	0.85	0.68	0.00	0.00	0.36	0.00	99.19		
WVCM60 Type ES	0.00	3.95	0.85	0.68	0.00	0.00	0.36	0.00	99.19		
WVCM60 Type ES	0.00	3.95	0.85	0.68	0.00	0.00	0.36	0.00	99.19		
WVCM60 Type ES	0.00	3.95	0.85	0.68	0.00	0.00	0.36	0.00	99.19		
WVCM60 Type ES	0.00	3.95	0.85	0.68	0.00	0.00	0.36	0.00	99.19		
WVCM60 Type ES	0.00	3.95	0.85	0.68	0.00	0.00	0.36	0.00	99.19		
WVCM60 Type ES	0.00	3.95	0.85	0.68	0.00	0.00	0.36	0.00	99.19		
WVCM60 Type ES	0.00	3.95	0.85	0.68	0.00	0.00	0.36	0.00	99.19		
WVCM60 Type ES	0.00	3.95	0.85	0.68	0.00	0.00	0.36	0.00	99.19		
WVCM60 Type ES	0.00	3.95	0.85	0.68	0.00	0.00	0.36	0.00	99.19		
WVCM60 Type ES	0.00	3.95	0.85	0.68	0.00	0.00	0.36	0.00	99.19		
WVCM60 Type ES	0.00	3.95	0.85	0.68	0.00	0.00	0.36	0.00	99.19		
WVCM60 Type ES	0.00	3.95	0.85	0.68	0.00	0.00	0.36	0.00	99.19		
WVUTh122 Type IIR	0.00	3.55	0.76	0.58	0.00	0.00	0.32	0.00	99.24		
WVUTh122 Type IIR	0.00	3.55	0.76	0.58	0.00	0.00	0.32	0.00	99.24		
WVUTh122 Type IIR	0.00	3.55	0.76	0.58	0.00	0.00	0.32	0.00	99.24		
WVUTh122 Type IIR	0.00	3.55	0.76	0.58	0.00	0.00	0.32	0.00	99.24		
WVUTh122 Type IIR	0.00	3.55	0.76	0.58	0.00	0.00	0.32	0.00	99.24		
WVUTh122 Type IIR	0.00	3.55	0.76	0.58	0.00	0.00	0.32	0.00	99.24		
WVUTh122 Type IIR	0.00	3.55	0.76	0.58	0.00	0.00	0.32	0.00	99.24		
WVUTh122 Type IIR	0.00	3.55	0.76	0.58	0.00	0.00	0.32	0.00	99.24		
WVUTh122 Type IIR	0.00	3.55	0.76	0.58	0.00	0.00	0.32	0.00	99.24		
WVUTh122 Type IIR	0.00	3.55	0.76	0.58	0.00	0.00	0.32	0.00	99.24		
WVUTh122 Type IIR	0.00	3.55	0.76	0.58	0.00	0.00	0.32	0.00	99.24		
WVUTh122 Type IIR	0.00	3.55	0.76	0.58	0.00	0.00	0.32	0.00	99.24		
WVUTh122 Type IIR	0.00	3.55	0.76	0.58	0.00	0.00	0.32	0.00	99.24		
WVUTh122 Type IIR	0.00	3.55	0.76	0.58	0.00	0.00	0.32	0.00	99.24		
WVUTh122 Type IIR	0.00	3.55	0.76	0.58	0.00	0.00	0.32	0.00	99.24		
WVUTh122 Type IIR	0.00	3.55	0.76	0.58	0.00	0.00	0.32	0.00	99.24		
WVUTh122 Type IIR	0.00	3.55	0.76	0.58	0.00	0.00	0.32	0.00	99.24		
WVUTh122 Type IIR	0.00	3.55	0.76	0.58	0.00	0.00	0.32	0.00	99.24		
WVUTh122 Type IIR	0.00	3.55	0.76	0.58	0.00	0.00	0.32	0.00	99.24		
WVUTh122 Type IIR	0.00	3.55	0.76	0.58	0.00	0.00	0.32	0.00	99.24		
WVUTh122 Type IIR	0.00	3.55	0.76	0.58	0.00	0.00	0.32	0.00	99.24		
WVUTh122 Type IIR	0.00	3.55	0.76	0.58	0.00	0.00	0.32	0.00	99.24		
WVUTh122 Type IIR	0.00	3.55	0.76	0.58	0.00	0.00	0.32	0.00	99.24		
WVUTh122 Type IIR	0.00	3.55	0.76	0.58	0.00	0.00	0.32	0.00	99.24		
WVUTh122 Type IIR	0.00	3.55	0.76	0.58	0.00	0.00	0.32	0.00	99.24		
WVUTh122 Type IIR	0.00	3.55	0.76	0.58	0.00	0.00	0.32	0.00	99.24		
WVUTh123 Type ESR	0.00	3.55	0.76	0.60	0.00	0.00	0.32	0.00	99.28		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
WVUTh123 Type ESR	HLW	VSL-Muller	SS	28.00	0.19	1.957	54.790	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.11
WVUTh123 Type ESR	HLW	VSL-Muller	SS	56.00	0.19	1.957	109.580	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.99
WVUTh123 Type ESR	HLW	VSL-Muller	SS	120.00	0.19	1.957	234.815	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.95
WVUTh123 Type ESR	HLW	VSL-Muller	SS	183.00	0.19	1.957	358.092	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.88
WVUTh123 Type ESR	HLW	VSL-Muller	SS	274.00	0.19	1.957	536.160	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.91
WVUTh123 Type ESR	HLW	VSL-Muller	SS	363.00	0.19	1.957	710.314	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.81
WVUTh123 Type ESR	HLW	VSL-Muller	SS	547.00	0.19	1.957	1,070.363	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.81
WVUTh123 Type ESR	HLW	VSL-Muller	SS	730.00	0.19	1.957	1,428.455	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.80
WVUTh123 Type ESR	HLW	VSL-Muller	SS	1097.00	0.19	1.957	2,146.596	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.70
WVUTh123 Type ESR	HLW	VSL-Muller	SS	1280.00	0.19	1.957	2,504.688	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.86
WVUTh123 Type ESR	HLW	VSL-Muller	SS	1463.00	0.19	1.957	2,862.780	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.91
WVUTh123 Type ESR	HLW	VSL-Muller	SS	2198.00	0.19	1.957	4,301.019	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.83
WVUTh123 Type ESR	HLW	VSL-Muller	SS	2556.00	0.19	1.957	5,001.549	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.76
WVUTh123 Type ESR	HLW	VSL-Muller	SS	2910.00	0.19	1.957	5,694.252	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.61
WVUTh123 Type ESR	HLW	VSL-Muller	SS	3271.00	0.19	1.957	6,400.652	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.46
WVUTh123 Type ESR	HLW	VSL-Muller	SS	3613.00	0.19	1.957	7,069.874	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.33
WVUTh123 Type ESR	HLW	VSL-Muller	SS	3974.00	0.19	1.957	7,776.274	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.43
WVUTh123 Type ESR	HLW	VSL-Muller	SS	4345.00	0.19	1.957	8,502.242	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.52
WVUTh123 Type ESR	HLW	VSL-Muller	SS	4641.00	0.19	1.957	9,081.451	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.65
WVUTh157 Type ESR	HLW	VSL-Muller	SS	7.00	0.19	1.957	13.698	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.00
WVUTh157 Type ESR	HLW	VSL-Muller	SS	28.00	0.19	1.957	54.790	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.77
WVUTh157 Type ESR	HLW	VSL-Muller	SS	56.00	0.19	1.957	109.580	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.68
WVUTh157 Type ESR	HLW	VSL-Muller	SS	120.00	0.19	1.957	234.815	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.70
WVUTh157 Type ESR	HLW	VSL-Muller	SS	183.00	0.19	1.957	358.092	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.79
WVUTh157 Type ESR	HLW	VSL-Muller	SS	273.00	0.19	1.957	534.203	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.76
WVUTh157 Type ESR	HLW	VSL-Muller	SS	365.00	0.19	1.957	714.227	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.79
WVUTh157 Type ESR	HLW	VSL-Muller	SS	554.00	0.19	1.957	1,084.060	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.78
WVUTh157 Type ESR	HLW	VSL-Muller	SS	730.00	0.19	1.957	1,428.455	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.65
WVUTh157 Type ESR	HLW	VSL-Muller	SS	918.00	0.19	1.957	1,796.331	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.81
WVUTh157 Type ESR	HLW	VSL-Muller	SS	1098.00	0.19	1.957	2,148.553	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.86
WVUTh157 Type ESR	HLW	VSL-Muller	SS	1282.00	0.19	1.957	2,508.602	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.82
WVUTh157 Type ESR	HLW	VSL-Muller	SS	1652.00	0.19	1.957	3,232.613	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.86
WVUTh157 Type ESR	HLW	VSL-Muller	SS	2044.00	0.19	1.957	3,999.674	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.88

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
WVUTh123 Type ESR	370.57	616.13			144.30	1234.67	233.00	0.51	0.02					
WVUTh123 Type ESR	420.93	651.00			151.93	1256.00	234.90	0.35						
WVUTh123 Type ESR	343.33	603.53			120.90	1347.33	240.77	0.89	0.24					
WVUTh123 Type ESR	385.17	548.27			103.65	1151.33	219.97	0.55	0.03					
WVUTh123 Type ESR	389.73	551.60			117.93	1111.00	221.10	0.30						
WVUTh123 Type ESR	367.00	526.67			120.33	1030.17	205.00	0.52	0.11					
WVUTh123 Type ESR	373.63	520.00			99.97	1014.90	235.77	0.83	0.13					
WVUTh123 Type ESR	394.47	518.80			111.63	1000.40	202.07	0.72	0.64					
WVUTh123 Type ESR	387.80	493.17			94.78	925.50	225.63	0.49	1.87					
WVUTh123 Type ESR	348.93	481.27			86.94	904.27	198.40	0.50						
WVUTh123 Type ESR	408.83	485.03			96.93	974.93	195.57	0.61						
WVUTh123 Type ESR	444.49	494.31			103.11	1004.80	227.36	0.37						
WVUTh123 Type ESR	430.45	546.77			115.65	1125.23	225.49	0.26	0.04					
WVUTh123 Type ESR	482.21	845.78			127.11	1675.47	328.16	0.24	0.01					
WVUTh123 Type ESR	610.67	1559.03			158.97	2630.83	599.17	0.38	0.08					
WVUTh123 Type ESR	647.83	1924.37			163.20	3556.30	702.37	0.32	0.38					
WVUTh123 Type ESR	677.47	2119.93			164.23	3891.33	773.67	0.25	0.43					
WVUTh123 Type ESR	747.84	2422.27			170.85	4438.13	986.36	0.39	0.71					
WVUTh123 Type ESR	712.37	2325.33			166.95	4301.10	985.96	0.32	0.60					
WVUTh157 Type ESR	292.70	578.43			158.70	927.20	212.20	8.62	1.15					
WVUTh157 Type ESR	323.77	714.20			138.50	1293.67	276.70	0.69	1.04					
WVUTh157 Type ESR	304.70	664.00			122.60	1203.00	261.00	0.94	0.10					
WVUTh157 Type ESR	339.23	721.73			125.23	1221.67	276.13	1.11	0.07					
WVUTh157 Type ESR	315.83	678.33			129.23	1215.67	267.70	1.35	0.15					
WVUTh157 Type ESR	272.77	614.83			115.57	1050.67	267.47	0.84	0.08					
WVUTh157 Type ESR	275.87	619.27			111.67	1092.00	261.40	0.67	0.07					
WVUTh157 Type ESR	310.27	647.13			123.83	1030.30	286.60	1.06	0.25					
WVUTh157 Type ESR	266.43	590.97			110.23	1071.67	276.47	0.65	0.11					
WVUTh157 Type ESR	264.23	618.90			117.80	1138.33	268.57	0.58	0.17					
WVUTh157 Type ESR	302.37	605.80			105.33	1039.67	239.60	0.59	0.01					
WVUTh157 Type ESR	293.00	589.70			121.77	1133.67	242.80	0.64						
WVUTh157 Type ESR	313.97	619.91			115.43	1095.77	259.12	0.41	0.17					
WVUTh157 Type ESR	391.77	1080.03			169.74	1833.60	423.06	0.42	0.09					

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
WVUTh123 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.81	16.538	0.7661486	Indeterminate	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh123 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.81	16.538	0.7661486	Indeterminate	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh123 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.81	16.538	0.7661486	Indeterminate	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh123 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.81	16.538	0.7661486	Indeterminate	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh123 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.81	16.538	0.7661486	Indeterminate	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh123 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.81	16.538	0.7661486	Indeterminate	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh123 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.81	16.538	0.7661486	Indeterminate	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh123 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.81	16.538	0.7661486	Indeterminate	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh123 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.81	16.538	0.7661486	Indeterminate	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh123 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.81	16.538	0.7661486	Indeterminate	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh123 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.81	16.538	0.7661486	Indeterminate	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh123 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.81	16.538	0.7661486	Indeterminate	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh123 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.81	16.538	0.7661486	Indeterminate	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh123 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.81	16.538	0.7661486	Indeterminate	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh123 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.81	16.538	0.7661486	Indeterminate	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh123 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.81	16.538	0.7661486	Indeterminate	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh123 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.81	16.538	0.7661486	Indeterminate	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh123 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.81	16.538	0.7661486	Indeterminate	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh123 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.81	16.538	0.7661486	Indeterminate	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh157 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.51	16.093	3.7604696	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh157 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.51	16.093	3.7604696	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh157 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.51	16.093	3.7604696	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh157 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.51	16.093	3.7604696	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh157 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.51	16.093	3.7604696	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh157 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.51	16.093	3.7604696	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh157 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.51	16.093	3.7604696	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh157 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.51	16.093	3.7604696	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh157 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.51	16.093	3.7604696	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh157 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.51	16.093	3.7604696	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh157 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.51	16.093	3.7604696	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh157 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.51	16.093	3.7604696	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh157 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.51	16.093	3.7604696	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh157 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.51	16.093	3.7604696	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
WVUTh123 Type ESR	Potential ϕ-sep.	2.99	10.20	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.02	3.64	0.00	0.04
WVUTh123 Type ESR	Potential ϕ-sep.	2.99	10.20	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.02	3.64	0.00	0.04
WVUTh123 Type ESR	Potential ϕ-sep.	2.99	10.20	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.02	3.64	0.00	0.04
WVUTh123 Type ESR	Potential ϕ-sep.	2.99	10.20	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.02	3.64	0.00	0.04
WVUTh123 Type ESR	Potential ϕ-sep.	2.99	10.20	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.02	3.64	0.00	0.04
WVUTh123 Type ESR	Potential ϕ-sep.	2.99	10.20	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.02	3.64	0.00	0.04
WVUTh123 Type ESR	Potential ϕ-sep.	2.99	10.20	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.02	3.64	0.00	0.04
WVUTh123 Type ESR	Potential ϕ-sep.	2.99	10.20	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.02	3.64	0.00	0.04
WVUTh123 Type ESR	Potential ϕ-sep.	2.99	10.20	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.02	3.64	0.00	0.04
WVUTh123 Type ESR	Potential ϕ-sep.	2.99	10.20	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.02	3.64	0.00	0.04
WVUTh123 Type ESR	Potential ϕ-sep.	2.99	10.20	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.02	3.64	0.00	0.04
WVUTh123 Type ESR	Potential ϕ-sep.	2.99	10.20	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.02	3.64	0.00	0.04
WVUTh123 Type ESR	Potential ϕ-sep.	2.99	10.20	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.02	3.64	0.00	0.04
WVUTh123 Type ESR	Potential ϕ-sep.	2.99	10.20	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.02	3.64	0.00	0.04
WVUTh123 Type ESR	Potential ϕ-sep.	2.99	10.20	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.02	3.64	0.00	0.04
WVUTh123 Type ESR	Potential ϕ-sep.	2.99	10.20	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.02	3.64	0.00	0.04
WVUTh123 Type ESR	Potential ϕ-sep.	2.99	10.20	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.02	3.64	0.00	0.04
WVUTh123 Type ESR	Potential ϕ-sep.	2.99	10.20	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.02	3.64	0.00	0.04
WVUTh123 Type ESR	Potential ϕ-sep.	2.99	10.20	0.16	0.68	0.00	0.67	0.14	0.08	0.04	0.00	0.00	12.02	3.64	0.00	0.04
WVUTh157 Type ESR	Potential ϕ-sep.	2.96	12.47	0.20	0.82	0.00	0.15	0.14	0.07	0.04	0.00	0.00	11.97	3.82	0.00	0.05
WVUTh157 Type ESR	Potential ϕ-sep.	2.96	12.47	0.20	0.82	0.00	0.15	0.14	0.07	0.04	0.00	0.00	11.97	3.82	0.00	0.05
WVUTh157 Type ESR	Potential ϕ-sep.	2.96	12.47	0.20	0.82	0.00	0.15	0.14	0.07	0.04	0.00	0.00	11.97	3.82	0.00	0.05
WVUTh157 Type ESR	Potential ϕ-sep.	2.96	12.47	0.20	0.82	0.00	0.15	0.14	0.07	0.04	0.00	0.00	11.97	3.82	0.00	0.05
WVUTh157 Type ESR	Potential ϕ-sep.	2.96	12.47	0.20	0.82	0.00	0.15	0.14	0.07	0.04	0.00	0.00	11.97	3.82	0.00	0.05
WVUTh157 Type ESR	Potential ϕ-sep.	2.96	12.47	0.20	0.82	0.00	0.15	0.14	0.07	0.04	0.00	0.00	11.97	3.82	0.00	0.05
WVUTh157 Type ESR	Potential ϕ-sep.	2.96	12.47	0.20	0.82	0.00	0.15	0.14	0.07	0.04	0.00	0.00	11.97	3.82	0.00	0.05
WVUTh157 Type ESR	Potential ϕ-sep.	2.96	12.47	0.20	0.82	0.00	0.15	0.14	0.07	0.04	0.00	0.00	11.97	3.82	0.00	0.05
WVUTh157 Type ESR	Potential ϕ-sep.	2.96	12.47	0.20	0.82	0.00	0.15	0.14	0.07	0.04	0.00	0.00	11.97	3.82	0.00	0.05
WVUTh157 Type ESR	Potential ϕ-sep.	2.96	12.47	0.20	0.82	0.00	0.15	0.14	0.07	0.04	0.00	0.00	11.97	3.82	0.00	0.05
WVUTh157 Type ESR	Potential ϕ-sep.	2.96	12.47	0.20	0.82	0.00	0.15	0.14	0.07	0.04	0.00	0.00	11.97	3.82	0.00	0.05
WVUTh157 Type ESR	Potential ϕ-sep.	2.96	12.47	0.20	0.82	0.00	0.15	0.14	0.07	0.04	0.00	0.00	11.97	3.82	0.00	0.05
WVUTh157 Type ESR	Potential ϕ-sep.	2.96	12.47	0.20	0.82	0.00	0.15	0.14	0.07	0.04	0.00	0.00	11.97	3.82	0.00	0.05
WVUTh157 Type ESR	Potential ϕ-sep.	2.96	12.47	0.20	0.82	0.00	0.15	0.14	0.07	0.04	0.00	0.00	11.97	3.82	0.00	0.05

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
WVUTh123 Type ESR	3.12	0.89	0.82	0.00	11.20	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.02
WVUTh123 Type ESR	3.12	0.89	0.82	0.00	11.20	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.02
WVUTh123 Type ESR	3.12	0.89	0.82	0.00	11.20	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.02
WVUTh123 Type ESR	3.12	0.89	0.82	0.00	11.20	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.02
WVUTh123 Type ESR	3.12	0.89	0.82	0.00	11.20	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.02
WVUTh123 Type ESR	3.12	0.89	0.82	0.00	11.20	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.02
WVUTh123 Type ESR	3.12	0.89	0.82	0.00	11.20	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.02
WVUTh123 Type ESR	3.12	0.89	0.82	0.00	11.20	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.02
WVUTh123 Type ESR	3.12	0.89	0.82	0.00	11.20	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.02
WVUTh123 Type ESR	3.12	0.89	0.82	0.00	11.20	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.02
WVUTh123 Type ESR	3.12	0.89	0.82	0.00	11.20	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.02
WVUTh123 Type ESR	3.12	0.89	0.82	0.00	11.20	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.02
WVUTh123 Type ESR	3.12	0.89	0.82	0.00	11.20	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.02
WVUTh123 Type ESR	3.12	0.89	0.82	0.00	11.20	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.02
WVUTh123 Type ESR	3.12	0.89	0.82	0.00	11.20	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.02
WVUTh123 Type ESR	3.12	0.89	0.82	0.00	11.20	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.02
WVUTh123 Type ESR	3.12	0.89	0.82	0.00	11.20	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.02
WVUTh123 Type ESR	3.12	0.89	0.82	0.00	11.20	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.02
WVUTh123 Type ESR	3.12	0.89	0.82	0.00	11.20	0.14	0.25	0.00	2.37	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.02
WVUTh157 Type ESR	3.30	0.89	0.99	0.00	11.93	0.14	0.30	0.00	2.34	0.00	0.00	0.00	0.00	40.92	0.00	0.00	0.03
WVUTh157 Type ESR	3.30	0.89	0.99	0.00	11.93	0.14	0.30	0.00	2.34	0.00	0.00	0.00	0.00	40.92	0.00	0.00	0.03
WVUTh157 Type ESR	3.30	0.89	0.99	0.00	11.93	0.14	0.30	0.00	2.34	0.00	0.00	0.00	0.00	40.92	0.00	0.00	0.03
WVUTh157 Type ESR	3.30	0.89	0.99	0.00	11.93	0.14	0.30	0.00	2.34	0.00	0.00	0.00	0.00	40.92	0.00	0.00	0.03
WVUTh157 Type ESR	3.30	0.89	0.99	0.00	11.93	0.14	0.30	0.00	2.34	0.00	0.00	0.00	0.00	40.92	0.00	0.00	0.03
WVUTh157 Type ESR	3.30	0.89	0.99	0.00	11.93	0.14	0.30	0.00	2.34	0.00	0.00	0.00	0.00	40.92	0.00	0.00	0.03
WVUTh157 Type ESR	3.30	0.89	0.99	0.00	11.93	0.14	0.30	0.00	2.34	0.00	0.00	0.00	0.00	40.92	0.00	0.00	0.03
WVUTh157 Type ESR	3.30	0.89	0.99	0.00	11.93	0.14	0.30	0.00	2.34	0.00	0.00	0.00	0.00	40.92	0.00	0.00	0.03
WVUTh157 Type ESR	3.30	0.89	0.99	0.00	11.93	0.14	0.30	0.00	2.34	0.00	0.00	0.00	0.00	40.92	0.00	0.00	0.03
WVUTh157 Type ESR	3.30	0.89	0.99	0.00	11.93	0.14	0.30	0.00	2.34	0.00	0.00	0.00	0.00	40.92	0.00	0.00	0.03
WVUTh157 Type ESR	3.30	0.89	0.99	0.00	11.93	0.14	0.30	0.00	2.34	0.00	0.00	0.00	0.00	40.92	0.00	0.00	0.03
WVUTh157 Type ESR	3.30	0.89	0.99	0.00	11.93	0.14	0.30	0.00	2.34	0.00	0.00	0.00	0.00	40.92	0.00	0.00	0.03
WVUTh157 Type ESR	3.30	0.89	0.99	0.00	11.93	0.14	0.30	0.00	2.34	0.00	0.00	0.00	0.00	40.92	0.00	0.00	0.03
WVUTh157 Type ESR	3.30	0.89	0.99	0.00	11.93	0.14	0.30	0.00	2.34	0.00	0.00	0.00	0.00	40.92	0.00	0.00	0.03

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
WVUTh123 Type ESR	0.00	3.55	0.76	0.60	0.00	0.00	0.32	0.00	99.28		
WVUTh123 Type ESR	0.00	3.55	0.76	0.60	0.00	0.00	0.32	0.00	99.28		
WVUTh123 Type ESR	0.00	3.55	0.76	0.60	0.00	0.00	0.32	0.00	99.28		
WVUTh123 Type ESR	0.00	3.55	0.76	0.60	0.00	0.00	0.32	0.00	99.28		
WVUTh123 Type ESR	0.00	3.55	0.76	0.60	0.00	0.00	0.32	0.00	99.28		
WVUTh123 Type ESR	0.00	3.55	0.76	0.60	0.00	0.00	0.32	0.00	99.28		
WVUTh123 Type ESR	0.00	3.55	0.76	0.60	0.00	0.00	0.32	0.00	99.28		
WVUTh123 Type ESR	0.00	3.55	0.76	0.60	0.00	0.00	0.32	0.00	99.28		
WVUTh123 Type ESR	0.00	3.55	0.76	0.60	0.00	0.00	0.32	0.00	99.28		
WVUTh123 Type ESR	0.00	3.55	0.76	0.60	0.00	0.00	0.32	0.00	99.28		
WVUTh123 Type ESR	0.00	3.55	0.76	0.60	0.00	0.00	0.32	0.00	99.28		
WVUTh123 Type ESR	0.00	3.55	0.76	0.60	0.00	0.00	0.32	0.00	99.28		
WVUTh123 Type ESR	0.00	3.55	0.76	0.60	0.00	0.00	0.32	0.00	99.28		
WVUTh123 Type ESR	0.00	3.55	0.76	0.60	0.00	0.00	0.32	0.00	99.28		
WVUTh123 Type ESR	0.00	3.55	0.76	0.60	0.00	0.00	0.32	0.00	99.28		
WVUTh123 Type ESR	0.00	3.55	0.76	0.60	0.00	0.00	0.32	0.00	99.28		
WVUTh123 Type ESR	0.00	3.55	0.76	0.60	0.00	0.00	0.32	0.00	99.28		
WVUTh123 Type ESR	0.00	3.55	0.76	0.60	0.00	0.00	0.32	0.00	99.28		
WVUTh123 Type ESR	0.00	3.55	0.76	0.60	0.00	0.00	0.32	0.00	99.28		
WVUTh157 Type ESR	0.00	3.53	0.82	0.60	0.00	0.00	0.39	0.00	98.88		
WVUTh157 Type ESR	0.00	3.53	0.82	0.60	0.00	0.00	0.39	0.00	98.88		
WVUTh157 Type ESR	0.00	3.53	0.82	0.60	0.00	0.00	0.39	0.00	98.88		
WVUTh157 Type ESR	0.00	3.53	0.82	0.60	0.00	0.00	0.39	0.00	98.88		
WVUTh157 Type ESR	0.00	3.53	0.82	0.60	0.00	0.00	0.39	0.00	98.88		
WVUTh157 Type ESR	0.00	3.53	0.82	0.60	0.00	0.00	0.39	0.00	98.88		
WVUTh157 Type ESR	0.00	3.53	0.82	0.60	0.00	0.00	0.39	0.00	98.88		
WVUTh157 Type ESR	0.00	3.53	0.82	0.60	0.00	0.00	0.39	0.00	98.88		
WVUTh157 Type ESR	0.00	3.53	0.82	0.60	0.00	0.00	0.39	0.00	98.88		
WVUTh157 Type ESR	0.00	3.53	0.82	0.60	0.00	0.00	0.39	0.00	98.88		
WVUTh157 Type ESR	0.00	3.53	0.82	0.60	0.00	0.00	0.39	0.00	98.88		
WVUTh157 Type ESR	0.00	3.53	0.82	0.60	0.00	0.00	0.39	0.00	98.88		
WVUTh157 Type ESR	0.00	3.53	0.82	0.60	0.00	0.00	0.39	0.00	98.88		
WVUTh157 Type ESR	0.00	3.53	0.82	0.60	0.00	0.00	0.39	0.00	98.88		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
WVUTh157 Type ESR	HLW	VSL-Muller	SS	2401.00	0.19	1.957	4,698.247	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.74
WVUTh157 Type ESR	HLW	VSL-Muller	SS	2771.00	0.19	1.957	5,422.258	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.63
WVUTh157 Type ESR	HLW	VSL-Muller	SS	3131.00	0.19	1.957	6,126.702	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.53
WVUTh157 Type ESR	HLW	VSL-Muller	SS	3738.00	0.19	1.957	7,314.472	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.13
WVUTh157 Type ESR	HLW	VSL-Muller	SS	4112.00	0.19	1.957	8,046.311	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.03
WVUTh157 Type ESR	HLW	VSL-Muller	SS	4405.00	0.19	1.957	8,619.649	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.17
WVUTh179 Type I	HLW	VSL-Muller	SS	7.00	0.19	1.957	13.698	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.63
WVUTh179 Type I	HLW	VSL-Muller	SS	28.00	0.19	1.957	54.790	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.20
WVUTh179 Type I	HLW	VSL-Muller	SS	56.00	0.19	1.957	109.580	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.31
WVUTh179 Type I	HLW	VSL-Muller	SS	120.00	0.19	1.957	234.815	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.26
WVUTh179 Type I	HLW	VSL-Muller	SS	180.00	0.19	1.957	352.222	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.33
WVUTh179 Type I	HLW	VSL-Muller	SS	271.00	0.19	1.957	530.289	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.29
WVUTh179 Type I	HLW	VSL-Muller	SS	365.00	0.19	1.957	714.227	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.42
WVUTh179 Type I	HLW	VSL-Muller	SS	547.00	0.19	1.957	1,070.363	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.46
WVUTh179 Type I	HLW	VSL-Muller	SS	729.00	0.19	1.957	1,426.498	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.51
WVUTh179 Type I	HLW	VSL-Muller	SS	909.00	0.19	1.957	1,778.720	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.57
WVUTh179 Type I	HLW	VSL-Muller	SS	1085.00	0.19	1.957	2,123.115	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.50
WVUTh179 Type I	HLW	VSL-Muller	SS	1453.00	0.19	1.957	2,843.212	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.54
WVUTh179 Type I	HLW	VSL-Muller	SS	1819.00	0.19	1.957	3,559.397	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.51
WVUTh179 Type I	HLW	VSL-Muller	SS	2185.00	0.19	1.957	4,275.581	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.41
WVUTh179 Type I	HLW	VSL-Muller	SS	2546.00	0.19	1.957	4,981.981	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.32
WVUTh179 Type I	HLW	VSL-Muller	SS	2926.00	0.19	1.957	5,725.561	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.23
WVUTh179 Type I	HLW	VSL-Muller	SS	3288.00	0.19	1.957	6,433.918	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.32
WVUTh179 Type I	HLW	VSL-Muller	SS	3660.00	0.19	1.957	7,161.843	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.26
WVUTh179 Type I	HLW	VSL-Muller	SS	3955.00	0.19	1.957	7,739.095	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.33
WVUTh179 Type I	HLW	VSL-Muller	SS	4351.00	0.19	1.957	8,513.983	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.45
WVUTh179 Type I	HLW	VSL-Muller	SS	4716.00	0.19	1.957	9,228.210	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.54
WVUTh179 Type I	HLW	VSL-Muller	SS	5108.00	0.19	1.957	9,995.271	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.55
WVUTh179 Type I	HLW	VSL-Muller	SS	5473.00	0.19	1.957	10,709.499	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.55
WVUTh179 Type I	HLW	VSL-Muller	SS	5719.00	0.19	1.957	11,190.868	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.52
WVUTh179 Type I	HLW	VSL-Muller	SS	6039.00	0.19	1.957	11,817.040	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.55
WVUTh179 Type I	HLW	VSL-Muller	SS	6417.00	0.19	1.957	12,556.706	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.64
WVUTh179 Type I	HLW	VSL-Muller	SS	6719.00	0.19	1.957	13,147.656	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.65

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
WVUTh157 Type ESR	404.48	1691.97			186.23	2857.31	620.57	0.32	0.23					
WVUTh157 Type ESR	509.47	2433.27			215.77	3806.70	814.27	0.35	0.05					
WVUTh157 Type ESR	508.03	2763.60			217.13	4561.90	890.50	0.39	0.42					
WVUTh157 Type ESR	575.36	3237.73			238.81	5620.63	1136.73	0.48	0.61					
WVUTh157 Type ESR	580.91	3317.13			263.54	5419.57	1096.10	0.27						
WVUTh157 Type ESR	580.37	3307.50			243.44	5401.43	1114.20	0.62	0.71					
WVUTh179 Type I	40.47	15.53			8.53	26.12	11.09	8.14	0.32					
WVUTh179 Type I	64.33	29.58			15.18	47.17	18.30	10.86	1.27					
WVUTh179 Type I	60.43	31.04			15.21	48.31	17.52	9.49	1.62					
WVUTh179 Type I	70.02	40.90			19.70	61.27	19.65	9.43	2.52					
WVUTh179 Type I	83.26	56.44			27.38	89.14	26.47	10.82	3.38					
WVUTh179 Type I	90.47	72.46			32.86	109.30	27.20	9.52	4.13					
WVUTh179 Type I	94.23	81.12			33.11	109.63	27.71	8.36	4.01					
WVUTh179 Type I	105.09	97.14			40.12	129.15	32.88	8.54	4.52					
WVUTh179 Type I	108.33	100.38			40.44	115.77	32.01	6.89	2.72					
WVUTh179 Type I	109.27	106.70			48.00	142.70	35.08	7.10	2.77					
WVUTh179 Type I	113.07	111.93			48.30	137.30	36.52	5.52	1.69					
WVUTh179 Type I	142.54	137.83			56.87	166.36	46.79	6.99	4.47					
WVUTh179 Type I	157.05	150.09			61.39	178.90	44.60	4.50	2.33					
WVUTh179 Type I	171.29	167.39			66.16	176.81	49.03	6.95	6.50					
WVUTh179 Type I	166.93	174.33			66.86	190.33	48.15	6.32	5.93					
WVUTh179 Type I	178.97	177.27			71.54	200.93	53.49	5.82	4.68					
WVUTh179 Type I	206.73	217.81			87.30	233.56	64.75	7.77	7.39					
WVUTh179 Type I	191.04	213.80			84.63	252.79	62.53	7.31	6.94					
WVUTh179 Type I	194.32	215.43			82.75	231.05	63.14	7.53	8.22					
WVUTh179 Type I	173.52	197.25			79.78	220.95	56.04	3.76	1.22					
WVUTh179 Type I	204.70	217.87			85.55	241.80	62.76	5.51	4.47					
WVUTh179 Type I	180.50	195.04			79.12	216.50	51.55	3.13	1.86					
WVUTh179 Type I	191.30	201.06			78.33	224.50	51.97	3.40	1.43					
WVUTh179 Type I	226.60	208.40			66.04	222.80	55.52	2.83	0.60					
WVUTh179 Type I	219.29	219.62			87.05	236.02	58.88	2.72	1.21					
WVUTh179 Type I	231.94	242.69			92.26	255.80	63.48	2.82	1.38					
WVUTh179 Type I	253.07	253.52			101.59	290.21	66.65	2.71	1.41					

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
WVUTh157 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.51	16.093	3.7604696	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh157 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.51	16.093	3.7604696	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh157 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.51	16.093	3.7604696	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh157 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.51	16.093	3.7604696	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh157 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.51	16.093	3.7604696	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh157 Type ESR		Nontronite and zeolite (Phillipsite)	XRD/SEM	72.51	16.093	3.7604696	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
WVUTh179 Type I		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.08	20.473	-15.4768894	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh179 Type I		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.08	20.473	-15.4768894	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh179 Type I		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.08	20.473	-15.4768894	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh179 Type I		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.08	20.473	-15.4768894	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh179 Type I		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.08	20.473	-15.4768894	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh179 Type I		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.08	20.473	-15.4768894	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh179 Type I		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.08	20.473	-15.4768894	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh179 Type I		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.08	20.473	-15.4768894	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh179 Type I		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.08	20.473	-15.4768894	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh179 Type I		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.08	20.473	-15.4768894	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh179 Type I		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.08	20.473	-15.4768894	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh179 Type I		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.08	20.473	-15.4768894	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh179 Type I		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.08	20.473	-15.4768894	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh179 Type I		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.08	20.473	-15.4768894	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh179 Type I		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.08	20.473	-15.4768894	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh179 Type I		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.08	20.473	-15.4768894	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh179 Type I		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.08	20.473	-15.4768894	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh179 Type I		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.08	20.473	-15.4768894	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh179 Type I		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.08	20.473	-15.4768894	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh179 Type I		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.08	20.473	-15.4768894	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh179 Type I		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.08	20.473	-15.4768894	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh179 Type I		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.08	20.473	-15.4768894	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh179 Type I		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.08	20.473	-15.4768894	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh179 Type I		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.08	20.473	-15.4768894	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh179 Type I		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.08	20.473	-15.4768894	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh179 Type I		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.08	20.473	-15.4768894	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh179 Type I		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.08	20.473	-15.4768894	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh179 Type I		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.08	20.473	-15.4768894	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
WVUTh157 Type ESR	Potential ϕ-sep.	2.96	12.47	0.20	0.82	0.00	0.15	0.14	0.07	0.04	0.00	0.00	11.97	3.82	0.00	0.05
WVUTh157 Type ESR	Potential ϕ-sep.	2.96	12.47	0.20	0.82	0.00	0.15	0.14	0.07	0.04	0.00	0.00	11.97	3.82	0.00	0.05
WVUTh157 Type ESR	Potential ϕ-sep.	2.96	12.47	0.20	0.82	0.00	0.15	0.14	0.07	0.04	0.00	0.00	11.97	3.82	0.00	0.05
WVUTh157 Type ESR	Potential ϕ-sep.	2.96	12.47	0.20	0.82	0.00	0.15	0.14	0.07	0.04	0.00	0.00	11.97	3.82	0.00	0.05
WVUTh157 Type ESR	Potential ϕ-sep.	2.96	12.47	0.20	0.82	0.00	0.15	0.14	0.07	0.04	0.00	0.00	11.97	3.82	0.00	0.05
WVUTh157 Type ESR	Potential ϕ-sep.	2.96	12.47	0.20	0.82	0.00	0.15	0.14	0.07	0.04	0.00	0.00	11.97	3.82	0.00	0.05
WVUTh179 Type I	HOMOGENEOUS	7.62	11.93	0.04	0.92	0.00	0.14	0.35	0.07	0.04	0.00	0.00	11.66	4.66	0.00	0.00
WVUTh179 Type I	HOMOGENEOUS	7.62	11.93	0.04	0.92	0.00	0.14	0.35	0.07	0.04	0.00	0.00	11.66	4.66	0.00	0.00
WVUTh179 Type I	HOMOGENEOUS	7.62	11.93	0.04	0.92	0.00	0.14	0.35	0.07	0.04	0.00	0.00	11.66	4.66	0.00	0.00
WVUTh179 Type I	HOMOGENEOUS	7.62	11.93	0.04	0.92	0.00	0.14	0.35	0.07	0.04	0.00	0.00	11.66	4.66	0.00	0.00
WVUTh179 Type I	HOMOGENEOUS	7.62	11.93	0.04	0.92	0.00	0.14	0.35	0.07	0.04	0.00	0.00	11.66	4.66	0.00	0.00
WVUTh179 Type I	HOMOGENEOUS	7.62	11.93	0.04	0.92	0.00	0.14	0.35	0.07	0.04	0.00	0.00	11.66	4.66	0.00	0.00
WVUTh179 Type I	HOMOGENEOUS	7.62	11.93	0.04	0.92	0.00	0.14	0.35	0.07	0.04	0.00	0.00	11.66	4.66	0.00	0.00
WVUTh179 Type I	HOMOGENEOUS	7.62	11.93	0.04	0.92	0.00	0.14	0.35	0.07	0.04	0.00	0.00	11.66	4.66	0.00	0.00
WVUTh179 Type I	HOMOGENEOUS	7.62	11.93	0.04	0.92	0.00	0.14	0.35	0.07	0.04	0.00	0.00	11.66	4.66	0.00	0.00
WVUTh179 Type I	HOMOGENEOUS	7.62	11.93	0.04	0.92	0.00	0.14	0.35	0.07	0.04	0.00	0.00	11.66	4.66	0.00	0.00
WVUTh179 Type I	HOMOGENEOUS	7.62	11.93	0.04	0.92	0.00	0.14	0.35	0.07	0.04	0.00	0.00	11.66	4.66	0.00	0.00
WVUTh179 Type I	HOMOGENEOUS	7.62	11.93	0.04	0.92	0.00	0.14	0.35	0.07	0.04	0.00	0.00	11.66	4.66	0.00	0.00
WVUTh179 Type I	HOMOGENEOUS	7.62	11.93	0.04	0.92	0.00	0.14	0.35	0.07	0.04	0.00	0.00	11.66	4.66	0.00	0.00
WVUTh179 Type I	HOMOGENEOUS	7.62	11.93	0.04	0.92	0.00	0.14	0.35	0.07	0.04	0.00	0.00	11.66	4.66	0.00	0.00
WVUTh179 Type I	HOMOGENEOUS	7.62	11.93	0.04	0.92	0.00	0.14	0.35	0.07	0.04	0.00	0.00	11.66	4.66	0.00	0.00
WVUTh179 Type I	HOMOGENEOUS	7.62	11.93	0.04	0.92	0.00	0.14	0.35	0.07	0.04	0.00	0.00	11.66	4.66	0.00	0.00
WVUTh179 Type I	HOMOGENEOUS	7.62	11.93	0.04	0.92	0.00	0.14	0.35	0.07	0.04	0.00	0.00	11.66	4.66	0.00	0.00
WVUTh179 Type I	HOMOGENEOUS	7.62	11.93	0.04	0.92	0.00	0.14	0.35	0.07	0.04	0.00	0.00	11.66	4.66	0.00	0.00
WVUTh179 Type I	HOMOGENEOUS	7.62	11.93	0.04	0.92	0.00	0.14	0.35	0.07	0.04	0.00	0.00	11.66	4.66	0.00	0.00
WVUTh179 Type I	HOMOGENEOUS	7.62	11.93	0.04	0.92	0.00	0.14	0.35	0.07	0.04	0.00	0.00	11.66	4.66	0.00	0.00
WVUTh179 Type I	HOMOGENEOUS	7.62	11.93	0.04	0.92	0.00	0.14	0.35	0.07	0.04	0.00	0.00	11.66	4.66	0.00	0.00
WVUTh179 Type I	HOMOGENEOUS	7.62	11.93	0.04	0.92	0.00	0.14	0.35	0.07	0.04	0.00	0.00	11.66	4.66	0.00	0.00
WVUTh179 Type I	HOMOGENEOUS	7.62	11.93	0.04	0.92	0.00	0.14	0.35	0.07	0.04	0.00	0.00	11.66	4.66	0.00	0.00
WVUTh179 Type I	HOMOGENEOUS	7.62	11.93	0.04	0.92	0.00	0.14	0.35	0.07	0.04	0.00	0.00	11.66	4.66	0.00	0.00
WVUTh179 Type I	HOMOGENEOUS	7.62	11.93	0.04	0.92	0.00	0.14	0.35	0.07	0.04	0.00	0.00	11.66	4.66	0.00	0.00
WVUTh179 Type I	HOMOGENEOUS	7.62	11.93	0.04	0.92	0.00	0.14	0.35	0.07	0.04	0.00	0.00	11.66	4.66	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
WVUTh157 Type ESR	3.30	0.89	0.99	0.00	11.93	0.14	0.30	0.00	2.34	0.00	0.00	0.00	0.00	40.92	0.00	0.00	0.03
WVUTh157 Type ESR	3.30	0.89	0.99	0.00	11.93	0.14	0.30	0.00	2.34	0.00	0.00	0.00	0.00	40.92	0.00	0.00	0.03
WVUTh157 Type ESR	3.30	0.89	0.99	0.00	11.93	0.14	0.30	0.00	2.34	0.00	0.00	0.00	0.00	40.92	0.00	0.00	0.03
WVUTh157 Type ESR	3.30	0.89	0.99	0.00	11.93	0.14	0.30	0.00	2.34	0.00	0.00	0.00	0.00	40.92	0.00	0.00	0.03
WVUTh157 Type ESR	3.30	0.89	0.99	0.00	11.93	0.14	0.30	0.00	2.34	0.00	0.00	0.00	0.00	40.92	0.00	0.00	0.03
WVUTh157 Type ESR	3.30	0.89	0.99	0.00	11.93	0.14	0.30	0.00	2.34	0.00	0.00	0.00	0.00	40.92	0.00	0.00	0.03
WVUTh179 Type I	4.09	1.01	0.73	0.00	7.73	0.13	0.36	0.00	1.27	0.00	0.00	0.00	0.00	40.60	0.00	0.00	0.02
WVUTh179 Type I	4.09	1.01	0.73	0.00	7.73	0.13	0.36	0.00	1.27	0.00	0.00	0.00	0.00	40.60	0.00	0.00	0.02
WVUTh179 Type I	4.09	1.01	0.73	0.00	7.73	0.13	0.36	0.00	1.27	0.00	0.00	0.00	0.00	40.60	0.00	0.00	0.02
WVUTh179 Type I	4.09	1.01	0.73	0.00	7.73	0.13	0.36	0.00	1.27	0.00	0.00	0.00	0.00	40.60	0.00	0.00	0.02
WVUTh179 Type I	4.09	1.01	0.73	0.00	7.73	0.13	0.36	0.00	1.27	0.00	0.00	0.00	0.00	40.60	0.00	0.00	0.02
WVUTh179 Type I	4.09	1.01	0.73	0.00	7.73	0.13	0.36	0.00	1.27	0.00	0.00	0.00	0.00	40.60	0.00	0.00	0.02
WVUTh179 Type I	4.09	1.01	0.73	0.00	7.73	0.13	0.36	0.00	1.27	0.00	0.00	0.00	0.00	40.60	0.00	0.00	0.02
WVUTh179 Type I	4.09	1.01	0.73	0.00	7.73	0.13	0.36	0.00	1.27	0.00	0.00	0.00	0.00	40.60	0.00	0.00	0.02
WVUTh179 Type I	4.09	1.01	0.73	0.00	7.73	0.13	0.36	0.00	1.27	0.00	0.00	0.00	0.00	40.60	0.00	0.00	0.02
WVUTh179 Type I	4.09	1.01	0.73	0.00	7.73	0.13	0.36	0.00	1.27	0.00	0.00	0.00	0.00	40.60	0.00	0.00	0.02
WVUTh179 Type I	4.09	1.01	0.73	0.00	7.73	0.13	0.36	0.00	1.27	0.00	0.00	0.00	0.00	40.60	0.00	0.00	0.02
WVUTh179 Type I	4.09	1.01	0.73	0.00	7.73	0.13	0.36	0.00	1.27	0.00	0.00	0.00	0.00	40.60	0.00	0.00	0.02
WVUTh179 Type I	4.09	1.01	0.73	0.00	7.73	0.13	0.36	0.00	1.27	0.00	0.00	0.00	0.00	40.60	0.00	0.00	0.02
WVUTh179 Type I	4.09	1.01	0.73	0.00	7.73	0.13	0.36	0.00	1.27	0.00	0.00	0.00	0.00	40.60	0.00	0.00	0.02
WVUTh179 Type I	4.09	1.01	0.73	0.00	7.73	0.13	0.36	0.00	1.27	0.00	0.00	0.00	0.00	40.60	0.00	0.00	0.02
WVUTh179 Type I	4.09	1.01	0.73	0.00	7.73	0.13	0.36	0.00	1.27	0.00	0.00	0.00	0.00	40.60	0.00	0.00	0.02
WVUTh179 Type I	4.09	1.01	0.73	0.00	7.73	0.13	0.36	0.00	1.27	0.00	0.00	0.00	0.00	40.60	0.00	0.00	0.02
WVUTh179 Type I	4.09	1.01	0.73	0.00	7.73	0.13	0.36	0.00	1.27	0.00	0.00	0.00	0.00	40.60	0.00	0.00	0.02
WVUTh179 Type I	4.09	1.01	0.73	0.00	7.73	0.13	0.36	0.00	1.27	0.00	0.00	0.00	0.00	40.60	0.00	0.00	0.02
WVUTh179 Type I	4.09	1.01	0.73	0.00	7.73	0.13	0.36	0.00	1.27	0.00	0.00	0.00	0.00	40.60	0.00	0.00	0.02
WVUTh179 Type I	4.09	1.01	0.73	0.00	7.73	0.13	0.36	0.00	1.27	0.00	0.00	0.00	0.00	40.60	0.00	0.00	0.02
WVUTh179 Type I	4.09	1.01	0.73	0.00	7.73	0.13	0.36	0.00	1.27	0.00	0.00	0.00	0.00	40.60	0.00	0.00	0.02
WVUTh179 Type I	4.09	1.01	0.73	0.00	7.73	0.13	0.36	0.00	1.27	0.00	0.00	0.00	0.00	40.60	0.00	0.00	0.02
WVUTh179 Type I	4.09	1.01	0.73	0.00	7.73	0.13	0.36	0.00	1.27	0.00	0.00	0.00	0.00	40.60	0.00	0.00	0.02
WVUTh179 Type I	4.09	1.01	0.73	0.00	7.73	0.13	0.36	0.00	1.27	0.00	0.00	0.00	0.00	40.60	0.00	0.00	0.02
WVUTh179 Type I	4.09	1.01	0.73	0.00	7.73	0.13	0.36	0.00	1.27	0.00	0.00	0.00	0.00	40.60	0.00	0.00	0.02

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
WVUTh157 Type ESR	0.00	3.53	0.82	0.60	0.00	0.00	0.39	0.00	98.88		
WVUTh157 Type ESR	0.00	3.53	0.82	0.60	0.00	0.00	0.39	0.00	98.88		
WVUTh157 Type ESR	0.00	3.53	0.82	0.60	0.00	0.00	0.39	0.00	98.88		
WVUTh157 Type ESR	0.00	3.53	0.82	0.60	0.00	0.00	0.39	0.00	98.88		
WVUTh157 Type ESR	0.00	3.53	0.82	0.60	0.00	0.00	0.39	0.00	98.88		
WVUTh157 Type ESR	0.00	3.53	0.82	0.60	0.00	0.00	0.39	0.00	98.88		
WVUTh179 Type I	0.00	3.34	0.85	0.55	0.00	0.00	1.28	0.00	99.40		
WVUTh179 Type I	0.00	3.34	0.85	0.55	0.00	0.00	1.28	0.00	99.40		
WVUTh179 Type I	0.00	3.34	0.85	0.55	0.00	0.00	1.28	0.00	99.40		
WVUTh179 Type I	0.00	3.34	0.85	0.55	0.00	0.00	1.28	0.00	99.40		
WVUTh179 Type I	0.00	3.34	0.85	0.55	0.00	0.00	1.28	0.00	99.40		
WVUTh179 Type I	0.00	3.34	0.85	0.55	0.00	0.00	1.28	0.00	99.40		
WVUTh179 Type I	0.00	3.34	0.85	0.55	0.00	0.00	1.28	0.00	99.40		
WVUTh179 Type I	0.00	3.34	0.85	0.55	0.00	0.00	1.28	0.00	99.40		
WVUTh179 Type I	0.00	3.34	0.85	0.55	0.00	0.00	1.28	0.00	99.40		
WVUTh179 Type I	0.00	3.34	0.85	0.55	0.00	0.00	1.28	0.00	99.40		
WVUTh179 Type I	0.00	3.34	0.85	0.55	0.00	0.00	1.28	0.00	99.40		
WVUTh179 Type I	0.00	3.34	0.85	0.55	0.00	0.00	1.28	0.00	99.40		
WVUTh179 Type I	0.00	3.34	0.85	0.55	0.00	0.00	1.28	0.00	99.40		
WVUTh179 Type I	0.00	3.34	0.85	0.55	0.00	0.00	1.28	0.00	99.40		
WVUTh179 Type I	0.00	3.34	0.85	0.55	0.00	0.00	1.28	0.00	99.40		
WVUTh179 Type I	0.00	3.34	0.85	0.55	0.00	0.00	1.28	0.00	99.40		
WVUTh179 Type I	0.00	3.34	0.85	0.55	0.00	0.00	1.28	0.00	99.40		
WVUTh179 Type I	0.00	3.34	0.85	0.55	0.00	0.00	1.28	0.00	99.40		
WVUTh179 Type I	0.00	3.34	0.85	0.55	0.00	0.00	1.28	0.00	99.40		
WVUTh179 Type I	0.00	3.34	0.85	0.55	0.00	0.00	1.28	0.00	99.40		
WVUTh179 Type I	0.00	3.34	0.85	0.55	0.00	0.00	1.28	0.00	99.40		
WVUTh179 Type I	0.00	3.34	0.85	0.55	0.00	0.00	1.28	0.00	99.40		
WVUTh179 Type I	0.00	3.34	0.85	0.55	0.00	0.00	1.28	0.00	99.40		
WVUTh179 Type I	0.00	3.34	0.85	0.55	0.00	0.00	1.28	0.00	99.40		
WVUTh179 Type I	0.00	3.34	0.85	0.55	0.00	0.00	1.28	0.00	99.40		
WVUTh179 Type I	0.00	3.34	0.85	0.55	0.00	0.00	1.28	0.00	99.40		
WVUTh179 Type I	0.00	3.34	0.85	0.55	0.00	0.00	1.28	0.00	99.40		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
WVUTh179 Type I	HLW	VSL-Muller	SS	7426.00	0.19	1.957	14,531.105	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.61
WVUTh186 Type III	HLW	VSL-Muller	SS	7.00	0.19	1.957	13.698	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.81
WVUTh186 Type III	HLW	VSL-Muller	SS	28.00	0.19	1.957	54.790	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.88
WVUTh186 Type III	HLW	VSL-Muller	SS	56.00	0.19	1.957	109.580	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.05
WVUTh186 Type III	HLW	VSL-Muller	SS	120.00	0.19	1.957	234.815	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.18
WVUTh186 Type III	HLW	VSL-Muller	SS	183.00	0.19	1.957	358.092	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.23
WVUTh186 Type III	HLW	VSL-Muller	SS	274.00	0.19	1.957	536.160	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.18
WVUTh186 Type III	HLW	VSL-Muller	SS	363.00	0.19	1.957	710.314	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.25
WVUTh186 Type III	HLW	VSL-Muller	SS	547.00	0.19	1.957	1,070.363	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.22
WVUTh186 Type III	HLW	VSL-Muller	SS	730.00	0.19	1.957	1,428.455	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.27
WVUTh186 Type III	HLW	VSL-Muller	SS	1097.00	0.19	1.957	2,146.596	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.25
WVUTh186 Type III	HLW	VSL-Muller	SS	1280.00	0.19	1.957	2,504.688	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.28
WVUTh186 Type III	HLW	VSL-Muller	SS	1463.00	0.19	1.957	2,862.780	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.98
WVUTh186 Type III	HLW	VSL-Muller	SS	2198.00	0.19	1.957	4,301.019	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.92
WVUTh186 Type III	HLW	VSL-Muller	SS	2556.00	0.19	1.957	5,001.549	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.95
WVUTh186 Type III	HLW	VSL-Muller	SS	2910.00	0.19	1.957	5,694.252	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.84
WVUTh186 Type III	HLW	VSL-Muller	SS	3271.00	0.19	1.957	6,400.652	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.87
WVUTh186 Type III	HLW	VSL-Muller	SS	3613.00	0.19	1.957	7,069.874	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.82
WVUTh186 Type III	HLW	VSL-Muller	SS	3974.00	0.19	1.957	7,776.274	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.92
WVUTh186 Type III	HLW	VSL-Muller	SS	4345.00	0.19	1.957	8,502.242	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.97
WVUTh186 Type III	HLW	VSL-Muller	SS	4641.00	0.19	1.957	9,081.451	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.05
WVUTh186 Type III	HLW	VSL-Muller	SS	5060.00	0.19	1.957	9,901.345	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.14
WVUTh186 Type III	HLW	VSL-Muller	SS	5397.00	0.19	1.957	10,560.783	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.16
WVUTh186 Type III	HLW	VSL-Muller	SS	5802.00	0.19	1.957	11,353.282	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	11.17
WVUTh193 Type II	HLW	VSL-Muller	SS	7.00	0.19	1.957	13.698	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	9.83
WVUTh193 Type II	HLW	VSL-Muller	SS	14.00	0.19	1.957	27.395	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	9.82
WVUTh193 Type II	HLW	VSL-Muller	SS	28.00	0.19	1.957	54.790	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	9.79
WVUTh193 Type II	HLW	VSL-Muller	SS	55.00	0.19	1.957	107.623	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	9.83
WVUTh193 Type II	HLW	VSL-Muller	SS	119.00	0.19	1.957	232.858	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	9.73
WVUTh193 Type II	HLW	VSL-Muller	SS	181.00	0.19	1.957	354.179	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	9.84
WVUTh193 Type II	HLW	VSL-Muller	SS	270.00	0.19	1.957	528.333	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	9.82
WVUTh193 Type II	HLW	VSL-Muller	SS	361.00	0.19	1.957	706.400	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	9.72
WVUTh193 Type II	HLW	VSL-Muller	SS	549.00	0.19	1.957	1,074.276	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	9.85
WVUTh193 Type II	HLW	VSL-Muller	SS	733.00	0.19	1.957	1,434.325	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	9.79
WVUTh193 Type II	HLW	VSL-Muller	SS	958.00	0.19	1.957	1,874.603	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	9.84
WVUTh193 Type II	HLW	VSL-Muller	SS	1301.00	0.19	1.957	2,545.781	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	9.86
WVUTh193 Type II	HLW	VSL-Muller	SS	1671.00	0.19	1.957	3,269.792	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	9.86
WVUTh193 Type II	HLW	VSL-Muller	SS	2035.00	0.19	1.957	3,982.063	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	9.73
WVUTh193 Type II	HLW	VSL-Muller	SS	2401.00	0.19	1.957	4,698.247	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	9.65
WVUTh193 Type II	HLW	VSL-Muller	SS	2811.00	0.19	1.957	5,500.530	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	9.84
WVUTh193 Type II	HLW	VSL-Muller	SS	3170.00	0.19	1.957	6,203.017	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	9.91
WVUTh193 Type II	HLW	VSL-Muller	SS	3542.00	0.19	1.957	6,930.942	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.06
WVUTh193 Type II	HLW	VSL-Muller	SS	3839.00	0.19	1.957	7,512.108	2.750	10.00	100-200	1.125E-04	0.100	ASTM I	90	10.14
A100CC	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.41
A100CC	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.55
A100CC	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.67

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
WVUTh179 Type I	263.94	268.10			103.27	314.63	64.18	2.67	1.47					
WVUTh186 Type III	77.60	201.10			59.76	300.17	85.66	8.07	4.50					
WVUTh186 Type III	107.73	297.53			94.20	411.03	119.53	8.05	6.66					
WVUTh186 Type III	110.30	362.03			111.87	527.20	138.97	7.61	6.75					
WVUTh186 Type III	117.30	417.43			129.27	577.67	177.20	7.33	4.97					
WVUTh186 Type III	116.77	443.93			129.50	503.87	171.40	6.16	2.57					
WVUTh186 Type III	128.33	485.07			142.80	602.00	179.93	6.50	1.12					
WVUTh186 Type III	130.37	494.23			138.83	596.43	189.70	6.43	0.93					
WVUTh186 Type III	139.17	543.97			145.00	687.43	199.53	5.60						
WVUTh186 Type III	152.43	606.50			162.87	733.07	203.60	4.46	0.17					
WVUTh186 Type III	156.00	638.28			171.24	836.29	237.49	2.59	0.04					
WVUTh186 Type III	220.54	738.68			203.95	893.88	256.14	0.99						
WVUTh186 Type III	250.01	810.42			215.77	1021.45	295.07	0.60	0.15					
WVUTh186 Type III	271.50	1007.74			236.39	1291.88	341.40	0.45	0.18					
WVUTh186 Type III	229.67	943.80			207.53	1180.77	319.27	3.39						
WVUTh186 Type III	296.51	1310.90			306.63	1691.90	460.36		0.35					
WVUTh186 Type III	247.61	1270.33			262.46	1505.50	392.62	0.30	0.12					
WVUTh186 Type III	247.43	1250.37			241.74	1498.47	409.83	0.18	0.04					
WVUTh186 Type III	243.45	1240.83			245.54	1531.10	433.52	0.15						
WVUTh186 Type III	245.19	1246.53			256.20	1605.10	410.60	0.34	0.16					
WVUTh186 Type III	241.42	1162.33			246.50	1363.43	414.20	1.63	0.10					
WVUTh186 Type III	232.00	1270.00			242.30	1464.00	400.20		0.08					
WVUTh186 Type III	246.70	1155.00			233.30	1455.00	432.60	0.44	0.37					
WVUTh186 Type III	245.23	1239.40			244.92	1528.77	443.16							
WVUTh193 Type II	70.28	89.38			20.05	91.71	51.60	8.28	3.20					
WVUTh193 Type II	60.23	98.64			20.18	99.77	58.00	5.58	4.93					
WVUTh193 Type II	65.77	143.67			28.92	143.73	75.24	4.35	7.39					
WVUTh193 Type II	80.84	212.40			40.01	211.27	99.65	4.15	11.26					
WVUTh193 Type II	85.69	229.40			43.88	215.87	103.50	3.84	11.32					
WVUTh193 Type II	84.67	255.83			50.26	230.00	116.67	3.39	8.82					
WVUTh193 Type II	81.61	287.07			53.27	266.97	117.70	2.12	4.37					
WVUTh193 Type II	83.76	331.03			61.45	266.63	129.97	2.65	6.69					
WVUTh193 Type II	94.37	354.30			60.91	302.23	133.43	3.44	7.85					
WVUTh193 Type II	95.54	379.97			82.28	375.10	170.83	2.57	3.79					
WVUTh193 Type II	103.53	407.33			82.05	352.63	169.57	1.91	3.15					
WVUTh193 Type II	126.59	464.72			93.86	383.97	197.27	1.53	1.81					
WVUTh193 Type II	143.16	493.09			95.54	411.19	203.14	1.09	1.26					
WVUTh193 Type II	137.19	495.05			99.27	422.56	195.07	1.17	1.16					
WVUTh193 Type II	134.48	510.08			96.23	459.22	199.78	1.33	1.06					
WVUTh193 Type II	146.63	554.70			101.38	455.43	220.10	1.38	1.25					
WVUTh193 Type II	177.77	647.50			123.35	588.38	289.73	1.48	1.61					
WVUTh193 Type II	153.91	598.24			119.19	527.33	250.31	1.39	1.19					
WVUTh193 Type II	153.10	618.70			120.02	549.11	268.57	1.54	1.38					
A100CC	67.77	22.14	0.82		6.95	70.02		4.69						
A100CC	81.57	26.20	0.59		9.83	104.40		7.46					0.70	
A100CC	82.50	29.37	0.52		9.66	104.71		7.86						

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
WVUTh179 Type I		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	69.08	20.473	-15.4768894	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh186 Type III			XRD/SEM	76.79	12.723	15.9305756	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh186 Type III			XRD/SEM	76.79	12.723	15.9305756	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh186 Type III			XRD/SEM	76.79	12.723	15.9305756	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh186 Type III			XRD/SEM	76.79	12.723	15.9305756	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh186 Type III			XRD/SEM	76.79	12.723	15.9305756	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh186 Type III			XRD/SEM	76.79	12.723	15.9305756	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh186 Type III			XRD/SEM	76.79	12.723	15.9305756	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh186 Type III			XRD/SEM	76.79	12.723	15.9305756	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh186 Type III			XRD/SEM	76.79	12.723	15.9305756	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh186 Type III			XRD/SEM	76.79	12.723	15.9305756	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh186 Type III			XRD/SEM	76.79	12.723	15.9305756	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh186 Type III			XRD/SEM	76.79	12.723	15.9305756	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh186 Type III			XRD/SEM	76.79	12.723	15.9305756	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh186 Type III			XRD/SEM	76.79	12.723	15.9305756	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh186 Type III			XRD/SEM	76.79	12.723	15.9305756	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh186 Type III			XRD/SEM	76.79	12.723	15.9305756	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh186 Type III			XRD/SEM	76.79	12.723	15.9305756	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh186 Type III			XRD/SEM	76.79	12.723	15.9305756	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh186 Type III			XRD/SEM	76.79	12.723	15.9305756	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh186 Type III			XRD/SEM	76.79	12.723	15.9305756	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh186 Type III			XRD/SEM	76.79	12.723	15.9305756	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh186 Type III			XRD/SEM	76.79	12.723	15.9305756	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh186 Type III			XRD/SEM	76.79	12.723	15.9305756	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh193 Type II		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	68.57	20.134	-12.7445002	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh193 Type II		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	68.57	20.134	-12.7445002	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh193 Type II		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	68.57	20.134	-12.7445002	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh193 Type II		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	68.57	20.134	-12.7445002	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh193 Type II		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	68.57	20.134	-12.7445002	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh193 Type II		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	68.57	20.134	-12.7445002	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh193 Type II		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	68.57	20.134	-12.7445002	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh193 Type II		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	68.57	20.134	-12.7445002	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh193 Type II		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	68.57	20.134	-12.7445002	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh193 Type II		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	68.57	20.134	-12.7445002	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh193 Type II		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	68.57	20.134	-12.7445002	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh193 Type II		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	68.57	20.134	-12.7445002	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh193 Type II		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	68.57	20.134	-12.7445002	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh193 Type II		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	68.57	20.134	-12.7445002	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh193 Type II		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	68.57	20.134	-12.7445002	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh193 Type II		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	68.57	20.134	-12.7445002	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh193 Type II		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	68.57	20.134	-12.7445002	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh193 Type II		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	68.57	20.134	-12.7445002	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVUTh193 Type II		Phyllosilicate (comp given in Muller 2005)	XRD/SEM	68.57	20.134	-12.7445002	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
A100CC		Not Studied		73.85	16.542	-0.9272896	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
A100CC		Not Studied		73.85	16.542	-0.9272896	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
A100CC		Not Studied		73.85	16.542	-0.9272896	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
WVUTh179 Type I	HOMOGENEOUS	7.62	11.93	0.04	0.92	0.00	0.14	0.35	0.07	0.04	0.00	0.00	11.66	4.66	0.00	0.00
WVUTh186 Type III	HOMOGENEOUS	6.01	16.26	0.02	0.48	0.00	0.15	0.14	0.08	0.02	0.00	0.00	5.90	5.82	0.00	0.04
WVUTh186 Type III	HOMOGENEOUS	6.01	16.26	0.02	0.48	0.00	0.15	0.14	0.08	0.02	0.00	0.00	5.90	5.82	0.00	0.04
WVUTh186 Type III	HOMOGENEOUS	6.01	16.26	0.02	0.48	0.00	0.15	0.14	0.08	0.02	0.00	0.00	5.90	5.82	0.00	0.04
WVUTh186 Type III	HOMOGENEOUS	6.01	16.26	0.02	0.48	0.00	0.15	0.14	0.08	0.02	0.00	0.00	5.90	5.82	0.00	0.04
WVUTh186 Type III	HOMOGENEOUS	6.01	16.26	0.02	0.48	0.00	0.15	0.14	0.08	0.02	0.00	0.00	5.90	5.82	0.00	0.04
WVUTh186 Type III	HOMOGENEOUS	6.01	16.26	0.02	0.48	0.00	0.15	0.14	0.08	0.02	0.00	0.00	5.90	5.82	0.00	0.04
WVUTh186 Type III	HOMOGENEOUS	6.01	16.26	0.02	0.48	0.00	0.15	0.14	0.08	0.02	0.00	0.00	5.90	5.82	0.00	0.04
WVUTh186 Type III	HOMOGENEOUS	6.01	16.26	0.02	0.48	0.00	0.15	0.14	0.08	0.02	0.00	0.00	5.90	5.82	0.00	0.04
WVUTh186 Type III	HOMOGENEOUS	6.01	16.26	0.02	0.48	0.00	0.15	0.14	0.08	0.02	0.00	0.00	5.90	5.82	0.00	0.04
WVUTh186 Type III	HOMOGENEOUS	6.01	16.26	0.02	0.48	0.00	0.15	0.14	0.08	0.02	0.00	0.00	5.90	5.82	0.00	0.04
WVUTh186 Type III	HOMOGENEOUS	6.01	16.26	0.02	0.48	0.00	0.15	0.14	0.08	0.02	0.00	0.00	5.90	5.82	0.00	0.04
WVUTh186 Type III	HOMOGENEOUS	6.01	16.26	0.02	0.48	0.00	0.15	0.14	0.08	0.02	0.00	0.00	5.90	5.82	0.00	0.04
WVUTh186 Type III	HOMOGENEOUS	6.01	16.26	0.02	0.48	0.00	0.15	0.14	0.08	0.02	0.00	0.00	5.90	5.82	0.00	0.04
WVUTh186 Type III	HOMOGENEOUS	6.01	16.26	0.02	0.48	0.00	0.15	0.14	0.08	0.02	0.00	0.00	5.90	5.82	0.00	0.04
WVUTh186 Type III	HOMOGENEOUS	6.01	16.26	0.02	0.48	0.00	0.15	0.14	0.08	0.02	0.00	0.00	5.90	5.82	0.00	0.04
WVUTh186 Type III	HOMOGENEOUS	6.01	16.26	0.02	0.48	0.00	0.15	0.14	0.08	0.02	0.00	0.00	5.90	5.82	0.00	0.04
WVUTh186 Type III	HOMOGENEOUS	6.01	16.26	0.02	0.48	0.00	0.15	0.14	0.08	0.02	0.00	0.00	5.90	5.82	0.00	0.04
WVUTh186 Type III	HOMOGENEOUS	6.01	16.26	0.02	0.48	0.00	0.15	0.14	0.08	0.02	0.00	0.00	5.90	5.82	0.00	0.04
WVUTh186 Type III	HOMOGENEOUS	6.01	16.26	0.02	0.48	0.00	0.15	0.14	0.08	0.02	0.00	0.00	5.90	5.82	0.00	0.04
WVUTh186 Type III	HOMOGENEOUS	6.01	16.26	0.02	0.48	0.00	0.15	0.14	0.08	0.02	0.00	0.00	5.90	5.82	0.00	0.04
WVUTh186 Type III	HOMOGENEOUS	6.01	16.26	0.02	0.48	0.00	0.15	0.14	0.08	0.02	0.00	0.00	5.90	5.82	0.00	0.04
WVUTh186 Type III	HOMOGENEOUS	6.01	16.26	0.02	0.48	0.00	0.15	0.14	0.08	0.02	0.00	0.00	5.90	5.82	0.00	0.04
WVUTh186 Type III	HOMOGENEOUS	6.01	16.26	0.02	0.48	0.00	0.15	0.14	0.08	0.02	0.00	0.00	5.90	5.82	0.00	0.04
WVUTh193 Type II	HOMOGENEOUS	4.91	15.35	0.07	0.60	0.00	0.12	0.23	0.06	0.00	0.00	0.00	14.35	6.67	0.00	0.04
WVUTh193 Type II	HOMOGENEOUS	4.91	15.35	0.07	0.60	0.00	0.12	0.23	0.06	0.00	0.00	0.00	14.35	6.67	0.00	0.04
WVUTh193 Type II	HOMOGENEOUS	4.91	15.35	0.07	0.60	0.00	0.12	0.23	0.06	0.00	0.00	0.00	14.35	6.67	0.00	0.04
WVUTh193 Type II	HOMOGENEOUS	4.91	15.35	0.07	0.60	0.00	0.12	0.23	0.06	0.00	0.00	0.00	14.35	6.67	0.00	0.04
WVUTh193 Type II	HOMOGENEOUS	4.91	15.35	0.07	0.60	0.00	0.12	0.23	0.06	0.00	0.00	0.00	14.35	6.67	0.00	0.04
WVUTh193 Type II	HOMOGENEOUS	4.91	15.35	0.07	0.60	0.00	0.12	0.23	0.06	0.00	0.00	0.00	14.35	6.67	0.00	0.04
WVUTh193 Type II	HOMOGENEOUS	4.91	15.35	0.07	0.60	0.00	0.12	0.23	0.06	0.00	0.00	0.00	14.35	6.67	0.00	0.04
WVUTh193 Type II	HOMOGENEOUS	4.91	15.35	0.07	0.60	0.00	0.12	0.23	0.06	0.00	0.00	0.00	14.35	6.67	0.00	0.04
WVUTh193 Type II	HOMOGENEOUS	4.91	15.35	0.07	0.60	0.00	0.12	0.23	0.06	0.00	0.00	0.00	14.35	6.67	0.00	0.04
WVUTh193 Type II	HOMOGENEOUS	4.91	15.35	0.07	0.60	0.00	0.12	0.23	0.06	0.00	0.00	0.00	14.35	6.67	0.00	0.04
WVUTh193 Type II	HOMOGENEOUS	4.91	15.35	0.07	0.60	0.00	0.12	0.23	0.06	0.00	0.00	0.00	14.35	6.67	0.00	0.04
WVUTh193 Type II	HOMOGENEOUS	4.91	15.35	0.07	0.60	0.00	0.12	0.23	0.06	0.00	0.00	0.00	14.35	6.67	0.00	0.04
WVUTh193 Type II	HOMOGENEOUS	4.91	15.35	0.07	0.60	0.00	0.12	0.23	0.06	0.00	0.00	0.00	14.35	6.67	0.00	0.04
WVUTh193 Type II	HOMOGENEOUS	4.91	15.35	0.07	0.60	0.00	0.12	0.23	0.06	0.00	0.00	0.00	14.35	6.67	0.00	0.04
WVUTh193 Type II	HOMOGENEOUS	4.91	15.35	0.07	0.60	0.00	0.12	0.23	0.06	0.00	0.00	0.00	14.35	6.67	0.00	0.04
WVUTh193 Type II	HOMOGENEOUS	4.91	15.35	0.07	0.60	0.00	0.12	0.23	0.06	0.00	0.00	0.00	14.35	6.67	0.00	0.04
WVUTh193 Type II	HOMOGENEOUS	4.91	15.35	0.07	0.60	0.00	0.12	0.23	0.06	0.00	0.00	0.00	14.35	6.67	0.00	0.04
WVUTh193 Type II	HOMOGENEOUS	4.91	15.35	0.07	0.60	0.00	0.12	0.23	0.06	0.00	0.00	0.00	14.35	6.67	0.00	0.04
WVUTh193 Type II	HOMOGENEOUS	4.91	15.35	0.07	0.60	0.00	0.12	0.23	0.06	0.00	0.00	0.00	14.35	6.67	0.00	0.04
A100CC	HOMOGENEOUS	6.06	10.01	0.00	5.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	0.26	0.00	0.00
A100CC	HOMOGENEOUS	6.06	10.01	0.00	5.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	0.26	0.00	0.00
A100CC	HOMOGENEOUS	6.06	10.01	0.00	5.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	0.26	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
WVUTh179 Type I	4.09	1.01	0.73	0.00	7.73	0.13	0.36	0.00	1.27	0.00	0.00	0.00	0.00	40.60	0.00	0.00	0.02
WVUTh186 Type III	3.27	0.85	0.78	0.00	11.72	0.14	0.25	0.00	1.18	0.00	0.00	0.00	0.00	39.64	0.00	0.00	0.02
WVUTh186 Type III	3.27	0.85	0.78	0.00	11.72	0.14	0.25	0.00	1.18	0.00	0.00	0.00	0.00	39.64	0.00	0.00	0.02
WVUTh186 Type III	3.27	0.85	0.78	0.00	11.72	0.14	0.25	0.00	1.18	0.00	0.00	0.00	0.00	39.64	0.00	0.00	0.02
WVUTh186 Type III	3.27	0.85	0.78	0.00	11.72	0.14	0.25	0.00	1.18	0.00	0.00	0.00	0.00	39.64	0.00	0.00	0.02
WVUTh186 Type III	3.27	0.85	0.78	0.00	11.72	0.14	0.25	0.00	1.18	0.00	0.00	0.00	0.00	39.64	0.00	0.00	0.02
WVUTh186 Type III	3.27	0.85	0.78	0.00	11.72	0.14	0.25	0.00	1.18	0.00	0.00	0.00	0.00	39.64	0.00	0.00	0.02
WVUTh186 Type III	3.27	0.85	0.78	0.00	11.72	0.14	0.25	0.00	1.18	0.00	0.00	0.00	0.00	39.64	0.00	0.00	0.02
WVUTh186 Type III	3.27	0.85	0.78	0.00	11.72	0.14	0.25	0.00	1.18	0.00	0.00	0.00	0.00	39.64	0.00	0.00	0.02
WVUTh186 Type III	3.27	0.85	0.78	0.00	11.72	0.14	0.25	0.00	1.18	0.00	0.00	0.00	0.00	39.64	0.00	0.00	0.02
WVUTh186 Type III	3.27	0.85	0.78	0.00	11.72	0.14	0.25	0.00	1.18	0.00	0.00	0.00	0.00	39.64	0.00	0.00	0.02
WVUTh186 Type III	3.27	0.85	0.78	0.00	11.72	0.14	0.25	0.00	1.18	0.00	0.00	0.00	0.00	39.64	0.00	0.00	0.02
WVUTh186 Type III	3.27	0.85	0.78	0.00	11.72	0.14	0.25	0.00	1.18	0.00	0.00	0.00	0.00	39.64	0.00	0.00	0.02
WVUTh186 Type III	3.27	0.85	0.78	0.00	11.72	0.14	0.25	0.00	1.18	0.00	0.00	0.00	0.00	39.64	0.00	0.00	0.02
WVUTh186 Type III	3.27	0.85	0.78	0.00	11.72	0.14	0.25	0.00	1.18	0.00	0.00	0.00	0.00	39.64	0.00	0.00	0.02
WVUTh186 Type III	3.27	0.85	0.78	0.00	11.72	0.14	0.25	0.00	1.18	0.00	0.00	0.00	0.00	39.64	0.00	0.00	0.02
WVUTh186 Type III	3.27	0.85	0.78	0.00	11.72	0.14	0.25	0.00	1.18	0.00	0.00	0.00	0.00	39.64	0.00	0.00	0.02
WVUTh186 Type III	3.27	0.85	0.78	0.00	11.72	0.14	0.25	0.00	1.18	0.00	0.00	0.00	0.00	39.64	0.00	0.00	0.02
WVUTh186 Type III	3.27	0.85	0.78	0.00	11.72	0.14	0.25	0.00	1.18	0.00	0.00	0.00	0.00	39.64	0.00	0.00	0.02
WVUTh186 Type III	3.27	0.85	0.78	0.00	11.72	0.14	0.25	0.00	1.18	0.00	0.00	0.00	0.00	39.64	0.00	0.00	0.02
WVUTh186 Type III	3.27	0.85	0.78	0.00	11.72	0.14	0.25	0.00	1.18	0.00	0.00	0.00	0.00	39.64	0.00	0.00	0.02
WVUTh186 Type III	3.27	0.85	0.78	0.00	11.72	0.14	0.25	0.00	1.18	0.00	0.00	0.00	0.00	39.64	0.00	0.00	0.02
WVUTh186 Type III	3.27	0.85	0.78	0.00	11.72	0.14	0.25	0.00	1.18	0.00	0.00	0.00	0.00	39.64	0.00	0.00	0.02
WVUTh186 Type III	3.27	0.85	0.78	0.00	11.72	0.14	0.25	0.00	1.18	0.00	0.00	0.00	0.00	39.64	0.00	0.00	0.02
WVUTh193 Type II	2.31	0.89	0.65	0.00	7.18	0.11	0.27	0.00	1.41	0.00	0.00	0.00	0.00	37.00	0.00	0.00	0.02
WVUTh193 Type II	2.31	0.89	0.65	0.00	7.18	0.11	0.27	0.00	1.41	0.00	0.00	0.00	0.00	37.00	0.00	0.00	0.02
WVUTh193 Type II	2.31	0.89	0.65	0.00	7.18	0.11	0.27	0.00	1.41	0.00	0.00	0.00	0.00	37.00	0.00	0.00	0.02
WVUTh193 Type II	2.31	0.89	0.65	0.00	7.18	0.11	0.27	0.00	1.41	0.00	0.00	0.00	0.00	37.00	0.00	0.00	0.02
WVUTh193 Type II	2.31	0.89	0.65	0.00	7.18	0.11	0.27	0.00	1.41	0.00	0.00	0.00	0.00	37.00	0.00	0.00	0.02
WVUTh193 Type II	2.31	0.89	0.65	0.00	7.18	0.11	0.27	0.00	1.41	0.00	0.00	0.00	0.00	37.00	0.00	0.00	0.02
WVUTh193 Type II	2.31	0.89	0.65	0.00	7.18	0.11	0.27	0.00	1.41	0.00	0.00	0.00	0.00	37.00	0.00	0.00	0.02
WVUTh193 Type II	2.31	0.89	0.65	0.00	7.18	0.11	0.27	0.00	1.41	0.00	0.00	0.00	0.00	37.00	0.00	0.00	0.02
WVUTh193 Type II	2.31	0.89	0.65	0.00	7.18	0.11	0.27	0.00	1.41	0.00	0.00	0.00	0.00	37.00	0.00	0.00	0.02
WVUTh193 Type II	2.31	0.89	0.65	0.00	7.18	0.11	0.27	0.00	1.41	0.00	0.00	0.00	0.00	37.00	0.00	0.00	0.02
WVUTh193 Type II	2.31	0.89	0.65	0.00	7.18	0.11	0.27	0.00	1.41	0.00	0.00	0.00	0.00	37.00	0.00	0.00	0.02
WVUTh193 Type II	2.31	0.89	0.65	0.00	7.18	0.11	0.27	0.00	1.41	0.00	0.00	0.00	0.00	37.00	0.00	0.00	0.02
WVUTh193 Type II	2.31	0.89	0.65	0.00	7.18	0.11	0.27	0.00	1.41	0.00	0.00	0.00	0.00	37.00	0.00	0.00	0.02
WVUTh193 Type II	2.31	0.89	0.65	0.00	7.18	0.11	0.27	0.00	1.41	0.00	0.00	0.00	0.00	37.00	0.00	0.00	0.02
WVUTh193 Type II	2.31	0.89	0.65	0.00	7.18	0.11	0.27	0.00	1.41	0.00	0.00	0.00	0.00	37.00	0.00	0.00	0.02
WVUTh193 Type II	2.31	0.89	0.65	0.00	7.18	0.11	0.27	0.00	1.41	0.00	0.00	0.00	0.00	37.00	0.00	0.00	0.02
WVUTh193 Type II	2.31	0.89	0.65	0.00	7.18	0.11	0.27	0.00	1.41	0.00	0.00	0.00	0.00	37.00	0.00	0.00	0.02
WVUTh193 Type II	2.31	0.89	0.65	0.00	7.18	0.11	0.27	0.00	1.41	0.00	0.00	0.00	0.00	37.00	0.00	0.00	0.02
WVUTh193 Type II	2.31	0.89	0.65	0.00	7.18	0.11	0.27	0.00	1.41	0.00	0.00	0.00	0.00	37.00	0.00	0.00	0.02
A100CC	2.50	1.49	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.61	0.00	0.00	0.00
A100CC	2.50	1.49	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.61	0.00	0.00	0.00
A100CC	2.50	1.49	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.61	0.00	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
WVUTh179 Type I	0.00	3.34	0.85	0.55	0.00	0.00	1.28	0.00	99.40		
WVUTh186 Type III	0.00	3.51	0.75	0.60	0.00	0.00	1.72	0.00	99.36		
WVUTh186 Type III	0.00	3.51	0.75	0.60	0.00	0.00	1.72	0.00	99.36		
WVUTh186 Type III	0.00	3.51	0.75	0.60	0.00	0.00	1.72	0.00	99.36		
WVUTh186 Type III	0.00	3.51	0.75	0.60	0.00	0.00	1.72	0.00	99.36		
WVUTh186 Type III	0.00	3.51	0.75	0.60	0.00	0.00	1.72	0.00	99.36		
WVUTh186 Type III	0.00	3.51	0.75	0.60	0.00	0.00	1.72	0.00	99.36		
WVUTh186 Type III	0.00	3.51	0.75	0.60	0.00	0.00	1.72	0.00	99.36		
WVUTh186 Type III	0.00	3.51	0.75	0.60	0.00	0.00	1.72	0.00	99.36		
WVUTh186 Type III	0.00	3.51	0.75	0.60	0.00	0.00	1.72	0.00	99.36		
WVUTh186 Type III	0.00	3.51	0.75	0.60	0.00	0.00	1.72	0.00	99.36		
WVUTh186 Type III	0.00	3.51	0.75	0.60	0.00	0.00	1.72	0.00	99.36		
WVUTh186 Type III	0.00	3.51	0.75	0.60	0.00	0.00	1.72	0.00	99.36		
WVUTh186 Type III	0.00	3.51	0.75	0.60	0.00	0.00	1.72	0.00	99.36		
WVUTh186 Type III	0.00	3.51	0.75	0.60	0.00	0.00	1.72	0.00	99.36		
WVUTh186 Type III	0.00	3.51	0.75	0.60	0.00	0.00	1.72	0.00	99.36		
WVUTh186 Type III	0.00	3.51	0.75	0.60	0.00	0.00	1.72	0.00	99.36		
WVUTh186 Type III	0.00	3.51	0.75	0.60	0.00	0.00	1.72	0.00	99.36		
WVUTh186 Type III	0.00	3.51	0.75	0.60	0.00	0.00	1.72	0.00	99.36		
WVUTh186 Type III	0.00	3.51	0.75	0.60	0.00	0.00	1.72	0.00	99.36		
WVUTh186 Type III	0.00	3.51	0.75	0.60	0.00	0.00	1.72	0.00	99.36		
WVUTh186 Type III	0.00	3.51	0.75	0.60	0.00	0.00	1.72	0.00	99.36		
WVUTh186 Type III	0.00	3.51	0.75	0.60	0.00	0.00	1.72	0.00	99.36		
WVUTh186 Type III	0.00	3.51	0.75	0.60	0.00	0.00	1.72	0.00	99.36		
WVUTh193 Type II	0.00	4.50	0.80	0.66	0.00	0.00	1.30	0.00	99.49		
WVUTh193 Type II	0.00	4.50	0.80	0.66	0.00	0.00	1.30	0.00	99.49		
WVUTh193 Type II	0.00	4.50	0.80	0.66	0.00	0.00	1.30	0.00	99.49		
WVUTh193 Type II	0.00	4.50	0.80	0.66	0.00	0.00	1.30	0.00	99.49		
WVUTh193 Type II	0.00	4.50	0.80	0.66	0.00	0.00	1.30	0.00	99.49		
WVUTh193 Type II	0.00	4.50	0.80	0.66	0.00	0.00	1.30	0.00	99.49		
WVUTh193 Type II	0.00	4.50	0.80	0.66	0.00	0.00	1.30	0.00	99.49		
WVUTh193 Type II	0.00	4.50	0.80	0.66	0.00	0.00	1.30	0.00	99.49		
WVUTh193 Type II	0.00	4.50	0.80	0.66	0.00	0.00	1.30	0.00	99.49		
WVUTh193 Type II	0.00	4.50	0.80	0.66	0.00	0.00	1.30	0.00	99.49		
WVUTh193 Type II	0.00	4.50	0.80	0.66	0.00	0.00	1.30	0.00	99.49		
WVUTh193 Type II	0.00	4.50	0.80	0.66	0.00	0.00	1.30	0.00	99.49		
WVUTh193 Type II	0.00	4.50	0.80	0.66	0.00	0.00	1.30	0.00	99.49		
WVUTh193 Type II	0.00	4.50	0.80	0.66	0.00	0.00	1.30	0.00	99.49		
WVUTh193 Type II	0.00	4.50	0.80	0.66	0.00	0.00	1.30	0.00	99.49		
WVUTh193 Type II	0.00	4.50	0.80	0.66	0.00	0.00	1.30	0.00	99.49		
WVUTh193 Type II	0.00	4.50	0.80	0.66	0.00	0.00	1.30	0.00	99.49		
WVUTh193 Type II	0.00	4.50	0.80	0.66	0.00	0.00	1.30	0.00	99.49		
WVUTh193 Type II	0.00	4.50	0.80	0.66	0.00	0.00	1.30	0.00	99.49		
A100CC	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.87	100.00		
A100CC	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.87	100.00		
A100CC	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.87	100.00		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
A100CC	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.85
A100CC	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.93
A100CC	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.97
A100CC	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.98
A100CC	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.05
A100CC	LAW	VSL-11R2270-1	SS	729.00	0.81	2.031	1,480.328	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.18
A100CC	LAW	VSL-11R2270-1	SS	1085.00	0.81	2.031	2,203.232	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.24
A100CC	LAW	VSL-11R2270-1	SS	1463.00	0.81	2.031	2,970.810	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.36
A100CC	LAW	VSL-11R2270-1	SS	2198.00	0.81	2.031	4,463.322	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.54
A100CC	LAW	VSL-11R2270-1	SS	2645.00	0.81	2.031	5,371.013	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.56
A100G115A	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.16
A100G115A	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.24
A100G115A	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.34
A100G115A	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.53
A100G115A	LAW	VSL-11R2270-1	SS	181.00	0.81	2.031	367.544	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.85
A100G115A	LAW	VSL-11R2270-1	SS	272.00	0.81	2.031	552.331	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.92
A100G115A	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.97
A100G115A	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.05
A100G115A	LAW	VSL-11R2270-1	SS	730.00	0.81	2.031	1,482.359	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.22
A100G115A	LAW	VSL-11R2270-1	SS	1093.00	0.81	2.031	2,219.477	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.34
A100G115A	LAW	VSL-11R2270-1	SS	1459.00	0.81	2.031	2,962.687	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.45
A100G115A	LAW	VSL-11R2270-1	SS	1828.00	0.81	2.031	3,711.989	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.52
A100G115A	LAW	VSL-11R2270-1	SS	2194.00	0.81	2.031	4,455.199	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.54
A1-AN105R2	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.88
A1-AN105R2	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.96
A1-AN105R2	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.05
A1-AN105R2	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.14
A1-AN105R2	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.24
A1-AN105R2	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.34
A1-AN105R2	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.45
A1-AN105R2	LAW	VSL-11R2270-1	SS	548.00	0.81	2.031	1,112.784	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.55
A1-AN105R2	LAW	VSL-11R2270-1	SS	730.00	0.81	2.031	1,482.359	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.64
A1-AN105R2	LAW	VSL-11R2270-1	SS	1097.00	0.81	2.031	2,227.600	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.76
A1-AN105R2	LAW	VSL-11R2270-1	SS	1465.00	0.81	2.031	2,974.871	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.82
A1-AN105R2	LAW	VSL-11R2270-1	SS	1828.00	0.81	2.031	3,711.989	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.86
A1C1-1	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.82
A1C1-1	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.96
A1C1-1	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.05
A1C1-1	LAW	VSL-11R2270-1	SS	267.00	0.81	2.031	542.178	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.36
A1C1-1	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.45
A1C1-1	LAW	VSL-11R2270-1	SS	549.00	0.81	2.031	1,114.815	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.53
A1C1-1	LAW	VSL-11R2270-1	SS	1098.00	0.81	2.031	2,229.630	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.64
A1C1-1	LAW	VSL-11R2270-1	SS	1448.00	0.81	2.031	2,940.350	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.74
A1C1-1	LAW	VSL-11R2270-1	SS	1871.00	0.81	2.031	3,799.306	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.76
A1C1-2	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.71
A1C1-2	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.87
A1C1-2	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.94
A1C1-2	LAW	VSL-11R2270-1	SS	267.00	0.81	2.031	542.178	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.25
A1C1-2	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.34
A1C1-2	LAW	VSL-11R2270-1	SS	549.00	0.81	2.031	1,114.815	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.44
A1C1-2	LAW	VSL-11R2270-1	SS	1098.00	0.81	2.031	2,229.630	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.65
A1C1-2	LAW	VSL-11R2270-1	SS	1448.00	0.81	2.031	2,940.350	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.75
A1C1-2	LAW	VSL-11R2270-1	SS	1871.00	0.81	2.031	3,799.306	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.85
A1C1-3	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.63
A1C1-3	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.78
A1C1-3	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.86
A1C1-3	LAW	VSL-11R2270-1	SS	267.00	0.81	2.031	542.178	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.14
A1C1-3	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.25
A1C1-3	LAW	VSL-11R2270-1	SS	549.00	0.81	2.031	1,114.815	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.35
A1C1-3	LAW	VSL-11R2270-1	SS	1098.00	0.81	2.031	2,229.630	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.54
A1C1-3	LAW	VSL-11R2270-1	SS	1448.00	0.81	2.031	2,940.350	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.65
A2-AP101	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.95
A2-AP101	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.15
A2-AP101	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.23

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
A100CC	94.21	32.30	0.15		10.77	113.33		8.74			0.45		0.63	
A100CC	95.14	33.37	0.56		11.26	145.30		8.74					0.79	
A100CC	112.70	38.43	0.68		12.82	148.13		8.53					0.58	
A100CC	158.17	56.94	0.45		18.83	217.53	2.98	12.95					0.54	
A100CC	153.80	54.52	0.53		18.07	237.47	2.81	11.25					0.77	
A100CC	173.54	63.73	0.56		20.94	264.66	3.19	11.77					0.75	
A100CC	158.36	61.58	0.74		19.59	271.81	2.76	7.85						
A100CC	190.52	76.40	0.71		23.85	278.42	3.42	3.80						
A100CC	416.52	854.18	3.50		134.17	2116.10	29.75	1.15						
A100CC	547.34	1951.50	5.96		292.45	3912.30	85.55	6.81						
A100G115A	74.41	30.03	0.33		9.76	96.27		3.77					0.47	
A100G115A	105.30	48.56	0.52		14.89	149.20	1.96	3.96			0.25		0.59	
A100G115A	109.93	52.91	0.25		15.28	165.80		3.10						
A100G115A	121.40	58.48	0.67		17.81	188.73	2.07	3.58						
A100G115A	129.30	61.56	0.55		19.10	200.23	2.66	3.69						
A100G115A	145.97	72.53	0.87		22.44	232.17	2.94	3.68						
A100G115A	201.57	104.56	0.58		31.70	325.28	4.11	5.36						
A100G115A	201.80	130.88	0.50		38.25	390.42	4.92	4.11						
A100G115A	342.93	399.96	1.96		102.19	988.78	11.90	3.00						
A100G115A	837.17	3304.40	5.78		510.51	6427.00	132.20	2.30						
A100G115A	626.01	2788.57	4.44		357.96	5229.10	119.14	1.72			0.23			
A100G115A	607.81	2721.67	4.25		379.30	6397.90	118.24	1.31						
A100G115A	555.55	2763.30	4.32		373.13	5509.37	121.90							
A1-AN105R2	81.50	29.15	0.20			153.60	2.07	8.04	2.16		0.72		1.37	
A1-AN105R2	95.16	42.50	0.29			196.40	2.33	9.47	2.74		0.94		2.25	0.83
A1-AN105R2	117.83	58.55	0.44			244.96	3.95	11.53	3.03		1.14	0.64	2.79	1.29
A1-AN105R2	133.09	73.88	0.61			338.28	3.77	10.97	1.48		0.95	0.54	1.97	0.99
A1-AN105R2	135.57	83.93	0.37			360.12	4.18	11.33	3.09		1.27	0.78	2.34	1.31
A1-AN105R2	145.28	97.99	0.38			397.48	5.24	10.61	1.35		0.47	0.83	1.10	0.83
A1-AN105R2	154.06	104.52	0.40			451.79	5.40	12.48	1.27		0.44	0.46	1.28	0.47
A1-AN105R2	206.78	119.78	0.31			515.55	5.88	12.53			0.51		0.77	0.44
A1-AN105R2	193.11	133.36	0.23			560.32	7.04	11.66	1.68		0.99		1.41	0.60
A1-AN105R2	274.55	209.85	0.26			840.25	9.51	5.24						
A1-AN105R2	625.82	828.36	0.27			2598.63	36.83	1.35						
A1-AN105R2	1075.70	1936.93	2.90		4.49	5372.23	105.17	0.82			0.39			
A1C1-1	80.57	24.89	0.28		1.94	119.57		8.85	1.42		0.52		1.04	
A1C1-1	103.20	31.93	0.59		1.67	155.63		8.89	1.47		0.55		1.32	
A1C1-1	98.77	39.16	0.30		1.72	173.53		8.30	1.96		1.05		1.43	
A1C1-1	123.37	63.05	0.31		1.98	347.23	2.83	9.10					0.94	0.57
A1C1-1	131.70	71.62	0.15		2.12	302.47	3.28	8.67				0.43	0.63	
A1C1-1	137.61	79.71	0.24		2.52	342.15	3.24	9.86	2.11		0.77		1.88	
A1C1-1	324.80	599.04	0.40		8.31	1664.33	17.05	6.16					1.10	
A1C1-1	542.66	941.52	0.70		13.64	2793.43	29.78	2.68						
A1C1-1	887.27	1924.07	1.68		24.76	5610.93	82.04	3.45			0.34			
A1C1-2	78.19	24.22	0.31		4.17	113.77		7.27			0.34		0.91	
A1C1-2	96.03	29.42	0.43		3.89	124.33		6.80			0.39		1.03	
A1C1-2	89.66	30.27	0.18		3.81	132.47		6.48	1.62		0.72		1.18	
A1C1-2	115.88	47.55	0.21		4.80	252.70	2.52	6.88					0.64	
A1C1-2	124.30	56.59			5.39	233.26	2.73	5.88					0.49	
A1C1-2	133.16	66.72	0.19		6.37	287.41	2.51	7.40	1.52		0.46		1.30	
A1C1-2	146.85	92.85	0.18		7.96	365.17	2.64	6.09					1.75	
A1C1-2	187.61	117.21	0.46		9.92	473.24	3.04	6.20						
A1C1-2	421.65	886.29	0.68		33.91	2042.63	16.68	6.79						
A1C1-3	78.73	27.52	0.45		7.48	98.33		5.73			0.34		0.57	
A1C1-3	97.96	35.96	0.55		7.86	123.07		4.78			0.29		0.97	
A1C1-3	95.07	35.24	0.23		7.86	133.17		4.76	1.28		0.57		0.90	
A1C1-3	129.69	57.99	0.27		11.21	257.27	2.27	5.08					0.49	
A1C1-3	135.13	61.99	0.13		12.30	236.65	2.50	3.47						
A1C1-3	146.99	72.46	0.20		14.35	286.41	2.37	5.21						
A1C1-3	428.86	1079.20	1.28		111.62	2512.87	17.62	2.71						
A1C1-3	815.00	2526.43	3.47		248.07	5983.37	49.10							
A2-AP101	81.65	47.46	0.26			152.93	16.94	6.15	1.54		0.58		1.44	0.48
A2-AP101	98.75	78.48	0.22			259.10	29.07	7.82	2.74		0.94	0.80	2.22	1.45
A2-AP101	104.32	91.75	0.19			308.41	36.72	8.46	1.61		0.75		2.56	1.21

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
A100CC		Not Studied		73.85	16.542	-0.9272896	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
A100CC		Not Studied		73.85	16.542	-0.9272896	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
A100CC		Not Studied		73.85	16.542	-0.9272896	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
A100CC		Not Studied		73.85	16.542	-0.9272896	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
A100CC		Not Studied		73.85	16.542	-0.9272896	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
A100CC		Not Studied		73.85	16.542	-0.9272896	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
A100CC		Not Studied		73.85	16.542	-0.9272896	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
A100CC		Not Studied		73.85	16.542	-0.9272896	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
A100CC		Not Studied		73.85	16.542	-0.9272896	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
A100CC		Not Studied		73.85	16.542	-0.9272896	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
A100G115A		Not Studied		73.84	16.539	-0.8846902	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
A100G115A		Not Studied		73.84	16.539	-0.8846902	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
A100G115A		Not Studied		73.84	16.539	-0.8846902	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
A100G115A		Not Studied		73.84	16.539	-0.8846902	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
A100G115A		Not Studied		73.84	16.539	-0.8846902	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
A100G115A		Not Studied		73.84	16.539	-0.8846902	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
A100G115A		Not Studied		73.84	16.539	-0.8846902	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
A100G115A		Not Studied		73.84	16.539	-0.8846902	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
A100G115A		Not Studied		73.84	16.539	-0.8846902	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
A100G115A		Not Studied		73.84	16.539	-0.8846902	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
A100G115A		Not Studied		73.84	16.539	-0.8846902	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
A100G115A		Not Studied		73.84	16.539	-0.8846902	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
A100G115A		Not Studied		73.84	16.539	-0.8846902	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
A1-AN105R2		Not Studied		73.77	14.932	8.3019659	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A1-AN105R2		Not Studied		73.77	14.932	8.3019659	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A1-AN105R2		Not Studied		73.77	14.932	8.3019659	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A1-AN105R2		Not Studied		73.77	14.932	8.3019659	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A1-AN105R2		Not Studied		73.77	14.932	8.3019659	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A1-AN105R2		Not Studied		73.77	14.932	8.3019659	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A1-AN105R2		Not Studied		73.77	14.932	8.3019659	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A1-AN105R2		Not Studied		73.77	14.932	8.3019659	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A1-AN105R2		Not Studied		73.77	14.932	8.3019659	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A1-AN105R2		Not Studied		73.77	14.932	8.3019659	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A1-AN105R2		Not Studied		73.77	14.932	8.3019659	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A1-AN105R2		Gobbinsite and Analcime	XRD/SEM	73.77	14.932	8.3019659	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A1C1-1		Not Studied		73.74	15.331	6.0869777	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A1C1-1		Not Studied		73.74	15.331	6.0869777	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A1C1-1		Not Studied		73.74	15.331	6.0869777	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A1C1-1		Not Studied		73.74	15.331	6.0869777	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A1C1-1		Not Studied		73.74	15.331	6.0869777	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A1C1-1		Not Studied		73.74	15.331	6.0869777	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A1C1-1		Not Studied		73.74	15.331	6.0869777	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A1C1-1		Not Studied		73.74	15.331	6.0869777	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A1C1-1		Not Studied		73.74	15.331	6.0869777	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A1C1-2		Not Studied		73.73	15.729	3.8567918	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A1C1-2		Not Studied		73.73	15.729	3.8567918	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A1C1-2		Not Studied		73.73	15.729	3.8567918	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A1C1-2		Not Studied		73.73	15.729	3.8567918	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A1C1-2		Not Studied		73.73	15.729	3.8567918	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A1C1-2		Not Studied		73.73	15.729	3.8567918	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A1C1-2		Not Studied		73.73	15.729	3.8567918	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A1C1-2		Not Studied		73.73	15.729	3.8567918	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A1C1-2		Not Studied		73.73	15.729	3.8567918	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A1C1-3		Not Studied		73.69	16.122	1.7045534	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A1C1-3		Not Studied		73.69	16.122	1.7045534	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A1C1-3		Not Studied		73.69	16.122	1.7045534	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A1C1-3		Not Studied		73.69	16.122	1.7045534	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A1C1-3		Not Studied		73.69	16.122	1.7045534	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A1C1-3		Not Studied		73.69	16.122	1.7045534	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A1C1-3		Not Studied		73.69	16.122	1.7045534	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A1C1-3		Gobbinsite, Analcime, Stevensite and Hectorite 15A	XRD/SEM	73.69	16.122	1.7045534	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2-AP101		Not Studied		76.11	13.145	14.6359805	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A2-AP101		Not Studied		76.11	13.145	14.6359805	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A2-AP101		Not Studied		76.11	13.145	14.6359805	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
A100CC	HOMOGENEOUS	6.06	10.01	0.00	5.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	0.26	0.00	0.00
A100CC	HOMOGENEOUS	6.06	10.01	0.00	5.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	0.26	0.00	0.00
A100CC	HOMOGENEOUS	6.06	10.01	0.00	5.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	0.26	0.00	0.00
A100CC	HOMOGENEOUS	6.06	10.01	0.00	5.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	0.26	0.00	0.00
A100CC	HOMOGENEOUS	6.06	10.01	0.00	5.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	0.26	0.00	0.00
A100CC	HOMOGENEOUS	6.06	10.01	0.00	5.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	0.26	0.00	0.00
A100CC	HOMOGENEOUS	6.06	10.01	0.00	5.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	0.26	0.00	0.00
A100CC	HOMOGENEOUS	6.06	10.01	0.00	5.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	0.26	0.00	0.00
A100CC	HOMOGENEOUS	6.06	10.01	0.00	5.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	0.26	0.00	0.00
A100CC	HOMOGENEOUS	6.06	10.01	0.00	5.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	0.26	0.00	0.00
A100G115A	HOMOGENEOUS	6.06	10.01	0.00	5.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	0.26	0.00	0.00
A100G115A	HOMOGENEOUS	6.06	10.01	0.00	5.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	0.26	0.00	0.00
A100G115A	HOMOGENEOUS	6.06	10.01	0.00	5.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	0.26	0.00	0.00
A100G115A	HOMOGENEOUS	6.06	10.01	0.00	5.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	0.26	0.00	0.00
A100G115A	HOMOGENEOUS	6.06	10.01	0.00	5.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	0.26	0.00	0.00
A100G115A	HOMOGENEOUS	6.06	10.01	0.00	5.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	0.26	0.00	0.00
A100G115A	HOMOGENEOUS	6.06	10.01	0.00	5.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	0.26	0.00	0.00
A100G115A	HOMOGENEOUS	6.06	10.01	0.00	5.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	0.26	0.00	0.00
A100G115A	HOMOGENEOUS	6.06	10.01	0.00	5.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	0.26	0.00	0.00
A100G115A	HOMOGENEOUS	6.06	10.01	0.00	5.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	0.26	0.00	0.00
A100G115A	HOMOGENEOUS	6.06	10.01	0.00	5.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	0.26	0.00	0.00
A100G115A	HOMOGENEOUS	6.06	10.01	0.00	5.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	0.26	0.00	0.00
A100G115A	HOMOGENEOUS	6.06	10.01	0.00	5.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	0.26	0.00	0.00
A1-AN105R2	HOMOGENEOUS	6.10	8.84	0.00	1.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.87	0.44	0.00	0.00
A1-AN105R2	HOMOGENEOUS	6.10	8.84	0.00	1.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.87	0.44	0.00	0.00
A1-AN105R2	HOMOGENEOUS	6.10	8.84	0.00	1.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.87	0.44	0.00	0.00
A1-AN105R2	HOMOGENEOUS	6.10	8.84	0.00	1.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.87	0.44	0.00	0.00
A1-AN105R2	HOMOGENEOUS	6.10	8.84	0.00	1.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.87	0.44	0.00	0.00
A1-AN105R2	HOMOGENEOUS	6.10	8.84	0.00	1.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.87	0.44	0.00	0.00
A1-AN105R2	HOMOGENEOUS	6.10	8.84	0.00	1.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.87	0.44	0.00	0.00
A1-AN105R2	HOMOGENEOUS	6.10	8.84	0.00	1.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.87	0.44	0.00	0.00
A1-AN105R2	HOMOGENEOUS	6.10	8.84	0.00	1.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.87	0.44	0.00	0.00
A1-AN105R2	HOMOGENEOUS	6.10	8.84	0.00	1.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.87	0.44	0.00	0.00
A1-AN105R2	HOMOGENEOUS	6.10	8.84	0.00	1.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.87	0.44	0.00	0.00
A1-AN105R2	HOMOGENEOUS	6.10	8.84	0.00	1.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.87	0.44	0.00	0.00
A1C1-1	HOMOGENEOUS	6.09	9.13	0.00	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.50	0.35	0.00	0.00
A1C1-1	HOMOGENEOUS	6.09	9.13	0.00	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.50	0.35	0.00	0.00
A1C1-1	HOMOGENEOUS	6.09	9.13	0.00	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.50	0.35	0.00	0.00
A1C1-1	HOMOGENEOUS	6.09	9.13	0.00	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.50	0.35	0.00	0.00
A1C1-1	HOMOGENEOUS	6.09	9.13	0.00	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.50	0.35	0.00	0.00
A1C1-1	HOMOGENEOUS	6.09	9.13	0.00	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.50	0.35	0.00	0.00
A1C1-1	HOMOGENEOUS	6.09	9.13	0.00	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.50	0.35	0.00	0.00
A1C1-1	HOMOGENEOUS	6.09	9.13	0.00	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.50	0.35	0.00	0.00
A1C1-1	HOMOGENEOUS	6.09	9.13	0.00	2.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.50	0.35	0.00	0.00
A1C1-2	HOMOGENEOUS	6.07	9.42	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.14	0.26	0.00	0.00
A1C1-2	HOMOGENEOUS	6.07	9.42	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.14	0.26	0.00	0.00
A1C1-2	HOMOGENEOUS	6.07	9.42	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.14	0.26	0.00	0.00
A1C1-2	HOMOGENEOUS	6.07	9.42	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.14	0.26	0.00	0.00
A1C1-2	HOMOGENEOUS	6.07	9.42	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.14	0.26	0.00	0.00
A1C1-2	HOMOGENEOUS	6.07	9.42	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.14	0.26	0.00	0.00
A1C1-2	HOMOGENEOUS	6.07	9.42	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.14	0.26	0.00	0.00
A1C1-2	HOMOGENEOUS	6.07	9.42	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.14	0.26	0.00	0.00
A1C1-2	HOMOGENEOUS	6.07	9.42	0.00	3.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.14	0.26	0.00	0.00
A1C1-3	HOMOGENEOUS	6.06	9.70	0.00	4.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.77	0.16	0.00	0.00
A1C1-3	HOMOGENEOUS	6.06	9.70	0.00	4.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.77	0.16	0.00	0.00
A1C1-3	HOMOGENEOUS	6.06	9.70	0.00	4.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.77	0.16	0.00	0.00
A1C1-3	HOMOGENEOUS	6.06	9.70	0.00	4.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.77	0.16	0.00	0.00
A1C1-3	HOMOGENEOUS	6.06	9.70	0.00	4.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.77	0.16	0.00	0.00
A1C1-3	HOMOGENEOUS	6.06	9.70	0.00	4.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.77	0.16	0.00	0.00
A1C1-3	HOMOGENEOUS	6.06	9.70	0.00	4.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.77	0.16	0.00	0.00
A1C1-3	HOMOGENEOUS	6.06	9.70	0.00	4.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.77	0.16	0.00	0.00
A2-AP101	HOMOGENEOUS	5.62	9.82	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	3.81	0.00	0.00
A2-AP101	HOMOGENEOUS	5.62	9.82	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	3.81	0.00	0.00
A2-AP101	HOMOGENEOUS	5.62	9.82	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	3.81	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
A100CC	2.50	1.49	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.61	0.00	0.00	0.00
A100CC	2.50	1.49	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.61	0.00	0.00	0.00
A100CC	2.50	1.49	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.61	0.00	0.00	0.00
A100CC	2.50	1.49	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.61	0.00	0.00	0.00
A100CC	2.50	1.49	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.61	0.00	0.00	0.00
A100CC	2.50	1.49	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.61	0.00	0.00	0.00
A100CC	2.50	1.49	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.61	0.00	0.00	0.00
A100CC	2.50	1.49	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.61	0.00	0.00	0.00
A100CC	2.50	1.49	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.61	0.00	0.00	0.00
A100CC	2.50	1.49	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.61	0.00	0.00	0.00
A100G115A	2.50	1.49	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.60	0.00	0.00	0.00
A100G115A	2.50	1.49	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.60	0.00	0.00	0.00
A100G115A	2.50	1.49	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.60	0.00	0.00	0.00
A100G115A	2.50	1.49	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.60	0.00	0.00	0.00
A100G115A	2.50	1.49	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.60	0.00	0.00	0.00
A100G115A	2.50	1.49	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.60	0.00	0.00	0.00
A100G115A	2.50	1.49	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.60	0.00	0.00	0.00
A100G115A	2.50	1.49	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.60	0.00	0.00	0.00
A100G115A	2.50	1.49	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.60	0.00	0.00	0.00
A100G115A	2.50	1.49	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.60	0.00	0.00	0.00
A100G115A	2.50	1.49	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.60	0.00	0.00	0.00
A100G115A	2.50	1.49	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.60	0.00	0.00	0.00
A100G115A	2.50	1.49	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.60	0.00	0.00	0.00
A1-AN105R2	0.00	1.96	0.00	0.00	20.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.82	0.00	0.00	0.00
A1-AN105R2	0.00	1.96	0.00	0.00	20.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.82	0.00	0.00	0.00
A1-AN105R2	0.00	1.96	0.00	0.00	20.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.82	0.00	0.00	0.00
A1-AN105R2	0.00	1.96	0.00	0.00	20.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.82	0.00	0.00	0.00
A1-AN105R2	0.00	1.96	0.00	0.00	20.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.82	0.00	0.00	0.00
A1-AN105R2	0.00	1.96	0.00	0.00	20.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.82	0.00	0.00	0.00
A1-AN105R2	0.00	1.96	0.00	0.00	20.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.82	0.00	0.00	0.00
A1-AN105R2	0.00	1.96	0.00	0.00	20.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.82	0.00	0.00	0.00
A1-AN105R2	0.00	1.96	0.00	0.00	20.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.82	0.00	0.00	0.00
A1-AN105R2	0.00	1.96	0.00	0.00	20.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.82	0.00	0.00	0.00
A1-AN105R2	0.00	1.96	0.00	0.00	20.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.82	0.00	0.00	0.00
A1-AN105R2	0.00	1.96	0.00	0.00	20.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.82	0.00	0.00	0.00
A1C1-1	0.62	1.85	0.00	0.00	19.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.48	0.00	0.00	0.00
A1C1-1	0.62	1.85	0.00	0.00	19.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.48	0.00	0.00	0.00
A1C1-1	0.62	1.85	0.00	0.00	19.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.48	0.00	0.00	0.00
A1C1-1	0.62	1.85	0.00	0.00	19.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.48	0.00	0.00	0.00
A1C1-1	0.62	1.85	0.00	0.00	19.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.48	0.00	0.00	0.00
A1C1-1	0.62	1.85	0.00	0.00	19.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.48	0.00	0.00	0.00
A1C1-1	0.62	1.85	0.00	0.00	19.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.48	0.00	0.00	0.00
A1C1-1	0.62	1.85	0.00	0.00	19.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.48	0.00	0.00	0.00
A1C1-1	0.62	1.85	0.00	0.00	19.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.48	0.00	0.00	0.00
A1C1-2	1.25	1.74	0.00	0.00	17.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.14	0.00	0.00	0.00
A1C1-2	1.25	1.74	0.00	0.00	17.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.14	0.00	0.00	0.00
A1C1-2	1.25	1.74	0.00	0.00	17.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.14	0.00	0.00	0.00
A1C1-2	1.25	1.74	0.00	0.00	17.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.14	0.00	0.00	0.00
A1C1-2	1.25	1.74	0.00	0.00	17.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.14	0.00	0.00	0.00
A1C1-2	1.25	1.74	0.00	0.00	17.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.14	0.00	0.00	0.00
A1C1-2	1.25	1.74	0.00	0.00	17.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.14	0.00	0.00	0.00
A1C1-2	1.25	1.74	0.00	0.00	17.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.14	0.00	0.00	0.00
A1C1-2	1.25	1.74	0.00	0.00	17.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.14	0.00	0.00	0.00
A1C1-3	1.87	1.62	0.00	0.00	16.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.79	0.00	0.00	0.00
A1C1-3	1.87	1.62	0.00	0.00	16.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.79	0.00	0.00	0.00
A1C1-3	1.87	1.62	0.00	0.00	16.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.79	0.00	0.00	0.00
A1C1-3	1.87	1.62	0.00	0.00	16.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.79	0.00	0.00	0.00
A1C1-3	1.87	1.62	0.00	0.00	16.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.79	0.00	0.00	0.00
A1C1-3	1.87	1.62	0.00	0.00	16.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.79	0.00	0.00	0.00
A1C1-3	1.87	1.62	0.00	0.00	16.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.79	0.00	0.00	0.00
A1C1-3	1.87	1.62	0.00	0.00	16.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.79	0.00	0.00	0.00
A2-AP101	0.00	1.48	0.00	0.00	18.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.01	0.00	0.00	0.00
A2-AP101	0.00	1.48	0.00	0.00	18.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.01	0.00	0.00	0.00
A2-AP101	0.00	1.48	0.00	0.00	18.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.01	0.00	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
A100CC	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.87	100.00		
A100CC	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.87	100.00		
A100CC	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.87	100.00		
A100CC	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.87	100.00		
A100CC	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.87	100.00		
A100CC	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.87	100.00		
A100CC	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.87	100.00		
A100CC	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.87	100.00		
A100CC	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.87	100.00		
A100CC	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.87	100.00		
A100G115A	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.89	100.00		
A100G115A	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.89	100.00		
A100G115A	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.89	100.00		
A100G115A	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.89	100.00		
A100G115A	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.89	100.00		
A100G115A	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.89	100.00		
A100G115A	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.89	100.00		
A100G115A	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.89	100.00		
A100G115A	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.89	100.00		
A100G115A	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.89	100.00		
A100G115A	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.89	100.00		
A100G115A	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.89	100.00		
A100G115A	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.89	100.00		
A1-AN105R2	0.00	0.00	1.96	0.00	0.00	2.92	2.94	1.52	100.00		
A1-AN105R2	0.00	0.00	1.96	0.00	0.00	2.92	2.94	1.52	100.00		
A1-AN105R2	0.00	0.00	1.96	0.00	0.00	2.92	2.94	1.52	100.00		
A1-AN105R2	0.00	0.00	1.96	0.00	0.00	2.92	2.94	1.52	100.00		
A1-AN105R2	0.00	0.00	1.96	0.00	0.00	2.92	2.94	1.52	100.00		
A1-AN105R2	0.00	0.00	1.96	0.00	0.00	2.92	2.94	1.52	100.00		
A1-AN105R2	0.00	0.00	1.96	0.00	0.00	2.92	2.94	1.52	100.00		
A1-AN105R2	0.00	0.00	1.96	0.00	0.00	2.92	2.94	1.52	100.00		
A1-AN105R2	0.00	0.00	1.96	0.00	0.00	2.92	2.94	1.52	100.00		
A1-AN105R2	0.00	0.00	1.96	0.00	0.00	2.92	2.94	1.52	100.00		
A1-AN105R2	0.00	0.00	1.96	0.00	0.00	2.92	2.94	1.52	100.00		
A1-AN105R2	0.00	0.00	1.96	0.00	0.00	2.92	2.94	1.52	100.00		
A1C1-1	0.00	0.00	1.76	0.00	0.00	2.95	2.96	1.41	100.00		
A1C1-1	0.00	0.00	1.76	0.00	0.00	2.95	2.96	1.41	100.00		
A1C1-1	0.00	0.00	1.76	0.00	0.00	2.95	2.96	1.41	100.00		
A1C1-1	0.00	0.00	1.76	0.00	0.00	2.95	2.96	1.41	100.00		
A1C1-1	0.00	0.00	1.76	0.00	0.00	2.95	2.96	1.41	100.00		
A1C1-1	0.00	0.00	1.76	0.00	0.00	2.95	2.96	1.41	100.00		
A1C1-1	0.00	0.00	1.76	0.00	0.00	2.95	2.96	1.41	100.00		
A1C1-1	0.00	0.00	1.76	0.00	0.00	2.95	2.96	1.41	100.00		
A1C1-1	0.00	0.00	1.76	0.00	0.00	2.95	2.96	1.41	100.00		
A1C1-2	0.00	0.00	1.55	0.00	0.00	2.98	2.97	1.29	100.00		
A1C1-2	0.00	0.00	1.55	0.00	0.00	2.98	2.97	1.29	100.00		
A1C1-2	0.00	0.00	1.55	0.00	0.00	2.98	2.97	1.29	100.00		
A1C1-2	0.00	0.00	1.55	0.00	0.00	2.98	2.97	1.29	100.00		
A1C1-2	0.00	0.00	1.55	0.00	0.00	2.98	2.97	1.29	100.00		
A1C1-2	0.00	0.00	1.55	0.00	0.00	2.98	2.97	1.29	100.00		
A1C1-2	0.00	0.00	1.55	0.00	0.00	2.98	2.97	1.29	100.00		
A1C1-2	0.00	0.00	1.55	0.00	0.00	2.98	2.97	1.29	100.00		
A1C1-2	0.00	0.00	1.55	0.00	0.00	2.98	2.97	1.29	100.00		
A1C1-3	0.00	0.00	1.35	0.00	0.00	3.02	2.99	1.21	100.00		
A1C1-3	0.00	0.00	1.35	0.00	0.00	3.02	2.99	1.21	100.00		
A1C1-3	0.00	0.00	1.35	0.00	0.00	3.02	2.99	1.21	100.00		
A1C1-3	0.00	0.00	1.35	0.00	0.00	3.02	2.99	1.21	100.00		
A1C1-3	0.00	0.00	1.35	0.00	0.00	3.02	2.99	1.21	100.00		
A1C1-3	0.00	0.00	1.35	0.00	0.00	3.02	2.99	1.21	100.00		
A1C1-3	0.00	0.00	1.35	0.00	0.00	3.02	2.99	1.21	100.00		
A1C1-3	0.00	0.00	1.35	0.00	0.00	3.02	2.99	1.21	100.00		
A2-AP101	0.00	0.00	1.99	0.00	0.00	2.94	2.96	1.37	100.00		
A2-AP101	0.00	0.00	1.99	0.00	0.00	2.94	2.96	1.37	100.00		
A2-AP101	0.00	0.00	1.99	0.00	0.00	2.94	2.96	1.37	100.00		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
A2-AP101	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.34
A2-AP101	LAW	VSL-11R2270-1	SS	183.00	0.81	2.031	371.605	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.43
A2-AP101	LAW	VSL-11R2270-1	SS	272.00	0.81	2.031	552.331	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.53
A2-AP101	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.65
A2-AP101	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.75
A2-AP101	LAW	VSL-11R2270-1	SS	731.00	0.81	2.031	1,484.390	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.85
A2-AP101	LAW	VSL-11R2270-1	SS	1094.00	0.81	2.031	2,221.508	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.92
A2-AP101	LAW	VSL-11R2270-1	SS	1472.00	0.81	2.031	2,989.085	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.96
A2-AP101	LAW	VSL-11R2270-1	SS	1834.00	0.81	2.031	3,724.173	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.05
A2B1-1	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.75
A2B1-1	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.92
A2B1-1	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.97
A2B1-1	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.05
A2B1-1	LAW	VSL-11R2270-1	SS	183.00	0.81	2.031	371.605	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.14
A2B1-1	LAW	VSL-11R2270-1	SS	272.00	0.81	2.031	552.331	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.24
A2B1-1	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.34
A2B1-1	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.45
A2B1-1	LAW	VSL-11R2270-1	SS	731.00	0.81	2.031	1,484.390	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.54
A2B1-1	LAW	VSL-11R2270-1	SS	1094.00	0.81	2.031	2,221.508	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.64
A2B1-1	LAW	VSL-11R2270-1	SS	1472.00	0.81	2.031	2,989.085	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.67
A2B1-1	LAW	VSL-11R2270-1	SS	1834.00	0.81	2.031	3,724.173	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.70
A2B1-2	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.54
A2B1-2	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.75
A2B1-2	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.85
A2B1-2	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.93
A2B1-2	LAW	VSL-11R2270-1	SS	183.00	0.81	2.031	371.605	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.03
A2B1-2	LAW	VSL-11R2270-1	SS	272.00	0.81	2.031	552.331	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.16
A2B1-2	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.24
A2B1-2	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.34
A2B1-2	LAW	VSL-11R2270-1	SS	731.00	0.81	2.031	1,484.390	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.45
A2B1-2	LAW	VSL-11R2270-1	SS	1094.00	0.81	2.031	2,221.508	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.53
A2B1-2	LAW	VSL-11R2270-1	SS	1472.00	0.81	2.031	2,989.085	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.57
A2B1-2	LAW	VSL-11R2270-1	SS	1834.00	0.81	2.031	3,724.173	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.65
A2B1-3	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.35
A2B1-3	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.53
A2B1-3	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.64
A2B1-3	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.74
A2B1-3	LAW	VSL-11R2270-1	SS	183.00	0.81	2.031	371.605	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.84
A2B1-3	LAW	VSL-11R2270-1	SS	272.00	0.81	2.031	552.331	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.94
A2B1-3	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.05
A2B1-3	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.14
A2B1-3	LAW	VSL-11R2270-1	SS	731.00	0.81	2.031	1,484.390	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.24
A2B1-3	LAW	VSL-11R2270-1	SS	1094.00	0.81	2.031	2,221.508	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.35
A2B1-3	LAW	VSL-11R2270-1	SS	1472.00	0.81	2.031	2,989.085	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.46
A2B1-3	LAW	VSL-11R2270-1	SS	1834.00	0.81	2.031	3,724.173	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.55
A88AP101R1	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.64
A88AP101R1	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.93
A88AP101R1	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.98
A88AP101R1	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.03
A88AP101R1	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.28
A88AP101R1	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.33
A88AP101R1	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.45
A88AP101R1	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.54
A88AP101R1	LAW	VSL-11R2270-1	SS	729.00	0.81	2.031	1,480.328	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.65
A88AP101R1	LAW	VSL-11R2270-1	SS	1093.00	0.81	2.031	2,219.477	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.74
A88AP101R1	LAW	VSL-11R2270-1	SS	1829.00	0.81	2.031	3,714.020	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.94
A88AP101R1	LAW	VSL-11R2270-1	SS	2177.00	0.81	2.031	4,420.679	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.95
A88Si+15	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.43
A88Si+15	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.64
A88Si+15	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.75
A88Si+15	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.84
A88Si+15	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.03
A88Si+15	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.13
A88Si+15	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.26
A88Si+15	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.37
A88Si+15	LAW	VSL-11R2270-1	SS	729.00	0.81	2.031	1,480.328	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.45

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
A2-AP101	116.00	115.00	0.53			361.00	40.93	8.95	1.24		0.63	0.60	1.91	0.91
A2-AP101	119.48	119.78	0.28			394.06	43.44	9.00	1.37		0.71		1.92	0.92
A2-AP101	140.96	146.85	0.32			451.40	52.60	10.67	1.26		0.38	0.49	0.83	0.87
A2-AP101	135.41	147.12	0.19			457.42	54.81	10.25			0.27		0.49	0.74
A2-AP101	147.04	158.44	0.20			564.56	60.90	10.78	1.36		0.76		1.61	
A2-AP101	136.00	168.37	0.13			549.96	61.04	9.58			0.22			
A2-AP101	153.43	172.45	0.18			581.08	63.55	10.53					0.53	
A2-AP101	165.80	194.30	0.57		1.30	620.05	68.11	7.39						
A2-AP101	209.99	225.59	1.38		1.86	734.80	82.82	5.21						
A2B1-1	68.79	21.89	0.40		2.82	73.11	8.16	4.28			0.35		0.84	
A2B1-1	76.08	30.22	0.15		3.65	103.20	11.53	5.01			0.40		0.88	
A2B1-1	83.23	39.18			4.17	124.75	14.02	4.99			0.31		1.14	
A2B1-1	90.33	47.53	0.38		4.90	151.67	16.37	5.50					0.74	0.58
A2B1-1	89.03	52.00	0.12		4.95	170.59	17.25	4.77			0.35		1.05	
A2B1-1	107.01	61.45	0.23		6.22	194.81	20.88	6.15						
A2B1-1	106.25	71.05	0.17		6.46	204.87	21.44	5.92						
A2B1-1	118.83	80.05	0.23		7.68	256.38	25.71	5.62			0.29		0.94	
A2B1-1	112.20	86.80	0.29		8.20	261.26	25.27	5.34			0.25			0.43
A2B1-1	127.42	90.77	0.13		8.53	294.43	26.70	6.18						
A2B1-1	131.24	102.42	0.13		9.01	294.80	28.88	4.30						
A2B1-1	143.97	111.07	0.24		10.02	352.42	31.73	4.35						
A2B1-2	65.87	20.97	0.60		6.20	53.54	6.00	2.48						
A2B1-2	72.79	25.41	0.29		7.84	72.38	7.95	2.82			0.30			
A2B1-2	79.60	30.69	0.26		9.19	90.50	9.45	2.70					0.60	
A2B1-2	82.20	30.07	0.47		8.93	88.67	9.92	2.89						
A2B1-2	83.51	34.32	0.19		9.88	98.35	11.07	2.41						
A2B1-2	108.81	41.71	0.36		13.18	122.20	13.55	3.82						
A2B1-2	102.11	47.66	0.23		13.11	128.68	12.75	3.13						
A2B1-2	126.30	63.45	0.41		19.30	184.42	17.94	2.85						
A2B1-2	121.73	75.39	0.33		22.35	211.03	18.00	2.43						
A2B1-2	274.95	983.39	2.58		152.24	1761.77	193.46	5.46						
A2B1-2	321.97	2260.17	5.48		239.36	3778.57	407.67							
A2B1-2	408.32	3027.50	11.91		331.26	5441.77	639.89	1.11						
A2B1-3	66.61	25.69	0.99		10.84	42.45	3.64	1.37						
A2B1-3	86.25	39.79	0.61		18.31	70.26	5.93	1.49						
A2B1-3	96.08	47.35	0.73		22.97	91.15	7.23	1.04						
A2B1-3	107.67	51.57	1.11		23.57	94.53	8.48	1.54						
A2B1-3	102.92	53.20	0.73		23.55	92.52	9.10	1.05						
A2B1-3	144.19	70.18	1.40		32.36	119.41	11.40	1.98						
A2B1-3	138.39	73.39	1.24		32.03	121.58	10.80	1.59						
A2B1-3	146.84	74.25	1.76		36.80	140.51	13.33	1.42						
A2B1-3	144.83	79.63	1.77		39.74	141.02	11.49	1.11						
A2B1-3	163.43	81.34	2.11		41.70	153.30	12.29	1.53						
A2B1-3	193.85	153.05	1.29		54.41	257.18	27.66	0.70						
A2B1-3	229.70	754.02	2.82		87.94	1339.70	133.31	1.61						
A88AP101R1	84.97	41.90	0.17			173.50	10.77	9.52	1.40		0.62		1.27	
A88AP101R1	104.37	77.41				282.37	17.72	10.64	1.81		0.79	0.46	1.82	1.02
A88AP101R1	116.87	91.81	0.18			333.97	20.33	10.59	2.04		0.84	0.64	1.72	1.40
A88AP101R1	125.13	111.03	0.21			398.40	24.04	11.42	2.10		0.82	0.67	1.96	1.32
A88AP101R1	132.60	117.27	0.38			389.30	28.29	12.12	2.32		0.85	0.54	1.84	1.10
A88AP101R1	130.77	124.43	0.30			418.83	27.45	11.21	1.70		0.73		1.58	0.83
A88AP101R1	173.32	164.65	0.26			634.49	37.93	16.90	2.36		0.99	0.48	2.49	1.16
A88AP101R1	172.90	169.86	0.27			572.41	36.54	14.76	1.52		0.52	0.47	1.23	0.85
A88AP101R1	182.92	174.80	0.22			568.76	37.68	9.68						0.43
A88AP101R1	311.50	253.11	0.10			889.21	54.40	7.64						
A88AP101R1	604.34	678.09	0.14			2163.67	106.61							
A88AP101R1	848.48	1113.23	0.71			2905.40	206.21	0.73						
A88Si+15	113.77	73.03	0.32			329.37	21.89	13.49	2.91		1.24		2.31	
A88Si+15	114.40	102.40				441.23	29.21	14.82	3.01		1.22		2.66	0.59
A88Si+15	149.63	121.57	0.20			532.60	35.48	15.95	2.94		1.10		2.55	0.71
A88Si+15	163.30	141.33				617.83	41.73	16.95	2.07		0.68		1.75	
A88Si+15	178.67	162.87				638.40	52.14	16.17			0.34		0.86	
A88Si+15	192.37	169.37				680.63	51.27	10.95						
A88Si+15	324.86	275.66	0.12			1097.47	81.77	10.05						
A88Si+15	810.66	745.73	0.40			2573.40	251.81	3.79						
A88Si+15	1092.43	1149.57	0.49			3569.83	318.82	3.56					0.55	

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
A2-AP101		Not Studied		76.11	13.145	14.6359805	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A2-AP101		Not Studied		76.11	13.145	14.6359805	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A2-AP101		Not Studied		76.11	13.145	14.6359805	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A2-AP101		Not Studied		76.11	13.145	14.6359805	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A2-AP101		Not Studied		76.11	13.145	14.6359805	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A2-AP101		Not Studied		76.11	13.145	14.6359805	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A2-AP101		Not Studied		76.11	13.145	14.6359805	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A2-AP101		Not Studied		76.11	13.145	14.6359805	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A2-AP101		Chabazite and Herschelite	XRD/SEM	76.11	13.145	14.6359805	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-1		Not Studied		74.27	14.419	10.3975373	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-1		Not Studied		74.27	14.419	10.3975373	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-1		Not Studied		74.27	14.419	10.3975373	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-1		Not Studied		74.27	14.419	10.3975373	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-1		Not Studied		74.27	14.419	10.3975373	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-1		Not Studied		74.27	14.419	10.3975373	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-1		Not Studied		74.27	14.419	10.3975373	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-1		Not Studied		74.27	14.419	10.3975373	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-1		Not Studied		74.27	14.419	10.3975373	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-1		Not Studied		74.27	14.419	10.3975373	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-1		Not Studied		74.27	14.419	10.3975373	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-1		Not Studied		74.27	14.419	10.3975373	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-2		Not Studied		72.35	15.674	6.3898718	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-2		Not Studied		72.35	15.674	6.3898718	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-2		Not Studied		72.35	15.674	6.3898718	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-2		Not Studied		72.35	15.674	6.3898718	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-2		Not Studied		72.35	15.674	6.3898718	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-2		Not Studied		72.35	15.674	6.3898718	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-2		Not Studied		72.35	15.674	6.3898718	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-2		Not Studied		72.35	15.674	6.3898718	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-2		Not Studied		72.35	15.674	6.3898718	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-2		Not Studied		72.35	15.674	6.3898718	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-2		Not Studied		72.35	15.674	6.3898718	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-2		Not Studied		72.35	15.674	6.3898718	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-3		Not Studied		70.45	16.959	2.1758918	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-3		Not Studied		70.45	16.959	2.1758918	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-3		Not Studied		70.45	16.959	2.1758918	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-3		Not Studied		70.45	16.959	2.1758918	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-3		Not Studied		70.45	16.959	2.1758918	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-3		Not Studied		70.45	16.959	2.1758918	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-3		Not Studied		70.45	16.959	2.1758918	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-3		Not Studied		70.45	16.959	2.1758918	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-3		Not Studied		70.45	16.959	2.1758918	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-3		Not Studied		70.45	16.959	2.1758918	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-3		Not Studied		70.45	16.959	2.1758918	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A2B1-3		Not Studied		70.45	16.959	2.1758918	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
A88AP101R1		Not Studied		76.13	13.653	11.7300176	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A88AP101R1		Not Studied		76.13	13.653	11.7300176	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A88AP101R1		Not Studied		76.13	13.653	11.7300176	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A88AP101R1		Not Studied		76.13	13.653	11.7300176	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A88AP101R1		Not Studied		76.13	13.653	11.7300176	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A88AP101R1		Not Studied		76.13	13.653	11.7300176	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A88AP101R1		Not Studied		76.13	13.653	11.7300176	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A88AP101R1		Not Studied		76.13	13.653	11.7300176	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A88AP101R1		Not Studied		76.13	13.653	11.7300176	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A88AP101R1		Not Studied		76.13	13.653	11.7300176	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A88AP101R1		Not Studied		76.13	13.653	11.7300176	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A88AP101R1		Analcime only	XRD/SEM	76.13	13.653	11.7300176	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A88Si+15		Not Studied		76.59	13.422	12.3082739	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A88Si+15		Not Studied		76.59	13.422	12.3082739	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A88Si+15		Not Studied		76.59	13.422	12.3082739	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A88Si+15		Not Studied		76.59	13.422	12.3082739	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A88Si+15		Not Studied		76.59	13.422	12.3082739	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A88Si+15		Not Studied		76.59	13.422	12.3082739	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A88Si+15		Not Studied		76.59	13.422	12.3082739	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A88Si+15		Not Studied		76.59	13.422	12.3082739	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A88Si+15		Not Studied		76.59	13.422	12.3082739	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
A2-AP101	HOMOGENEOUS	5.62	9.82	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	3.81	0.00	0.00
A2-AP101	HOMOGENEOUS	5.62	9.82	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	3.81	0.00	0.00
A2-AP101	HOMOGENEOUS	5.62	9.82	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	3.81	0.00	0.00
A2-AP101	HOMOGENEOUS	5.62	9.82	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	3.81	0.00	0.00
A2-AP101	HOMOGENEOUS	5.62	9.82	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	3.81	0.00	0.00
A2-AP101	HOMOGENEOUS	5.62	9.82	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	3.81	0.00	0.00
A2-AP101	HOMOGENEOUS	5.62	9.82	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	3.81	0.00	0.00
A2-AP101	HOMOGENEOUS	5.62	9.82	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	3.81	0.00	0.00
A2-AP101	HOMOGENEOUS	5.62	9.82	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	3.81	0.00	0.00
A2B1-1	HOMOGENEOUS	5.76	9.88	0.00	3.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.48	2.90	0.00	0.00
A2B1-1	HOMOGENEOUS	5.76	9.88	0.00	3.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.48	2.90	0.00	0.00
A2B1-1	HOMOGENEOUS	5.76	9.88	0.00	3.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.48	2.90	0.00	0.00
A2B1-1	HOMOGENEOUS	5.76	9.88	0.00	3.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.48	2.90	0.00	0.00
A2B1-1	HOMOGENEOUS	5.76	9.88	0.00	3.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.48	2.90	0.00	0.00
A2B1-1	HOMOGENEOUS	5.76	9.88	0.00	3.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.48	2.90	0.00	0.00
A2B1-1	HOMOGENEOUS	5.76	9.88	0.00	3.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.48	2.90	0.00	0.00
A2B1-1	HOMOGENEOUS	5.76	9.88	0.00	3.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.48	2.90	0.00	0.00
A2B1-1	HOMOGENEOUS	5.76	9.88	0.00	3.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.48	2.90	0.00	0.00
A2B1-1	HOMOGENEOUS	5.76	9.88	0.00	3.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.48	2.90	0.00	0.00
A2B1-1	HOMOGENEOUS	5.76	9.88	0.00	3.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.48	2.90	0.00	0.00
A2B1-1	HOMOGENEOUS	5.76	9.88	0.00	3.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.48	2.90	0.00	0.00
A2B1-2	HOMOGENEOUS	5.90	9.92	0.00	4.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	2.00	0.00	0.00
A2B1-2	HOMOGENEOUS	5.90	9.92	0.00	4.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	2.00	0.00	0.00
A2B1-2	HOMOGENEOUS	5.90	9.92	0.00	4.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	2.00	0.00	0.00
A2B1-2	HOMOGENEOUS	5.90	9.92	0.00	4.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	2.00	0.00	0.00
A2B1-2	HOMOGENEOUS	5.90	9.92	0.00	4.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	2.00	0.00	0.00
A2B1-2	HOMOGENEOUS	5.90	9.92	0.00	4.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	2.00	0.00	0.00
A2B1-2	HOMOGENEOUS	5.90	9.92	0.00	4.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	2.00	0.00	0.00
A2B1-2	HOMOGENEOUS	5.90	9.92	0.00	4.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	2.00	0.00	0.00
A2B1-2	HOMOGENEOUS	5.90	9.92	0.00	4.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	2.00	0.00	0.00
A2B1-2	HOMOGENEOUS	5.90	9.92	0.00	4.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	2.00	0.00	0.00
A2B1-2	HOMOGENEOUS	5.90	9.92	0.00	4.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	2.00	0.00	0.00
A2B1-2	HOMOGENEOUS	5.90	9.92	0.00	4.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.41	2.00	0.00	0.00
A2B1-3	HOMOGENEOUS	6.04	9.97	0.00	5.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.35	1.09	0.00	0.00
A2B1-3	HOMOGENEOUS	6.04	9.97	0.00	5.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.35	1.09	0.00	0.00
A2B1-3	HOMOGENEOUS	6.04	9.97	0.00	5.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.35	1.09	0.00	0.00
A2B1-3	HOMOGENEOUS	6.04	9.97	0.00	5.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.35	1.09	0.00	0.00
A2B1-3	HOMOGENEOUS	6.04	9.97	0.00	5.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.35	1.09	0.00	0.00
A2B1-3	HOMOGENEOUS	6.04	9.97	0.00	5.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.35	1.09	0.00	0.00
A2B1-3	HOMOGENEOUS	6.04	9.97	0.00	5.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.35	1.09	0.00	0.00
A2B1-3	HOMOGENEOUS	6.04	9.97	0.00	5.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.35	1.09	0.00	0.00
A2B1-3	HOMOGENEOUS	6.04	9.97	0.00	5.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.35	1.09	0.00	0.00
A2B1-3	HOMOGENEOUS	6.04	9.97	0.00	5.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.35	1.09	0.00	0.00
A2B1-3	HOMOGENEOUS	6.04	9.97	0.00	5.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.35	1.09	0.00	0.00
A2B1-3	HOMOGENEOUS	6.04	9.97	0.00	5.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.35	1.09	0.00	0.00
A88AP101R1	HOMOGENEOUS	6.10	9.83	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.55	2.14	0.00	0.00
A88AP101R1	HOMOGENEOUS	6.10	9.83	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.55	2.14	0.00	0.00
A88AP101R1	HOMOGENEOUS	6.10	9.83	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.55	2.14	0.00	0.00
A88AP101R1	HOMOGENEOUS	6.10	9.83	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.55	2.14	0.00	0.00
A88AP101R1	HOMOGENEOUS	6.10	9.83	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.55	2.14	0.00	0.00
A88AP101R1	HOMOGENEOUS	6.10	9.83	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.55	2.14	0.00	0.00
A88AP101R1	HOMOGENEOUS	6.10	9.83	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.55	2.14	0.00	0.00
A88AP101R1	HOMOGENEOUS	6.10	9.83	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.55	2.14	0.00	0.00
A88AP101R1	HOMOGENEOUS	6.10	9.83	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.55	2.14	0.00	0.00
A88AP101R1	HOMOGENEOUS	6.10	9.83	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.55	2.14	0.00	0.00
A88AP101R1	HOMOGENEOUS	6.10	9.83	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.55	2.14	0.00	0.00
A88AP101R1	HOMOGENEOUS	6.10	9.83	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.55	2.14	0.00	0.00
A88Si+15	HOMOGENEOUS	6.14	9.48	0.00	1.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.35	2.37	0.00	0.00
A88Si+15	HOMOGENEOUS	6.14	9.48	0.00	1.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.35	2.37	0.00	0.00
A88Si+15	HOMOGENEOUS	6.14	9.48	0.00	1.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.35	2.37	0.00	0.00
A88Si+15	HOMOGENEOUS	6.14	9.48	0.00	1.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.35	2.37	0.00	0.00
A88Si+15	HOMOGENEOUS	6.14	9.48	0.00	1.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.35	2.37	0.00	0.00
A88Si+15	HOMOGENEOUS	6.14	9.48	0.00	1.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.35	2.37	0.00	0.00
A88Si+15	HOMOGENEOUS	6.14	9.48	0.00	1.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.35	2.37	0.00	0.00
A88Si+15	HOMOGENEOUS	6.14	9.48	0.00	1.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.35	2.37	0.00	0.00
A88Si+15	HOMOGENEOUS	6.14	9.48	0.00	1.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.35	2.37	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
A2-AP101	0.00	1.48	0.00	0.00	18.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.01	0.00	0.00	0.00
A2-AP101	0.00	1.48	0.00	0.00	18.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.01	0.00	0.00	0.00
A2-AP101	0.00	1.48	0.00	0.00	18.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.01	0.00	0.00	0.00
A2-AP101	0.00	1.48	0.00	0.00	18.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.01	0.00	0.00	0.00
A2-AP101	0.00	1.48	0.00	0.00	18.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.01	0.00	0.00	0.00
A2-AP101	0.00	1.48	0.00	0.00	18.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.01	0.00	0.00	0.00
A2-AP101	0.00	1.48	0.00	0.00	18.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.01	0.00	0.00	0.00
A2-AP101	0.00	1.48	0.00	0.00	18.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.01	0.00	0.00	0.00
A2-AP101	0.00	1.48	0.00	0.00	18.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.01	0.00	0.00	0.00
A2B1-1	1.07	1.85	0.00	0.00	15.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.18	0.00	0.00	0.00
A2B1-1	1.07	1.85	0.00	0.00	15.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.18	0.00	0.00	0.00
A2B1-1	1.07	1.85	0.00	0.00	15.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.18	0.00	0.00	0.00
A2B1-1	1.07	1.85	0.00	0.00	15.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.18	0.00	0.00	0.00
A2B1-1	1.07	1.85	0.00	0.00	15.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.18	0.00	0.00	0.00
A2B1-1	1.07	1.85	0.00	0.00	15.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.18	0.00	0.00	0.00
A2B1-1	1.07	1.85	0.00	0.00	15.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.18	0.00	0.00	0.00
A2B1-1	1.07	1.85	0.00	0.00	15.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.18	0.00	0.00	0.00
A2B1-1	1.07	1.85	0.00	0.00	15.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.18	0.00	0.00	0.00
A2B1-1	1.07	1.85	0.00	0.00	15.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.18	0.00	0.00	0.00
A2B1-1	1.07	1.85	0.00	0.00	15.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.18	0.00	0.00	0.00
A2B1-1	1.07	1.85	0.00	0.00	15.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.18	0.00	0.00	0.00
A2B1-2	2.15	2.23	0.00	0.00	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.29	0.00	0.00	0.00
A2B1-2	2.15	2.23	0.00	0.00	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.29	0.00	0.00	0.00
A2B1-2	2.15	2.23	0.00	0.00	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.29	0.00	0.00	0.00
A2B1-2	2.15	2.23	0.00	0.00	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.29	0.00	0.00	0.00
A2B1-2	2.15	2.23	0.00	0.00	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.29	0.00	0.00	0.00
A2B1-2	2.15	2.23	0.00	0.00	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.29	0.00	0.00	0.00
A2B1-2	2.15	2.23	0.00	0.00	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.29	0.00	0.00	0.00
A2B1-2	2.15	2.23	0.00	0.00	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.29	0.00	0.00	0.00
A2B1-2	2.15	2.23	0.00	0.00	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.29	0.00	0.00	0.00
A2B1-2	2.15	2.23	0.00	0.00	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.29	0.00	0.00	0.00
A2B1-2	2.15	2.23	0.00	0.00	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.29	0.00	0.00	0.00
A2B1-2	2.15	2.23	0.00	0.00	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.29	0.00	0.00	0.00
A2B1-3	3.22	2.60	0.00	0.00	8.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.43	0.00	0.00	0.00
A2B1-3	3.22	2.60	0.00	0.00	8.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.43	0.00	0.00	0.00
A2B1-3	3.22	2.60	0.00	0.00	8.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.43	0.00	0.00	0.00
A2B1-3	3.22	2.60	0.00	0.00	8.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.43	0.00	0.00	0.00
A2B1-3	3.22	2.60	0.00	0.00	8.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.43	0.00	0.00	0.00
A2B1-3	3.22	2.60	0.00	0.00	8.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.43	0.00	0.00	0.00
A2B1-3	3.22	2.60	0.00	0.00	8.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.43	0.00	0.00	0.00
A2B1-3	3.22	2.60	0.00	0.00	8.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.43	0.00	0.00	0.00
A2B1-3	3.22	2.60	0.00	0.00	8.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.43	0.00	0.00	0.00
A2B1-3	3.22	2.60	0.00	0.00	8.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.43	0.00	0.00	0.00
A2B1-3	3.22	2.60	0.00	0.00	8.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.43	0.00	0.00	0.00
A2B1-3	3.22	2.60	0.00	0.00	8.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.43	0.00	0.00	0.00
A88AP101R1	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.15	0.00	0.00	0.00
A88AP101R1	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.15	0.00	0.00	0.00
A88AP101R1	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.15	0.00	0.00	0.00
A88AP101R1	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.15	0.00	0.00	0.00
A88AP101R1	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.15	0.00	0.00	0.00
A88AP101R1	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.15	0.00	0.00	0.00
A88AP101R1	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.15	0.00	0.00	0.00
A88AP101R1	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.15	0.00	0.00	0.00
A88AP101R1	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.15	0.00	0.00	0.00
A88AP101R1	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.15	0.00	0.00	0.00
A88AP101R1	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.15	0.00	0.00	0.00
A88AP101R1	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.15	0.00	0.00	0.00
A88Si+15	0.00	1.43	0.00	0.00	22.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.55	0.00	0.00	0.00
A88Si+15	0.00	1.43	0.00	0.00	22.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.55	0.00	0.00	0.00
A88Si+15	0.00	1.43	0.00	0.00	22.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.55	0.00	0.00	0.00
A88Si+15	0.00	1.43	0.00	0.00	22.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.55	0.00	0.00	0.00
A88Si+15	0.00	1.43	0.00	0.00	22.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.55	0.00	0.00	0.00
A88Si+15	0.00	1.43	0.00	0.00	22.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.55	0.00	0.00	0.00
A88Si+15	0.00	1.43	0.00	0.00	22.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.55	0.00	0.00	0.00
A88Si+15	0.00	1.43	0.00	0.00	22.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.55	0.00	0.00	0.00
A88Si+15	0.00	1.43	0.00	0.00	22.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.55	0.00	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
A2-AP101	0.00	0.00	1.99	0.00	0.00	2.94	2.96	1.37	100.00		
A2-AP101	0.00	0.00	1.99	0.00	0.00	2.94	2.96	1.37	100.00		
A2-AP101	0.00	0.00	1.99	0.00	0.00	2.94	2.96	1.37	100.00		
A2-AP101	0.00	0.00	1.99	0.00	0.00	2.94	2.96	1.37	100.00		
A2-AP101	0.00	0.00	1.99	0.00	0.00	2.94	2.96	1.37	100.00		
A2-AP101	0.00	0.00	1.99	0.00	0.00	2.94	2.96	1.37	100.00		
A2-AP101	0.00	0.00	1.99	0.00	0.00	2.94	2.96	1.37	100.00		
A2-AP101	0.00	0.00	1.99	0.00	0.00	2.94	2.96	1.37	100.00		
A2-AP101	0.00	0.00	1.99	0.00	0.00	2.94	2.96	1.37	100.00		
A2B1-1	0.00	0.00	1.84	0.00	0.00	3.41	3.01	1.19	100.00		
A2B1-1	0.00	0.00	1.84	0.00	0.00	3.41	3.01	1.19	100.00		
A2B1-1	0.00	0.00	1.84	0.00	0.00	3.41	3.01	1.19	100.00		
A2B1-1	0.00	0.00	1.84	0.00	0.00	3.41	3.01	1.19	100.00		
A2B1-1	0.00	0.00	1.84	0.00	0.00	3.41	3.01	1.19	100.00		
A2B1-1	0.00	0.00	1.84	0.00	0.00	3.41	3.01	1.19	100.00		
A2B1-1	0.00	0.00	1.84	0.00	0.00	3.41	3.01	1.19	100.00		
A2B1-1	0.00	0.00	1.84	0.00	0.00	3.41	3.01	1.19	100.00		
A2B1-1	0.00	0.00	1.84	0.00	0.00	3.41	3.01	1.19	100.00		
A2B1-1	0.00	0.00	1.84	0.00	0.00	3.41	3.01	1.19	100.00		
A2B1-1	0.00	0.00	1.84	0.00	0.00	3.41	3.01	1.19	100.00		
A2B1-1	0.00	0.00	1.84	0.00	0.00	3.41	3.01	1.19	100.00		
A2B1-2	0.00	0.00	1.69	0.00	0.00	3.89	3.06	1.10	100.00		
A2B1-2	0.00	0.00	1.69	0.00	0.00	3.89	3.06	1.10	100.00		
A2B1-2	0.00	0.00	1.69	0.00	0.00	3.89	3.06	1.10	100.00		
A2B1-2	0.00	0.00	1.69	0.00	0.00	3.89	3.06	1.10	100.00		
A2B1-2	0.00	0.00	1.69	0.00	0.00	3.89	3.06	1.10	100.00		
A2B1-2	0.00	0.00	1.69	0.00	0.00	3.89	3.06	1.10	100.00		
A2B1-2	0.00	0.00	1.69	0.00	0.00	3.89	3.06	1.10	100.00		
A2B1-2	0.00	0.00	1.69	0.00	0.00	3.89	3.06	1.10	100.00		
A2B1-2	0.00	0.00	1.69	0.00	0.00	3.89	3.06	1.10	100.00		
A2B1-2	0.00	0.00	1.69	0.00	0.00	3.89	3.06	1.10	100.00		
A2B1-2	0.00	0.00	1.69	0.00	0.00	3.89	3.06	1.10	100.00		
A2B1-2	0.00	0.00	1.69	0.00	0.00	3.89	3.06	1.10	100.00		
A2B1-3	0.00	0.00	1.54	0.00	0.00	4.37	3.11	0.97	100.00		
A2B1-3	0.00	0.00	1.54	0.00	0.00	4.37	3.11	0.97	100.00		
A2B1-3	0.00	0.00	1.54	0.00	0.00	4.37	3.11	0.97	100.00		
A2B1-3	0.00	0.00	1.54	0.00	0.00	4.37	3.11	0.97	100.00		
A2B1-3	0.00	0.00	1.54	0.00	0.00	4.37	3.11	0.97	100.00		
A2B1-3	0.00	0.00	1.54	0.00	0.00	4.37	3.11	0.97	100.00		
A2B1-3	0.00	0.00	1.54	0.00	0.00	4.37	3.11	0.97	100.00		
A2B1-3	0.00	0.00	1.54	0.00	0.00	4.37	3.11	0.97	100.00		
A2B1-3	0.00	0.00	1.54	0.00	0.00	4.37	3.11	0.97	100.00		
A2B1-3	0.00	0.00	1.54	0.00	0.00	4.37	3.11	0.97	100.00		
A2B1-3	0.00	0.00	1.54	0.00	0.00	4.37	3.11	0.97	100.00		
A2B1-3	0.00	0.00	1.54	0.00	0.00	4.37	3.11	0.97	100.00		
A88AP101R1	0.00	0.00	2.00	0.00	0.00	2.96	3.00	0.78	100.00		
A88AP101R1	0.00	0.00	2.00	0.00	0.00	2.96	3.00	0.78	100.00		
A88AP101R1	0.00	0.00	2.00	0.00	0.00	2.96	3.00	0.78	100.00		
A88AP101R1	0.00	0.00	2.00	0.00	0.00	2.96	3.00	0.78	100.00		
A88AP101R1	0.00	0.00	2.00	0.00	0.00	2.96	3.00	0.78	100.00		
A88AP101R1	0.00	0.00	2.00	0.00	0.00	2.96	3.00	0.78	100.00		
A88AP101R1	0.00	0.00	2.00	0.00	0.00	2.96	3.00	0.78	100.00		
A88AP101R1	0.00	0.00	2.00	0.00	0.00	2.96	3.00	0.78	100.00		
A88AP101R1	0.00	0.00	2.00	0.00	0.00	2.96	3.00	0.78	100.00		
A88AP101R1	0.00	0.00	2.00	0.00	0.00	2.96	3.00	0.78	100.00		
A88AP101R1	0.00	0.00	2.00	0.00	0.00	2.96	3.00	0.78	100.00		
A88AP101R1	0.00	0.00	2.00	0.00	0.00	2.96	3.00	0.78	100.00		
A88Si+15	0.00	0.00	1.93	0.00	0.00	2.85	2.89	0.89	100.00		
A88Si+15	0.00	0.00	1.93	0.00	0.00	2.85	2.89	0.89	100.00		
A88Si+15	0.00	0.00	1.93	0.00	0.00	2.85	2.89	0.89	100.00		
A88Si+15	0.00	0.00	1.93	0.00	0.00	2.85	2.89	0.89	100.00		
A88Si+15	0.00	0.00	1.93	0.00	0.00	2.85	2.89	0.89	100.00		
A88Si+15	0.00	0.00	1.93	0.00	0.00	2.85	2.89	0.89	100.00		
A88Si+15	0.00	0.00	1.93	0.00	0.00	2.85	2.89	0.89	100.00		
A88Si+15	0.00	0.00	1.93	0.00	0.00	2.85	2.89	0.89	100.00		
A88Si+15	0.00	0.00	1.93	0.00	0.00	2.85	2.89	0.89	100.00		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
A88Si+15	LAW	VSL-11R2270-1	SS	1093.00	0.81	2.031	2,219.477	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.55
A88Si+15	LAW	VSL-11R2270-1	SS	1829.00	0.81	2.031	3,714.020	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.75
A88Si-15	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.27
A88Si-15	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.36
A88Si-15	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.45
A88Si-15	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.54
A88Si-15	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.85
A88Si-15	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.95
A88Si-15	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.05
A88Si-15	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.15
A88Si-15	LAW	VSL-11R2270-1	SS	729.00	0.81	2.031	1,480.328	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.25
A88Si-15	LAW	VSL-11R2270-1	SS	1093.00	0.81	2.031	2,219.477	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.34
A88Si-15	LAW	VSL-11R2270-1	SS	1829.00	0.81	2.031	3,714.020	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.55
A88Si-15	LAW	VSL-11R2270-1	SS	2177.00	0.81	2.031	4,420.679	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.55
B1-AZ101	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.35
B1-AZ101	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.55
B1-AZ101	LAW	VSL-11R2270-1	SS	272.00	0.81	2.031	552.331	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.94
B1-AZ101	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.04
B1-AZ101	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.14
B1-AZ101	LAW	VSL-11R2270-1	SS	731.00	0.81	2.031	1,484.390	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.25
B1-AZ101	LAW	VSL-11R2270-1	SS	1094.00	0.81	2.031	2,221.508	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.34
B1-AZ101	LAW	VSL-11R2270-1	SS	1472.00	0.81	2.031	2,989.085	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.42
B1-AZ101	LAW	VSL-11R2270-1	SS	1834.00	0.81	2.031	3,724.173	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.46
C100-G-136B	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.11
C100-G-136B	LAW	VSL-11R2270-1	SS	33.00	0.81	2.031	67.011	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.24
C100-G-136B	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.37
C100-G-136B	LAW	VSL-11R2270-1	SS	119.00	0.81	2.031	241.645	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.47
C100-G-136B	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.52
C100-G-136B	LAW	VSL-11R2270-1	SS	270.00	0.81	2.031	548.270	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.65
C100-G-136B	LAW	VSL-11R2270-1	SS	364.00	0.81	2.031	739.149	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.74
C100-G-136B	LAW	VSL-11R2270-1	SS	546.00	0.81	2.031	1,108.723	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.87
C100-G-136B	LAW	VSL-11R2270-1	SS	732.00	0.81	2.031	1,486.420	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.97
C100-G-136B	LAW	VSL-11R2270-1	SS	1098.00	0.81	2.031	2,229.630	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.15
C100-G-136B	LAW	VSL-11R2270-1	SS	1461.00	0.81	2.031	2,966.748	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.26
C100-G-136B	LAW	VSL-11R2270-1	SS	1828.00	0.81	2.031	3,711.989	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.32
C100-G-136B	LAW	VSL-11R2270-1	SS	2195.00	0.81	2.031	4,457.230	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.43
C100GCC	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.06
C100GCC	LAW	VSL-11R2270-1	SS	33.00	0.81	2.031	67.011	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.15
C100GCC	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.26
C100GCC	LAW	VSL-11R2270-1	SS	119.00	0.81	2.031	241.645	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.35
C100GCC	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.41
C100GCC	LAW	VSL-11R2270-1	SS	270.00	0.81	2.031	548.270	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.55
C100GCC	LAW	VSL-11R2270-1	SS	364.00	0.81	2.031	739.149	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.66
C100GCC	LAW	VSL-11R2270-1	SS	546.00	0.81	2.031	1,108.723	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.77
C100GCC	LAW	VSL-11R2270-1	SS	732.00	0.81	2.031	1,486.420	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.83
C100GCC	LAW	VSL-11R2270-1	SS	1098.00	0.81	2.031	2,229.630	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.97
C100GCC	LAW	VSL-11R2270-1	SS	1461.00	0.81	2.031	2,966.748	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.05
C100GCC	LAW	VSL-11R2270-1	SS	1828.00	0.81	2.031	3,711.989	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.15
C100GCC	LAW	VSL-11R2270-1	SS	2195.00	0.81	2.031	4,457.230	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.26
C100GCC	LAW	VSL-11R2270-1	SS	2624.00	0.81	2.031	5,328.370	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.35
C1-AN107	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.74
C1-AN107	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.87
C1-AN107	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.97
C1-AN107	LAW	VSL-11R2270-1	SS	267.00	0.81	2.031	542.178	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.28
C1-AN107	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.36
C1-AN107	LAW	VSL-11R2270-1	SS	549.00	0.81	2.031	1,114.815	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.45
C1-AN107	LAW	VSL-11R2270-1	SS	1098.00	0.81	2.031	2,229.630	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.65
C1-AN107	LAW	VSL-11R2270-1	SS	1448.00	0.81	2.031	2,940.350	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.77
C22AN107	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.46
C22AN107	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.62
C22AN107	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.95
C22AN107	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.03
C22AN107	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.15
C22AN107	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.34
C22AN107	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.43
C22AN107	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.55

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
A88Si+15	1889.03	2481.87	0.53			8966.33	640.35	3.09	2.41				1.61	
A88Si+15	2045.13	3094.23	0.43			10798.00	812.01	1.01	1.19				1.69	
A88Si-15	65.56	20.58	0.21			85.62	5.04	6.25			0.40		0.82	
A88Si-15	79.75	48.01				157.10	8.49	6.75	1.23		0.54		1.51	0.72
A88Si-15	86.44	62.37	0.14			192.17	10.65	6.51	1.48		0.59	0.59	1.65	1.18
A88Si-15	93.52	80.28	0.14			238.93	13.08	6.74	1.44		0.71	0.57	1.88	1.16
A88Si-15	100.30	90.47	0.27			250.73	15.53	6.43	1.12		0.64	0.54	1.57	1.13
A88Si-15	102.77	98.61	0.28			268.97	15.68	6.91	1.39		0.74	0.60	1.74	1.10
A88Si-15	131.98	129.31	0.32			396.50	20.39	9.61	2.41		1.36	0.78	3.24	1.51
A88Si-15	132.10	141.07	0.61			384.21	21.55	9.15	2.09		1.06	0.76	2.61	1.49
A88Si-15	118.82	136.91	0.24			380.99	21.00	7.98				0.58		0.88
A88Si-15	134.06	149.42	0.17			459.39	23.75	9.42			0.58	0.71	1.34	0.57
A88Si-15	174.23	198.80				660.91	32.62	5.13						0.81
A88Si-15	175.25	200.41	0.31			546.83	29.15	4.03						0.94
B1-AZ101	58.04	24.30	1.74		13.12	21.52		0.95						
B1-AZ101	86.72	46.62	1.26		28.60	48.29		1.02						
B1-AZ101	158.59	287.01	4.50		115.95	246.44	5.65	1.82						
B1-AZ101	143.14	437.19	6.99		175.05	425.84	8.53	1.47						
B1-AZ101	141.30	691.61	16.01		216.13	634.44	14.52	0.76						
B1-AZ101	130.93	765.93	12.90		237.84	671.47	14.05							
B1-AZ101	147.79	847.76	22.17		252.56	826.44	21.37	4.80						
B1-AZ101	143.27	851.85	17.03		286.13	849.88	23.17							
B1-AZ101	159.96	521.17	13.42		187.13	530.08	14.97	0.77						
C100-G-136B	58.30	23.01	0.12		8.42	61.38		2.31						
C100-G-136B	97.26	43.00	0.98		15.82	108.33		2.97						
C100-G-136B	106.27	48.60	1.03		17.24	132.60		3.28						
C100-G-136B	119.17	56.88	0.66		21.48	157.20		2.71						
C100-G-136B	129.37	60.41	1.07		23.64	180.13		2.99						
C100-G-136B	149.27	68.80	1.26		27.66	205.37	2.24	3.12						
C100-G-136B	152.97	71.80	1.03		28.12	219.53	1.80	2.82						
C100-G-136B	205.82	106.17	1.91		39.23	317.17	2.34	2.01						
C100-G-136B	254.99	121.51	2.36		45.65	321.94	2.57	1.25						
C100-G-136B	287.24	488.30	3.38		104.84	1107.03	9.26	1.13						
C100-G-136B	382.01	2094.20	8.37		374.97	3620.00	45.70							
C100-G-136B	345.99	2463.70	11.98		488.59	4797.33	62.82							
C100-G-136B	405.19	2623.63	14.20		457.73	4504.70	76.65							
C100GCC	46.28	14.51			5.83	42.65		3.15						
C100GCC	72.54	24.07	0.77		9.40	70.15		5.78						
C100GCC	76.73	22.12	0.99		9.72	73.03		6.51						
C100GCC	87.55	28.36	0.45		12.24	93.35		7.10						
C100GCC	93.03	28.28	0.73		13.58	102.87		7.94						
C100GCC	103.00	30.13	0.99		15.13	112.80		8.63						
C100GCC	99.59	30.00	0.54		14.94	120.17		8.22						
C100GCC	137.31	40.65	0.72		18.81	155.97		9.60						
C100GCC	149.39	40.32	0.92		22.09	163.55	1.88	7.88						
C100GCC	164.29	39.25	0.95		24.03	198.63		2.69						
C100GCC	184.53	74.46	1.47		30.42	225.69	2.59	1.51						
C100GCC	258.81	201.62	2.87		61.88	545.17	4.24							
C100GCC	380.64	789.86	4.24		177.83	1670.97	13.79							
C100GCC	368.86	1428.77	7.63		241.81	2287.07	32.19	1.13						
C1-AN107	89.64	32.01	0.55		12.63	113.77		4.56			0.27		0.82	
C1-AN107	119.87	46.93	0.91		16.17	156.43		3.45					0.78	
C1-AN107	115.87	47.65	0.34		15.73	165.60		3.37						
C1-AN107	167.16	73.85	0.56		22.43	288.88	2.69	3.84						
C1-AN107	166.35	74.21	0.41		22.99	249.45		3.17						
C1-AN107	174.26	78.22	0.48		24.22	294.40		3.58						
C1-AN107	504.32	1549.80	3.03		252.52	3174.20	13.44	1.57						
C1-AN107	687.94	2853.30	4.83		372.25	6187.63	30.02				0.89			
C22AN107	89.75	35.50	0.27		11.99	119.07		3.77						
C22AN107	129.87	59.37	0.26		19.11	194.50		3.71					0.54	
C22AN107	147.80	70.92	0.20		22.37	228.40		3.66						
C22AN107	173.33	90.84	0.52		26.92	264.23		3.29					0.53	
C22AN107	179.37	96.96	1.00		27.50	276.03		3.48						
C22AN107	206.07	116.27	1.22		32.11	319.97		2.83						
C22AN107	278.59	135.07	0.89		42.49	408.16		4.26						
C22AN107	377.22	309.98	1.71		86.44	771.34	2.69	3.73						

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
A88Si+15		Not Studied		76.59	13.422	12.3082739	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A88Si+15		Not Studied		76.59	13.422	12.3082739	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A88Si-15		Not Studied		75.64	13.892	11.1707189	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
A88Si-15		Not Studied		75.64	13.892	11.1707189	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
A88Si-15		Not Studied		75.64	13.892	11.1707189	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
A88Si-15		Not Studied		75.64	13.892	11.1707189	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
A88Si-15		Not Studied		75.64	13.892	11.1707189	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
A88Si-15		Not Studied		75.64	13.892	11.1707189	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
A88Si-15		Not Studied		75.64	13.892	11.1707189	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
A88Si-15		Not Studied		75.64	13.892	11.1707189	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
A88Si-15		Not Studied		75.64	13.892	11.1707189	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
A88Si-15		Not Studied		75.64	13.892	11.1707189	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
A88Si-15		Not Studied		75.64	13.892	11.1707189	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
A88Si-15		Amorphous	XRD/SEM	75.64	13.892	11.1707189	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
B1-AZ101		Not Studied		68.57	18.229	-1.9854412	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
B1-AZ101		Not Studied		68.57	18.229	-1.9854412	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
B1-AZ101		Not Studied		68.57	18.229	-1.9854412	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
B1-AZ101		Not Studied		68.57	18.229	-1.9854412	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
B1-AZ101		Not Studied		68.57	18.229	-1.9854412	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
B1-AZ101		Not Studied		68.57	18.229	-1.9854412	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
B1-AZ101		Not Studied		68.57	18.229	-1.9854412	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
B1-AZ101		Not Studied		68.57	18.229	-1.9854412	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
B1-AZ101		Not Studied		68.57	18.229	-1.9854412	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C100-G-136B		Not Studied		71.58	19.013	-11.2318339	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C100-G-136B		Not Studied		71.58	19.013	-11.2318339	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C100-G-136B		Not Studied		71.58	19.013	-11.2318339	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C100-G-136B		Not Studied		71.58	19.013	-11.2318339	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C100-G-136B		Not Studied		71.58	19.013	-11.2318339	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C100-G-136B		Not Studied		71.58	19.013	-11.2318339	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C100-G-136B		Not Studied		71.58	19.013	-11.2318339	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C100-G-136B		Not Studied		71.58	19.013	-11.2318339	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C100-G-136B		Not Studied		71.58	19.013	-11.2318339	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C100-G-136B		Not Studied		71.58	19.013	-11.2318339	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C100-G-136B		Not Studied		71.58	19.013	-11.2318339	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C100-G-136B		Not Studied		71.58	19.013	-11.2318339	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C100-G-136B		Not Studied		71.58	19.013	-11.2318339	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C100GCC		Not Studied		71.58	19.013	-11.2318339	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C100GCC		Not Studied		71.58	19.013	-11.2318339	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C100GCC		Not Studied		71.58	19.013	-11.2318339	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C100GCC		Not Studied		71.58	19.013	-11.2318339	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C100GCC		Not Studied		71.58	19.013	-11.2318339	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C100GCC		Not Studied		71.58	19.013	-11.2318339	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C100GCC		Not Studied		71.58	19.013	-11.2318339	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C100GCC		Not Studied		71.58	19.013	-11.2318339	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C100GCC		Not Studied		71.58	19.013	-11.2318339	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C100GCC		Not Studied		71.58	19.013	-11.2318339	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C100GCC		Not Studied		71.58	19.013	-11.2318339	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C100GCC		Not Studied		71.58	19.013	-11.2318339	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C100GCC		Not Studied		71.58	19.013	-11.2318339	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C100GCC		Analcime and Stevensite	XRD/SEM	71.58	19.013	-11.2318339	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C1-AN107		Not Studied		73.71	16.585	-0.9376375	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
C1-AN107		Not Studied		73.71	16.585	-0.9376375	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
C1-AN107		Not Studied		73.71	16.585	-0.9376375	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
C1-AN107		Not Studied		73.71	16.585	-0.9376375	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
C1-AN107		Not Studied		73.71	16.585	-0.9376375	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
C1-AN107		Not Studied		73.71	16.585	-0.9376375	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
C1-AN107		Not Studied		73.71	16.585	-0.9376375	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
C1-AN107		Not Studied		73.71	16.585	-0.9376375	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22AN107		Not Studied		73.73	16.806	-2.2162678	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22AN107		Not Studied		73.73	16.806	-2.2162678	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22AN107		Not Studied		73.73	16.806	-2.2162678	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22AN107		Not Studied		73.73	16.806	-2.2162678	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22AN107		Not Studied		73.73	16.806	-2.2162678	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22AN107		Not Studied		73.73	16.806	-2.2162678	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22AN107		Not Studied		73.73	16.806	-2.2162678	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22AN107		Not Studied		73.73	16.806	-2.2162678	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
A88Si+15	HOMOGENEOUS	6.14	9.48	0.00	1.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.35	2.37	0.00	0.00
A88Si+15	HOMOGENEOUS	6.14	9.48	0.00	1.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.35	2.37	0.00	0.00
A88Si-15	HOMOGENEOUS	6.06	10.22	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.77	1.88	0.00	0.00
A88Si-15	HOMOGENEOUS	6.06	10.22	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.77	1.88	0.00	0.00
A88Si-15	HOMOGENEOUS	6.06	10.22	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.77	1.88	0.00	0.00
A88Si-15	HOMOGENEOUS	6.06	10.22	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.77	1.88	0.00	0.00
A88Si-15	HOMOGENEOUS	6.06	10.22	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.77	1.88	0.00	0.00
A88Si-15	HOMOGENEOUS	6.06	10.22	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.77	1.88	0.00	0.00
A88Si-15	HOMOGENEOUS	6.06	10.22	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.77	1.88	0.00	0.00
A88Si-15	HOMOGENEOUS	6.06	10.22	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.77	1.88	0.00	0.00
A88Si-15	HOMOGENEOUS	6.06	10.22	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.77	1.88	0.00	0.00
A88Si-15	HOMOGENEOUS	6.06	10.22	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.77	1.88	0.00	0.00
A88Si-15	HOMOGENEOUS	6.06	10.22	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.77	1.88	0.00	0.00
A88Si-15	HOMOGENEOUS	6.06	10.22	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.77	1.88	0.00	0.00
B1-AZ101	HOMOGENEOUS	6.18	10.03	0.00	6.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.28	0.18	0.00	0.00
B1-AZ101	HOMOGENEOUS	6.18	10.03	0.00	6.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.28	0.18	0.00	0.00
B1-AZ101	HOMOGENEOUS	6.18	10.03	0.00	6.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.28	0.18	0.00	0.00
B1-AZ101	HOMOGENEOUS	6.18	10.03	0.00	6.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.28	0.18	0.00	0.00
B1-AZ101	HOMOGENEOUS	6.18	10.03	0.00	6.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.28	0.18	0.00	0.00
B1-AZ101	HOMOGENEOUS	6.18	10.03	0.00	6.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.28	0.18	0.00	0.00
B1-AZ101	HOMOGENEOUS	6.18	10.03	0.00	6.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.28	0.18	0.00	0.00
B1-AZ101	HOMOGENEOUS	6.18	10.03	0.00	6.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.28	0.18	0.00	0.00
B1-AZ101	HOMOGENEOUS	6.18	10.03	0.00	6.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.28	0.18	0.00	0.00
C100-G-136B	HOMOGENEOUS	6.13	10.09	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.48	0.15	0.00	0.00
C100-G-136B	HOMOGENEOUS	6.13	10.09	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.48	0.15	0.00	0.00
C100-G-136B	HOMOGENEOUS	6.13	10.09	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.48	0.15	0.00	0.00
C100-G-136B	HOMOGENEOUS	6.13	10.09	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.48	0.15	0.00	0.00
C100-G-136B	HOMOGENEOUS	6.13	10.09	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.48	0.15	0.00	0.00
C100-G-136B	HOMOGENEOUS	6.13	10.09	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.48	0.15	0.00	0.00
C100-G-136B	HOMOGENEOUS	6.13	10.09	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.48	0.15	0.00	0.00
C100-G-136B	HOMOGENEOUS	6.13	10.09	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.48	0.15	0.00	0.00
C100-G-136B	HOMOGENEOUS	6.13	10.09	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.48	0.15	0.00	0.00
C100-G-136B	HOMOGENEOUS	6.13	10.09	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.48	0.15	0.00	0.00
C100-G-136B	HOMOGENEOUS	6.13	10.09	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.48	0.15	0.00	0.00
C100-G-136B	HOMOGENEOUS	6.13	10.09	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.48	0.15	0.00	0.00
C100-G-136B	HOMOGENEOUS	6.13	10.09	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.48	0.15	0.00	0.00
C100GCC	HOMOGENEOUS	6.13	10.09	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.48	0.15	0.00	0.00
C100GCC	HOMOGENEOUS	6.13	10.09	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.48	0.15	0.00	0.00
C100GCC	HOMOGENEOUS	6.13	10.09	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.48	0.15	0.00	0.00
C100GCC	HOMOGENEOUS	6.13	10.09	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.48	0.15	0.00	0.00
C100GCC	HOMOGENEOUS	6.13	10.09	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.48	0.15	0.00	0.00
C100GCC	HOMOGENEOUS	6.13	10.09	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.48	0.15	0.00	0.00
C100GCC	HOMOGENEOUS	6.13	10.09	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.48	0.15	0.00	0.00
C100GCC	HOMOGENEOUS	6.13	10.09	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.48	0.15	0.00	0.00
C100GCC	HOMOGENEOUS	6.13	10.09	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.48	0.15	0.00	0.00
C100GCC	HOMOGENEOUS	6.13	10.09	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.48	0.15	0.00	0.00
C100GCC	HOMOGENEOUS	6.13	10.09	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.48	0.15	0.00	0.00
C100GCC	HOMOGENEOUS	6.13	10.09	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.48	0.15	0.00	0.00
C100GCC	HOMOGENEOUS	6.13	10.09	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.48	0.15	0.00	0.00
C100GCC	HOMOGENEOUS	6.13	10.09	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.48	0.15	0.00	0.00
C1-AN107	HOMOGENEOUS	6.07	10.03	0.00	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.42	0.07	0.00	0.00
C1-AN107	HOMOGENEOUS	6.07	10.03	0.00	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.42	0.07	0.00	0.00
C1-AN107	HOMOGENEOUS	6.07	10.03	0.00	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.42	0.07	0.00	0.00
C1-AN107	HOMOGENEOUS	6.07	10.03	0.00	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.42	0.07	0.00	0.00
C1-AN107	HOMOGENEOUS	6.07	10.03	0.00	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.42	0.07	0.00	0.00
C1-AN107	HOMOGENEOUS	6.07	10.03	0.00	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.42	0.07	0.00	0.00
C1-AN107	HOMOGENEOUS	6.07	10.03	0.00	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.42	0.07	0.00	0.00
C1-AN107	HOMOGENEOUS	6.07	10.03	0.00	5.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.42	0.07	0.00	0.00
C22AN107	HOMOGENEOUS	6.11	10.08	0.00	5.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.59	0.09	0.00	0.00
C22AN107	HOMOGENEOUS	6.11	10.08	0.00	5.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.59	0.09	0.00	0.00
C22AN107	HOMOGENEOUS	6.11	10.08	0.00	5.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.59	0.09	0.00	0.00
C22AN107	HOMOGENEOUS	6.11	10.08	0.00	5.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.59	0.09	0.00	0.00
C22AN107	HOMOGENEOUS	6.11	10.08	0.00	5.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.59	0.09	0.00	0.00
C22AN107	HOMOGENEOUS	6.11	10.08	0.00	5.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.59	0.09	0.00	0.00
C22AN107	HOMOGENEOUS	6.11	10.08	0.00	5.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.59	0.09	0.00	0.00
C22AN107	HOMOGENEOUS	6.11	10.08	0.00	5.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.59	0.09	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
A88Si+15	0.00	1.43	0.00	0.00	22.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.55	0.00	0.00	0.00
A88Si+15	0.00	1.43	0.00	0.00	22.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.55	0.00	0.00	0.00
A88Si-15	0.00	1.54	0.00	0.00	17.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.87	0.00	0.00	0.00
A88Si-15	0.00	1.54	0.00	0.00	17.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.87	0.00	0.00	0.00
A88Si-15	0.00	1.54	0.00	0.00	17.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.87	0.00	0.00	0.00
A88Si-15	0.00	1.54	0.00	0.00	17.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.87	0.00	0.00	0.00
A88Si-15	0.00	1.54	0.00	0.00	17.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.87	0.00	0.00	0.00
A88Si-15	0.00	1.54	0.00	0.00	17.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.87	0.00	0.00	0.00
A88Si-15	0.00	1.54	0.00	0.00	17.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.87	0.00	0.00	0.00
A88Si-15	0.00	1.54	0.00	0.00	17.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.87	0.00	0.00	0.00
A88Si-15	0.00	1.54	0.00	0.00	17.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.87	0.00	0.00	0.00
A88Si-15	0.00	1.54	0.00	0.00	17.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.87	0.00	0.00	0.00
A88Si-15	0.00	1.54	0.00	0.00	17.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.87	0.00	0.00	0.00
A88Si-15	0.00	1.54	0.00	0.00	17.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.87	0.00	0.00	0.00
B1-AZ101	4.31	2.99	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.58	0.00	0.00	0.00
B1-AZ101	4.31	2.99	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.58	0.00	0.00	0.00
B1-AZ101	4.31	2.99	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.58	0.00	0.00	0.00
B1-AZ101	4.31	2.99	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.58	0.00	0.00	0.00
B1-AZ101	4.31	2.99	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.58	0.00	0.00	0.00
B1-AZ101	4.31	2.99	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.58	0.00	0.00	0.00
B1-AZ101	4.31	2.99	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.58	0.00	0.00	0.00
B1-AZ101	4.31	2.99	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.58	0.00	0.00	0.00
B1-AZ101	4.31	2.99	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.58	0.00	0.00	0.00
C100-G-136B	2.73	1.51	0.00	0.00	11.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
C100-G-136B	2.73	1.51	0.00	0.00	11.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
C100-G-136B	2.73	1.51	0.00	0.00	11.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
C100-G-136B	2.73	1.51	0.00	0.00	11.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
C100-G-136B	2.73	1.51	0.00	0.00	11.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
C100-G-136B	2.73	1.51	0.00	0.00	11.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
C100-G-136B	2.73	1.51	0.00	0.00	11.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
C100-G-136B	2.73	1.51	0.00	0.00	11.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
C100-G-136B	2.73	1.51	0.00	0.00	11.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
C100-G-136B	2.73	1.51	0.00	0.00	11.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
C100-G-136B	2.73	1.51	0.00	0.00	11.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
C100-G-136B	2.73	1.51	0.00	0.00	11.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
C100-G-136B	2.73	1.51	0.00	0.00	11.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
C100GCC	2.73	1.51	0.00	0.00	11.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
C100GCC	2.73	1.51	0.00	0.00	11.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
C100GCC	2.73	1.51	0.00	0.00	11.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
C100GCC	2.73	1.51	0.00	0.00	11.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
C100GCC	2.73	1.51	0.00	0.00	11.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
C100GCC	2.73	1.51	0.00	0.00	11.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
C100GCC	2.73	1.51	0.00	0.00	11.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
C100GCC	2.73	1.51	0.00	0.00	11.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
C100GCC	2.73	1.51	0.00	0.00	11.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
C100GCC	2.73	1.51	0.00	0.00	11.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
C100GCC	2.73	1.51	0.00	0.00	11.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
C100GCC	2.73	1.51	0.00	0.00	11.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
C100GCC	2.73	1.51	0.00	0.00	11.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
C100GCC	2.73	1.51	0.00	0.00	11.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
C1-AN107	2.51	1.51	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
C1-AN107	2.51	1.51	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
C1-AN107	2.51	1.51	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
C1-AN107	2.51	1.51	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
C1-AN107	2.51	1.51	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
C1-AN107	2.51	1.51	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
C1-AN107	2.51	1.51	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
C1-AN107	2.51	1.51	0.00	0.00	14.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
C22AN107	2.51	1.51	0.00	0.00	14.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.61	0.00	0.00	0.00
C22AN107	2.51	1.51	0.00	0.00	14.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.61	0.00	0.00	0.00
C22AN107	2.51	1.51	0.00	0.00	14.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.61	0.00	0.00	0.00
C22AN107	2.51	1.51	0.00	0.00	14.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.61	0.00	0.00	0.00
C22AN107	2.51	1.51	0.00	0.00	14.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.61	0.00	0.00	0.00
C22AN107	2.51	1.51	0.00	0.00	14.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.61	0.00	0.00	0.00
C22AN107	2.51	1.51	0.00	0.00	14.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.61	0.00	0.00	0.00
C22AN107	2.51	1.51	0.00	0.00	14.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.61	0.00	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
A88Si+15	0.00	0.00	1.93	0.00	0.00	2.85	2.89	0.89	100.00		
A88Si+15	0.00	0.00	1.93	0.00	0.00	2.85	2.89	0.89	100.00		
A88Si-15	0.00	0.00	2.07	0.00	0.00	3.07	3.11	0.67	100.00		
A88Si-15	0.00	0.00	2.07	0.00	0.00	3.07	3.11	0.67	100.00		
A88Si-15	0.00	0.00	2.07	0.00	0.00	3.07	3.11	0.67	100.00		
A88Si-15	0.00	0.00	2.07	0.00	0.00	3.07	3.11	0.67	100.00		
A88Si-15	0.00	0.00	2.07	0.00	0.00	3.07	3.11	0.67	100.00		
A88Si-15	0.00	0.00	2.07	0.00	0.00	3.07	3.11	0.67	100.00		
A88Si-15	0.00	0.00	2.07	0.00	0.00	3.07	3.11	0.67	100.00		
A88Si-15	0.00	0.00	2.07	0.00	0.00	3.07	3.11	0.67	100.00		
A88Si-15	0.00	0.00	2.07	0.00	0.00	3.07	3.11	0.67	100.00		
A88Si-15	0.00	0.00	2.07	0.00	0.00	3.07	3.11	0.67	100.00		
A88Si-15	0.00	0.00	2.07	0.00	0.00	3.07	3.11	0.67	100.00		
A88Si-15	0.00	0.00	2.07	0.00	0.00	3.07	3.11	0.67	100.00		
B1-AZ101	0.00	0.00	1.39	0.00	0.00	4.85	3.17	0.81	100.00		
B1-AZ101	0.00	0.00	1.39	0.00	0.00	4.85	3.17	0.81	100.00		
B1-AZ101	0.00	0.00	1.39	0.00	0.00	4.85	3.17	0.81	100.00		
B1-AZ101	0.00	0.00	1.39	0.00	0.00	4.85	3.17	0.81	100.00		
B1-AZ101	0.00	0.00	1.39	0.00	0.00	4.85	3.17	0.81	100.00		
B1-AZ101	0.00	0.00	1.39	0.00	0.00	4.85	3.17	0.81	100.00		
B1-AZ101	0.00	0.00	1.39	0.00	0.00	4.85	3.17	0.81	100.00		
B1-AZ101	0.00	0.00	1.39	0.00	0.00	4.85	3.17	0.81	100.00		
B1-AZ101	0.00	0.00	1.39	0.00	0.00	4.85	3.17	0.81	100.00		
C100-G-136B	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.74	100.00		
C100-G-136B	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.74	100.00		
C100-G-136B	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.74	100.00		
C100-G-136B	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.74	100.00		
C100-G-136B	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.74	100.00		
C100-G-136B	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.74	100.00		
C100-G-136B	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.74	100.00		
C100-G-136B	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.74	100.00		
C100-G-136B	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.74	100.00		
C100-G-136B	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.74	100.00		
C100-G-136B	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.74	100.00		
C100-G-136B	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.74	100.00		
C100-G-136B	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.74	100.00		
C100GCC	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.74	100.00		
C100GCC	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.74	100.00		
C100GCC	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.74	100.00		
C100GCC	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.74	100.00		
C100GCC	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.74	100.00		
C100GCC	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.74	100.00		
C100GCC	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.74	100.00		
C100GCC	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.74	100.00		
C100GCC	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.74	100.00		
C100GCC	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.74	100.00		
C100GCC	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.74	100.00		
C100GCC	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.74	100.00		
C100GCC	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.74	100.00		
C100GCC	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.74	100.00		
C1-AN107	0.00	0.00	1.15	0.00	0.00	3.06	3.02	0.97	100.00		
C1-AN107	0.00	0.00	1.15	0.00	0.00	3.06	3.02	0.97	100.00		
C1-AN107	0.00	0.00	1.15	0.00	0.00	3.06	3.02	0.97	100.00		
C1-AN107	0.00	0.00	1.15	0.00	0.00	3.06	3.02	0.97	100.00		
C1-AN107	0.00	0.00	1.15	0.00	0.00	3.06	3.02	0.97	100.00		
C1-AN107	0.00	0.00	1.15	0.00	0.00	3.06	3.02	0.97	100.00		
C1-AN107	0.00	0.00	1.15	0.00	0.00	3.06	3.02	0.97	100.00		
C1-AN107	0.00	0.00	1.15	0.00	0.00	3.06	3.02	0.97	100.00		
C22AN107	0.00	0.00	1.14	0.00	0.00	3.06	3.02	0.73	100.00		
C22AN107	0.00	0.00	1.14	0.00	0.00	3.06	3.02	0.73	100.00		
C22AN107	0.00	0.00	1.14	0.00	0.00	3.06	3.02	0.73	100.00		
C22AN107	0.00	0.00	1.14	0.00	0.00	3.06	3.02	0.73	100.00		
C22AN107	0.00	0.00	1.14	0.00	0.00	3.06	3.02	0.73	100.00		
C22AN107	0.00	0.00	1.14	0.00	0.00	3.06	3.02	0.73	100.00		
C22AN107	0.00	0.00	1.14	0.00	0.00	3.06	3.02	0.73	100.00		
C22AN107	0.00	0.00	1.14	0.00	0.00	3.06	3.02	0.73	100.00		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
C22AN107	LAW	VSL-11R2270-1	SS	729.00	0.81	2.031	1,480.328	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.65
C22AN107	LAW	VSL-11R2270-1	SS	1093.00	0.81	2.031	2,219.477	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.75
C22AN107	LAW	VSL-11R2270-1	SS	1819.00	0.81	2.031	3,693.714	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.94
C22Si+15	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.85
C22Si+15	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.94
C22Si+15	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.27
C22Si+15	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.32
C22Si+15	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.47
C22Si+15	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.75
C22Si+15	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.85
C22Si+15	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.94
C22Si+15	LAW	VSL-11R2270-1	SS	729.00	0.81	2.031	1,480.328	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.06
C22Si+15	LAW	VSL-11R2270-1	SS	1093.00	0.81	2.031	2,219.477	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.17
C22Si+15	LAW	VSL-11R2270-1	SS	1819.00	0.81	2.031	3,693.714	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.34
C22Si-15	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.54
C22Si-15	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.86
C22Si-15	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.12
C22Si-15	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.22
C22Si-15	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.37
C22Si-15	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.53
C22Si-15	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.64
C22Si-15	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.74
C22Si-15	LAW	VSL-11R2270-1	SS	729.00	0.81	2.031	1,480.328	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.87
C22Si-15	LAW	VSL-11R2270-1	SS	1093.00	0.81	2.031	2,219.477	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.96
C22Si-15	LAW	VSL-11R2270-1	SS	1819.00	0.81	2.031	3,693.714	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.15
C22Si-15	LAW	VSL-11R2270-1	SS	2253.00	0.81	2.031	4,575.006	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.25
LAWA102R1	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.92
LAWA102R1	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.04
LAWA102R1	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.17
LAWA102R1	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.35
LAWA102R1	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.65
LAWA102R1	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.85
LAWA102R1	LAW	VSL-11R2270-1	SS	364.00	0.81	2.031	739.149	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.94
LAWA102R1	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.15
LAWA102R1	LAW	VSL-11R2270-1	SS	733.00	0.81	2.031	1,488.451	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.24
LAWA102R1	LAW	VSL-11R2270-1	SS	1093.00	0.81	2.031	2,219.477	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.35
LAWA102R1	LAW	VSL-11R2270-1	SS	2210.00	0.81	2.031	4,487.689	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.57
LAWA104	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.23
LAWA104	LAW	VSL-11R2270-1	SS	33.00	0.81	2.031	67.011	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.33
LAWA104	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.45
LAWA104	LAW	VSL-11R2270-1	SS	119.00	0.81	2.031	241.645	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.54
LAWA104	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.65
LAWA104	LAW	VSL-11R2270-1	SS	270.00	0.81	2.031	548.270	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.86
LAWA104	LAW	VSL-11R2270-1	SS	364.00	0.81	2.031	739.149	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.06
LAWA104	LAW	VSL-11R2270-1	SS	546.00	0.81	2.031	1,108.723	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.12
LAWA104	LAW	VSL-11R2270-1	SS	732.00	0.81	2.031	1,486.420	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.23
LAWA104	LAW	VSL-11R2270-1	SS	1098.00	0.81	2.031	2,229.630	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.36
LAWA104	LAW	VSL-11R2270-1	SS	1461.00	0.81	2.031	2,966.748	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.45
LAWA104	LAW	VSL-11R2270-1	SS	1828.00	0.81	2.031	3,711.989	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.52
LAWA104	LAW	VSL-11R2270-1	SS	2195.00	0.81	2.031	4,457.230	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.64
LAWA105	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.35
LAWA105	LAW	VSL-11R2270-1	SS	33.00	0.81	2.031	67.011	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.54
LAWA105	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.73
LAWA105	LAW	VSL-11R2270-1	SS	119.00	0.81	2.031	241.645	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.84
LAWA105	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.97
LAWA105	LAW	VSL-11R2270-1	SS	270.00	0.81	2.031	548.270	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.15
LAWA105	LAW	VSL-11R2270-1	SS	364.00	0.81	2.031	739.149	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.26
LAWA105	LAW	VSL-11R2270-1	SS	546.00	0.81	2.031	1,108.723	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.35
LAWA105	LAW	VSL-11R2270-1	SS	732.00	0.81	2.031	1,486.420	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.44
LAWA105	LAW	VSL-11R2270-1	SS	1098.00	0.81	2.031	2,229.630	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.55
LAWA105	LAW	VSL-11R2270-1	SS	1461.00	0.81	2.031	2,966.748	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.65
LAWA105	LAW	VSL-11R2270-1	SS	1828.00	0.81	2.031	3,711.989	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.72
LAWA105	LAW	VSL-11R2270-1	SS	2195.00	0.81	2.031	4,457.230	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.84
LAWA112B14	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.14
LAWA112B14	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.33
LAWA112B14	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.64
LAWA112B14	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.74

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
C22AN107	771.97	2319.13	4.65		519.08	4363.60	25.09	8.41			0.27			
C22AN107	691.94	2729.97	5.21		414.93	5896.90	37.89							
C22AN107	659.54	2635.10	4.75		351.84	5154.93	34.30							
C22Si+15	103.53	40.80	0.24		12.91	154.60		4.35			0.25			
C22Si+15	151.90	70.51	0.20		20.63	266.93		4.21					0.57	
C22Si+15	176.57	82.36	0.30		23.79	304.80		4.10						
C22Si+15	204.70	102.00	0.63		28.08	345.27		3.12						
C22Si+15	208.60	103.43	0.84		26.69	343.87		4.34						
C22Si+15	233.33	108.37	0.79		26.48	366.90	1.98	3.34						
C22Si+15	349.27	189.62	1.01		47.56	569.61	2.22	4.58						
C22Si+15	997.94	2540.30	3.55		411.51	5664.17	39.23	8.72						0.67
C22Si+15	1066.43	3104.67	3.32		460.67	6047.07	47.53	9.48	1.13		0.33			0.47
C22Si+15	832.26	2711.80	2.15		405.72	6659.57	45.10	1.22						
C22Si+15	817.37	2706.90	2.48		370.47	5903.00	41.10	0.92						
C22Si-15	75.62	28.27	0.30		10.20	83.41		3.24						
C22Si-15	104.60	44.93			15.75	127.47		3.24						
C22Si-15	116.30	52.64	0.19		18.68	147.27		3.22						
C22Si-15	131.80	64.92	0.46		20.92	165.93		3.13						
C22Si-15	161.23	84.86	0.93		26.49	200.90		2.99						
C22Si-15	163.90	90.29	0.94		27.33	209.10		2.09						
C22Si-15	179.76	93.86	0.80		31.78	269.09		3.16						
C22Si-15	194.01	102.45	0.79		34.66	278.84		3.61						
C22Si-15	200.12	92.21	0.82		33.32	287.34	1.93	3.77						
C22Si-15	214.97	131.94	0.97		38.87	347.66		1.37						
C22Si-15	514.68	2032.43	5.69		332.63	3308.77	17.25							
C22Si-15	461.54	2809.67	12.94		396.50	4858.97	29.14	1.92						0.63
LAWA102R1	78.43	26.74	0.46		8.04	78.61		3.29						
LAWA102R1	102.73	41.94	0.30		12.97	126.33		4.26						
LAWA102R1	113.83	46.87	0.28		14.95	147.50		3.86						
LAWA102R1	121.63	53.76	0.56		16.68	161.07		3.18						
LAWA102R1	126.07	55.00	0.57		17.39	178.73	1.81	3.48						
LAWA102R1	129.30	58.29	0.65		19.16	182.43	1.76	3.26						
LAWA102R1	174.24	72.74	0.90		22.70	240.48	2.55	4.30	1.37		0.37		1.09	
LAWA102R1	183.43	88.01	0.61		28.46	262.55	3.38	4.06						
LAWA102R1	191.19	90.84	0.71		27.00	263.94	3.46	2.50						
LAWA102R1	188.36	86.05	0.50		26.90	287.51	2.78	3.31						
LAWA102R1	531.25	2343.63	7.36		347.69	4329.80	62.18							
LAWA104	84.59	30.99				171.50	2.27	9.87	1.42		0.54		2.43	0.48
LAWA104	133.13	68.25	0.49			321.60	4.12	14.12	2.75		0.93	0.59	3.23	0.79
LAWA104	142.90	78.13	0.58			425.83	4.99	15.96	3.13		1.06	0.56	4.75	0.74
LAWA104	159.67	99.93	0.16			512.27	7.13	16.97	2.59		0.96		1.55	
LAWA104	164.00	106.53	0.27			622.63	6.24	16.80	2.06		0.62		1.43	
LAWA104	187.70	142.23	0.45			650.57	7.29	19.56	1.71		0.35	0.69	0.77	
LAWA104	183.80	127.57				706.10	6.90	15.85						
LAWA104	416.92	382.22	0.25			1617.77	22.47	8.97						
LAWA104	1075.77	1431.00	0.58			4752.27	99.45	2.29					0.65	
LAWA104	1669.77	2719.87	0.74			8828.90	206.64	1.73	1.55				1.89	0.55
LAWA104	1723.00	2619.43	1.29			8587.77	205.86	1.13					1.57	
LAWA104	1594.40	2374.37	0.87			8841.73	203.31	0.83					1.15	
LAWA104	1903.47	2500.43	0.45			8153.80	200.78	1.24	1.44				1.22	
LAWA105	108.43	49.27				282.33	3.81	14.24	2.71		1.02		3.99	0.48
LAWA105	172.73	96.94	0.50		1.33	507.80	6.52	17.85	3.79		1.41	0.56	4.94	0.79
LAWA105	182.50	109.43	0.53			634.57	8.58	20.95	3.58		1.29	0.49	4.82	0.74
LAWA105	201.13	134.23				785.63	11.40	21.83			0.28			
LAWA105	200.67	138.00				896.07	9.62	20.61						
LAWA105	229.57	174.80	0.35			981.73	12.83	20.60						
LAWA105	733.57	699.27	0.38			3057.17	55.29	3.64					0.73	
LAWA105	1999.73	2963.20	0.93			11466.33	279.29	4.89	1.99				3.38	
LAWA105	2132.53	3100.13	0.78			11205.00	354.59	3.36	1.99				3.10	
LAWA105	2131.63	2911.33	0.79			10769.33	298.26	3.03	2.47				2.61	0.55
LAWA105	2075.83	2422.83	0.85			9647.50	254.89	2.01	1.45				1.66	
LAWA105	1959.70	2255.57	0.61			9967.73	222.49	1.31	1.37				1.70	
LAWA105	2105.40	2249.90	0.15			8579.27	246.90	2.00	1.69				1.76	
LAWA112B14	75.49	23.83	1.42			160.13	10.82	4.30						
LAWA112B14	104.63	37.16	0.87			251.77	15.60	6.19						
LAWA112B14	132.03	46.67	1.02			334.07	19.75	7.60						
LAWA112B14	177.73	62.29	1.26			507.80	27.56	9.79						

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
C22AN107		Not Studied		73.73	16.806	-2.2162678	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22AN107		Not Studied		73.73	16.806	-2.2162678	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22AN107		Not Studied		73.73	16.806	-2.2162678	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22Si+15		Not Studied		74.17	16.395	-0.6053725	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22Si+15		Not Studied		74.17	16.395	-0.6053725	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22Si+15		Not Studied		74.17	16.395	-0.6053725	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22Si+15		Not Studied		74.17	16.395	-0.6053725	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22Si+15		Not Studied		74.17	16.395	-0.6053725	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22Si+15		Not Studied		74.17	16.395	-0.6053725	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22Si+15		Not Studied		74.17	16.395	-0.6053725	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22Si+15		Not Studied		74.17	16.395	-0.6053725	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22Si+15		Not Studied		74.17	16.395	-0.6053725	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22Si+15		Not Studied		74.17	16.395	-0.6053725	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22Si+15		Not Studied		74.17	16.395	-0.6053725	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22Si-15		Not Studied		73.43	16.933	-2.4605059	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22Si-15		Not Studied		73.43	16.933	-2.4605059	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22Si-15		Not Studied		73.43	16.933	-2.4605059	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22Si-15		Not Studied		73.43	16.933	-2.4605059	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22Si-15		Not Studied		73.43	16.933	-2.4605059	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22Si-15		Not Studied		73.43	16.933	-2.4605059	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22Si-15		Not Studied		73.43	16.933	-2.4605059	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22Si-15		Not Studied		73.43	16.933	-2.4605059	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22Si-15		Not Studied		73.43	16.933	-2.4605059	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22Si-15		Not Studied		73.43	16.933	-2.4605059	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22Si-15		Not Studied		73.43	16.933	-2.4605059	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
C22Si-15		Not Studied		73.43	16.933	-2.4605059	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA102R1		Not Studied		73.57	16.467	-0.0547246	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA102R1		Not Studied		73.57	16.467	-0.0547246	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA102R1		Not Studied		73.57	16.467	-0.0547246	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA102R1		Not Studied		73.57	16.467	-0.0547246	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA102R1		Not Studied		73.57	16.467	-0.0547246	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA102R1		Not Studied		73.57	16.467	-0.0547246	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA102R1		Not Studied		73.57	16.467	-0.0547246	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA102R1		Not Studied		73.57	16.467	-0.0547246	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA102R1		Not Studied		73.57	16.467	-0.0547246	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA102R1		Not Studied		73.57	16.467	-0.0547246	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA102R1		Not Studied		73.57	16.467	-0.0547246	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA104		Not Studied		74.13	15.273	5.7907886	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA104		Not Studied		74.13	15.273	5.7907886	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA104		Not Studied		74.13	15.273	5.7907886	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA104		Not Studied		74.13	15.273	5.7907886	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA104		Not Studied		74.13	15.273	5.7907886	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA104		Not Studied		74.13	15.273	5.7907886	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA104		Not Studied		74.13	15.273	5.7907886	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA104		Not Studied		74.13	15.273	5.7907886	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA104		Not Studied		74.13	15.273	5.7907886	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA104		Not Studied		74.13	15.273	5.7907886	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA104		Not Studied		74.13	15.273	5.7907886	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA104		Not Studied		74.13	15.273	5.7907886	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA104		Not Studied		74.13	15.273	5.7907886	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA105		Not Studied		74.32	15.371	4.9374497	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA105		Not Studied		74.32	15.371	4.9374497	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA105		Not Studied		74.32	15.371	4.9374497	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA105		Not Studied		74.32	15.371	4.9374497	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA105		Not Studied		74.32	15.371	4.9374497	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA105		Not Studied		74.32	15.371	4.9374497	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA105		Not Studied		74.32	15.371	4.9374497	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA105		Not Studied		74.32	15.371	4.9374497	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA105		Not Studied		74.32	15.371	4.9374497	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA105		Not Studied		74.32	15.371	4.9374497	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA105		Not Studied		74.32	15.371	4.9374497	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA105		Not Studied		74.32	15.371	4.9374497	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA105		Not Studied		74.32	15.371	4.9374497	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA112B14		Not Studied		75.95	13.738	11.5433951	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA112B14		Not Studied		75.95	13.738	11.5433951	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA112B14		Not Studied		75.95	13.738	11.5433951	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA112B14		Not Studied		75.95	13.738	11.5433951	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
C22AN107	HOMOGENEOUS	6.11	10.08	0.00	5.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.59	0.09	0.00	0.00
C22AN107	HOMOGENEOUS	6.11	10.08	0.00	5.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.59	0.09	0.00	0.00
C22AN107	HOMOGENEOUS	6.11	10.08	0.00	5.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.59	0.09	0.00	0.00
C22Si+15	HOMOGENEOUS	6.04	9.84	0.00	4.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.36	0.10	0.00	0.00
C22Si+15	HOMOGENEOUS	6.04	9.84	0.00	4.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.36	0.10	0.00	0.00
C22Si+15	HOMOGENEOUS	6.04	9.84	0.00	4.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.36	0.10	0.00	0.00
C22Si+15	HOMOGENEOUS	6.04	9.84	0.00	4.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.36	0.10	0.00	0.00
C22Si+15	HOMOGENEOUS	6.04	9.84	0.00	4.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.36	0.10	0.00	0.00
C22Si+15	HOMOGENEOUS	6.04	9.84	0.00	4.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.36	0.10	0.00	0.00
C22Si+15	HOMOGENEOUS	6.04	9.84	0.00	4.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.36	0.10	0.00	0.00
C22Si+15	HOMOGENEOUS	6.04	9.84	0.00	4.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.36	0.10	0.00	0.00
C22Si+15	HOMOGENEOUS	6.04	9.84	0.00	4.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.36	0.10	0.00	0.00
C22Si+15	HOMOGENEOUS	6.04	9.84	0.00	4.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.36	0.10	0.00	0.00
C22Si+15	HOMOGENEOUS	6.04	9.84	0.00	4.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.36	0.10	0.00	0.00
C22Si-15	HOMOGENEOUS	6.16	10.29	0.00	5.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.56	0.08	0.00	0.00
C22Si-15	HOMOGENEOUS	6.16	10.29	0.00	5.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.56	0.08	0.00	0.00
C22Si-15	HOMOGENEOUS	6.16	10.29	0.00	5.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.56	0.08	0.00	0.00
C22Si-15	HOMOGENEOUS	6.16	10.29	0.00	5.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.56	0.08	0.00	0.00
C22Si-15	HOMOGENEOUS	6.16	10.29	0.00	5.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.56	0.08	0.00	0.00
C22Si-15	HOMOGENEOUS	6.16	10.29	0.00	5.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.56	0.08	0.00	0.00
C22Si-15	HOMOGENEOUS	6.16	10.29	0.00	5.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.56	0.08	0.00	0.00
C22Si-15	HOMOGENEOUS	6.16	10.29	0.00	5.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.56	0.08	0.00	0.00
C22Si-15	HOMOGENEOUS	6.16	10.29	0.00	5.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.56	0.08	0.00	0.00
C22Si-15	HOMOGENEOUS	6.16	10.29	0.00	5.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.56	0.08	0.00	0.00
C22Si-15	HOMOGENEOUS	6.16	10.29	0.00	5.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.56	0.08	0.00	0.00
C22Si-15	HOMOGENEOUS	6.16	10.29	0.00	5.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.56	0.08	0.00	0.00
LAWA102R1	HOMOGENEOUS	6.04	9.97	0.00	5.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.38	0.26	0.00	0.00
LAWA102R1	HOMOGENEOUS	6.04	9.97	0.00	5.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.38	0.26	0.00	0.00
LAWA102R1	HOMOGENEOUS	6.04	9.97	0.00	5.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.38	0.26	0.00	0.00
LAWA102R1	HOMOGENEOUS	6.04	9.97	0.00	5.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.38	0.26	0.00	0.00
LAWA102R1	HOMOGENEOUS	6.04	9.97	0.00	5.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.38	0.26	0.00	0.00
LAWA102R1	HOMOGENEOUS	6.04	9.97	0.00	5.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.38	0.26	0.00	0.00
LAWA102R1	HOMOGENEOUS	6.04	9.97	0.00	5.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.38	0.26	0.00	0.00
LAWA102R1	HOMOGENEOUS	6.04	9.97	0.00	5.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.38	0.26	0.00	0.00
LAWA102R1	HOMOGENEOUS	6.04	9.97	0.00	5.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.38	0.26	0.00	0.00
LAWA102R1	HOMOGENEOUS	6.04	9.97	0.00	5.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.38	0.26	0.00	0.00
LAWA102R1	HOMOGENEOUS	6.04	9.97	0.00	5.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.38	0.26	0.00	0.00
LAWA104	HOMOGENEOUS	6.61	8.59	0.00	1.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.74	0.55	0.00	0.00
LAWA104	HOMOGENEOUS	6.61	8.59	0.00	1.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.74	0.55	0.00	0.00
LAWA104	HOMOGENEOUS	6.61	8.59	0.00	1.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.74	0.55	0.00	0.00
LAWA104	HOMOGENEOUS	6.61	8.59	0.00	1.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.74	0.55	0.00	0.00
LAWA104	HOMOGENEOUS	6.61	8.59	0.00	1.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.74	0.55	0.00	0.00
LAWA104	HOMOGENEOUS	6.61	8.59	0.00	1.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.74	0.55	0.00	0.00
LAWA104	HOMOGENEOUS	6.61	8.59	0.00	1.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.74	0.55	0.00	0.00
LAWA104	HOMOGENEOUS	6.61	8.59	0.00	1.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.74	0.55	0.00	0.00
LAWA104	HOMOGENEOUS	6.61	8.59	0.00	1.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.74	0.55	0.00	0.00
LAWA104	HOMOGENEOUS	6.61	8.59	0.00	1.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.74	0.55	0.00	0.00
LAWA104	HOMOGENEOUS	6.61	8.59	0.00	1.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.74	0.55	0.00	0.00
LAWA104	HOMOGENEOUS	6.61	8.59	0.00	1.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.74	0.55	0.00	0.00
LAWA104	HOMOGENEOUS	6.61	8.59	0.00	1.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.74	0.55	0.00	0.00
LAWA105	HOMOGENEOUS	7.03	8.28	0.00	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.49	0.60	0.00	0.00
LAWA105	HOMOGENEOUS	7.03	8.28	0.00	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.49	0.60	0.00	0.00
LAWA105	HOMOGENEOUS	7.03	8.28	0.00	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.49	0.60	0.00	0.00
LAWA105	HOMOGENEOUS	7.03	8.28	0.00	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.49	0.60	0.00	0.00
LAWA105	HOMOGENEOUS	7.03	8.28	0.00	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.49	0.60	0.00	0.00
LAWA105	HOMOGENEOUS	7.03	8.28	0.00	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.49	0.60	0.00	0.00
LAWA105	HOMOGENEOUS	7.03	8.28	0.00	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.49	0.60	0.00	0.00
LAWA105	HOMOGENEOUS	7.03	8.28	0.00	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.49	0.60	0.00	0.00
LAWA105	HOMOGENEOUS	7.03	8.28	0.00	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.49	0.60	0.00	0.00
LAWA105	HOMOGENEOUS	7.03	8.28	0.00	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.49	0.60	0.00	0.00
LAWA105	HOMOGENEOUS	7.03	8.28	0.00	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.49	0.60	0.00	0.00
LAWA105	HOMOGENEOUS	7.03	8.28	0.00	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.49	0.60	0.00	0.00
LAWA105	HOMOGENEOUS	7.03	8.28	0.00	1.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.49	0.60	0.00	0.00
LAWA112B14	HOMOGENEOUS	6.10	9.86	0.00	7.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.89	0.00	0.00
LAWA112B14	HOMOGENEOUS	6.10	9.86	0.00	7.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.89	0.00	0.00
LAWA112B14	HOMOGENEOUS	6.10	9.86	0.00	7.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.89	0.00	0.00
LAWA112B14	HOMOGENEOUS	6.10	9.86	0.00	7.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.89	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
C22AN107	2.51	1.51	0.00	0.00	14.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.61	0.00	0.00	0.00
C22AN107	2.51	1.51	0.00	0.00	14.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.61	0.00	0.00	0.00
C22AN107	2.51	1.51	0.00	0.00	14.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.61	0.00	0.00	0.00
C22Si+15	2.46	1.48	0.00	0.00	16.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.58	0.00	0.00	0.00
C22Si+15	2.46	1.48	0.00	0.00	16.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.58	0.00	0.00	0.00
C22Si+15	2.46	1.48	0.00	0.00	16.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.58	0.00	0.00	0.00
C22Si+15	2.46	1.48	0.00	0.00	16.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.58	0.00	0.00	0.00
C22Si+15	2.46	1.48	0.00	0.00	16.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.58	0.00	0.00	0.00
C22Si+15	2.46	1.48	0.00	0.00	16.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.58	0.00	0.00	0.00
C22Si+15	2.46	1.48	0.00	0.00	16.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.58	0.00	0.00	0.00
C22Si+15	2.46	1.48	0.00	0.00	16.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.58	0.00	0.00	0.00
C22Si+15	2.46	1.48	0.00	0.00	16.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.58	0.00	0.00	0.00
C22Si+15	2.46	1.48	0.00	0.00	16.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.58	0.00	0.00	0.00
C22Si+15	2.46	1.48	0.00	0.00	16.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.58	0.00	0.00	0.00
C22Si-15	2.57	1.55	0.00	0.00	12.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.68	0.00	0.00	0.00
C22Si-15	2.57	1.55	0.00	0.00	12.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.68	0.00	0.00	0.00
C22Si-15	2.57	1.55	0.00	0.00	12.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.68	0.00	0.00	0.00
C22Si-15	2.57	1.55	0.00	0.00	12.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.68	0.00	0.00	0.00
C22Si-15	2.57	1.55	0.00	0.00	12.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.68	0.00	0.00	0.00
C22Si-15	2.57	1.55	0.00	0.00	12.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.68	0.00	0.00	0.00
C22Si-15	2.57	1.55	0.00	0.00	12.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.68	0.00	0.00	0.00
C22Si-15	2.57	1.55	0.00	0.00	12.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.68	0.00	0.00	0.00
C22Si-15	2.57	1.55	0.00	0.00	12.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.68	0.00	0.00	0.00
C22Si-15	2.57	1.55	0.00	0.00	12.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.68	0.00	0.00	0.00
C22Si-15	2.57	1.55	0.00	0.00	12.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.68	0.00	0.00	0.00
C22Si-15	2.57	1.55	0.00	0.00	12.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.68	0.00	0.00	0.00
LAWA102R1	2.49	1.49	0.00	0.00	14.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.35	0.00	0.00	0.00
LAWA102R1	2.49	1.49	0.00	0.00	14.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.35	0.00	0.00	0.00
LAWA102R1	2.49	1.49	0.00	0.00	14.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.35	0.00	0.00	0.00
LAWA102R1	2.49	1.49	0.00	0.00	14.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.35	0.00	0.00	0.00
LAWA102R1	2.49	1.49	0.00	0.00	14.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.35	0.00	0.00	0.00
LAWA102R1	2.49	1.49	0.00	0.00	14.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.35	0.00	0.00	0.00
LAWA102R1	2.49	1.49	0.00	0.00	14.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.35	0.00	0.00	0.00
LAWA102R1	2.49	1.49	0.00	0.00	14.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.35	0.00	0.00	0.00
LAWA102R1	2.49	1.49	0.00	0.00	14.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.35	0.00	0.00	0.00
LAWA102R1	2.49	1.49	0.00	0.00	14.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.35	0.00	0.00	0.00
LAWA102R1	2.49	1.49	0.00	0.00	14.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.35	0.00	0.00	0.00
LAWA104	0.00	1.92	0.00	0.00	22.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.99	0.00	0.00	0.00
LAWA104	0.00	1.92	0.00	0.00	22.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.99	0.00	0.00	0.00
LAWA104	0.00	1.92	0.00	0.00	22.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.99	0.00	0.00	0.00
LAWA104	0.00	1.92	0.00	0.00	22.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.99	0.00	0.00	0.00
LAWA104	0.00	1.92	0.00	0.00	22.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.99	0.00	0.00	0.00
LAWA104	0.00	1.92	0.00	0.00	22.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.99	0.00	0.00	0.00
LAWA104	0.00	1.92	0.00	0.00	22.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.99	0.00	0.00	0.00
LAWA104	0.00	1.92	0.00	0.00	22.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.99	0.00	0.00	0.00
LAWA104	0.00	1.92	0.00	0.00	22.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.99	0.00	0.00	0.00
LAWA104	0.00	1.92	0.00	0.00	22.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.99	0.00	0.00	0.00
LAWA104	0.00	1.92	0.00	0.00	22.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.99	0.00	0.00	0.00
LAWA104	0.00	1.92	0.00	0.00	22.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.99	0.00	0.00	0.00
LAWA104	0.00	1.92	0.00	0.00	22.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.99	0.00	0.00	0.00
LAWA105	0.00	1.85	0.00	0.00	24.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.43	0.00	0.00	0.00
LAWA105	0.00	1.85	0.00	0.00	24.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.43	0.00	0.00	0.00
LAWA105	0.00	1.85	0.00	0.00	24.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.43	0.00	0.00	0.00
LAWA105	0.00	1.85	0.00	0.00	24.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.43	0.00	0.00	0.00
LAWA105	0.00	1.85	0.00	0.00	24.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.43	0.00	0.00	0.00
LAWA105	0.00	1.85	0.00	0.00	24.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.43	0.00	0.00	0.00
LAWA105	0.00	1.85	0.00	0.00	24.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.43	0.00	0.00	0.00
LAWA105	0.00	1.85	0.00	0.00	24.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.43	0.00	0.00	0.00
LAWA105	0.00	1.85	0.00	0.00	24.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.43	0.00	0.00	0.00
LAWA105	0.00	1.85	0.00	0.00	24.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.43	0.00	0.00	0.00
LAWA105	0.00	1.85	0.00	0.00	24.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.43	0.00	0.00	0.00
LAWA105	0.00	1.85	0.00	0.00	24.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.43	0.00	0.00	0.00
LAWA105	0.00	1.85	0.00	0.00	24.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.43	0.00	0.00	0.00
LAWA112B14	0.00	1.48	0.00	0.00	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.22	0.00	0.00	0.00
LAWA112B14	0.00	1.48	0.00	0.00	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.22	0.00	0.00	0.00
LAWA112B14	0.00	1.48	0.00	0.00	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.22	0.00	0.00	0.00
LAWA112B14	0.00	1.48	0.00	0.00	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.22	0.00	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
C22AN107	0.00	0.00	1.14	0.00	0.00	3.06	3.02	0.73	100.00		
C22AN107	0.00	0.00	1.14	0.00	0.00	3.06	3.02	0.73	100.00		
C22AN107	0.00	0.00	1.14	0.00	0.00	3.06	3.02	0.73	100.00		
C22Si+15	0.00	0.00	1.12	0.00	0.00	3.00	2.96	0.87	100.00		
C22Si+15	0.00	0.00	1.12	0.00	0.00	3.00	2.96	0.87	100.00		
C22Si+15	0.00	0.00	1.12	0.00	0.00	3.00	2.96	0.87	100.00		
C22Si+15	0.00	0.00	1.12	0.00	0.00	3.00	2.96	0.87	100.00		
C22Si+15	0.00	0.00	1.12	0.00	0.00	3.00	2.96	0.87	100.00		
C22Si+15	0.00	0.00	1.12	0.00	0.00	3.00	2.96	0.87	100.00		
C22Si+15	0.00	0.00	1.12	0.00	0.00	3.00	2.96	0.87	100.00		
C22Si+15	0.00	0.00	1.12	0.00	0.00	3.00	2.96	0.87	100.00		
C22Si+15	0.00	0.00	1.12	0.00	0.00	3.00	2.96	0.87	100.00		
C22Si+15	0.00	0.00	1.12	0.00	0.00	3.00	2.96	0.87	100.00		
C22Si+15	0.00	0.00	1.12	0.00	0.00	3.00	2.96	0.87	100.00		
C22Si-15	0.00	0.00	1.18	0.00	0.00	3.14	3.10	0.68	100.00		
C22Si-15	0.00	0.00	1.18	0.00	0.00	3.14	3.10	0.68	100.00		
C22Si-15	0.00	0.00	1.18	0.00	0.00	3.14	3.10	0.68	100.00		
C22Si-15	0.00	0.00	1.18	0.00	0.00	3.14	3.10	0.68	100.00		
C22Si-15	0.00	0.00	1.18	0.00	0.00	3.14	3.10	0.68	100.00		
C22Si-15	0.00	0.00	1.18	0.00	0.00	3.14	3.10	0.68	100.00		
C22Si-15	0.00	0.00	1.18	0.00	0.00	3.14	3.10	0.68	100.00		
C22Si-15	0.00	0.00	1.18	0.00	0.00	3.14	3.10	0.68	100.00		
C22Si-15	0.00	0.00	1.18	0.00	0.00	3.14	3.10	0.68	100.00		
C22Si-15	0.00	0.00	1.18	0.00	0.00	3.14	3.10	0.68	100.00		
C22Si-15	0.00	0.00	1.18	0.00	0.00	3.14	3.10	0.68	100.00		
C22Si-15	0.00	0.00	1.18	0.00	0.00	3.14	3.10	0.68	100.00		
LAWA102R1	0.00	0.00	1.14	0.00	0.00	3.05	3.01	1.28	100.00		
LAWA102R1	0.00	0.00	1.14	0.00	0.00	3.05	3.01	1.28	100.00		
LAWA102R1	0.00	0.00	1.14	0.00	0.00	3.05	3.01	1.28	100.00		
LAWA102R1	0.00	0.00	1.14	0.00	0.00	3.05	3.01	1.28	100.00		
LAWA102R1	0.00	0.00	1.14	0.00	0.00	3.05	3.01	1.28	100.00		
LAWA102R1	0.00	0.00	1.14	0.00	0.00	3.05	3.01	1.28	100.00		
LAWA102R1	0.00	0.00	1.14	0.00	0.00	3.05	3.01	1.28	100.00		
LAWA102R1	0.00	0.00	1.14	0.00	0.00	3.05	3.01	1.28	100.00		
LAWA102R1	0.00	0.00	1.14	0.00	0.00	3.05	3.01	1.28	100.00		
LAWA102R1	0.00	0.00	1.14	0.00	0.00	3.05	3.01	1.28	100.00		
LAWA102R1	0.00	0.00	1.14	0.00	0.00	3.05	3.01	1.28	100.00		
LAWA104	0.00	0.00	1.92	0.00	0.00	2.86	2.89	1.00	100.00		
LAWA104	0.00	0.00	1.92	0.00	0.00	2.86	2.89	1.00	100.00		
LAWA104	0.00	0.00	1.92	0.00	0.00	2.86	2.89	1.00	100.00		
LAWA104	0.00	0.00	1.92	0.00	0.00	2.86	2.89	1.00	100.00		
LAWA104	0.00	0.00	1.92	0.00	0.00	2.86	2.89	1.00	100.00		
LAWA104	0.00	0.00	1.92	0.00	0.00	2.86	2.89	1.00	100.00		
LAWA104	0.00	0.00	1.92	0.00	0.00	2.86	2.89	1.00	100.00		
LAWA104	0.00	0.00	1.92	0.00	0.00	2.86	2.89	1.00	100.00		
LAWA104	0.00	0.00	1.92	0.00	0.00	2.86	2.89	1.00	100.00		
LAWA104	0.00	0.00	1.92	0.00	0.00	2.86	2.89	1.00	100.00		
LAWA104	0.00	0.00	1.92	0.00	0.00	2.86	2.89	1.00	100.00		
LAWA104	0.00	0.00	1.92	0.00	0.00	2.86	2.89	1.00	100.00		
LAWA104	0.00	0.00	1.92	0.00	0.00	2.86	2.89	1.00	100.00		
LAWA105	0.00	0.00	1.85	0.00	0.00	2.76	2.78	1.06	100.00		
LAWA105	0.00	0.00	1.85	0.00	0.00	2.76	2.78	1.06	100.00		
LAWA105	0.00	0.00	1.85	0.00	0.00	2.76	2.78	1.06	100.00		
LAWA105	0.00	0.00	1.85	0.00	0.00	2.76	2.78	1.06	100.00		
LAWA105	0.00	0.00	1.85	0.00	0.00	2.76	2.78	1.06	100.00		
LAWA105	0.00	0.00	1.85	0.00	0.00	2.76	2.78	1.06	100.00		
LAWA105	0.00	0.00	1.85	0.00	0.00	2.76	2.78	1.06	100.00		
LAWA105	0.00	0.00	1.85	0.00	0.00	2.76	2.78	1.06	100.00		
LAWA105	0.00	0.00	1.85	0.00	0.00	2.76	2.78	1.06	100.00		
LAWA105	0.00	0.00	1.85	0.00	0.00	2.76	2.78	1.06	100.00		
LAWA105	0.00	0.00	1.85	0.00	0.00	2.76	2.78	1.06	100.00		
LAWA105	0.00	0.00	1.85	0.00	0.00	2.76	2.78	1.06	100.00		
LAWA105	0.00	0.00	1.85	0.00	0.00	2.76	2.78	1.06	100.00		
LAWA112B14	0.00	0.00	2.00	0.00	0.00	2.97	3.01	0.86	100.00		
LAWA112B14	0.00	0.00	2.00	0.00	0.00	2.97	3.01	0.86	100.00		
LAWA112B14	0.00	0.00	2.00	0.00	0.00	2.97	3.01	0.86	100.00		
LAWA112B14	0.00	0.00	2.00	0.00	0.00	2.97	3.01	0.86	100.00		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
LAWA112B14	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.84
LAWA112B14	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.94
LAWA112B14	LAW	VSL-11R2270-1	SS	364.00	0.81	2.031	739.149	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.05
LAWA112B14	LAW	VSL-11R2270-1	SS	544.00	0.81	2.031	1,104.662	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.15
LAWA112B14	LAW	VSL-11R2270-1	SS	728.00	0.81	2.031	1,478.298	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.24
LAWA112B14	LAW	VSL-11R2270-1	SS	1091.00	0.81	2.031	2,215.416	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.35
LAWA112B14	LAW	VSL-11R2270-1	SS	1449.00	0.81	2.031	2,942.381	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.43
LAWA112B14	LAW	VSL-11R2270-1	SS	1826.00	0.81	2.031	3,707.928	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.47
LAWA112B15	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.15
LAWA112B15	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.34
LAWA112B15	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.65
LAWA112B15	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.75
LAWA112B15	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.85
LAWA112B15	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.96
LAWA112B15	LAW	VSL-11R2270-1	SS	364.00	0.81	2.031	739.149	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.06
LAWA112B15	LAW	VSL-11R2270-1	SS	544.00	0.81	2.031	1,104.662	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.15
LAWA112B15	LAW	VSL-11R2270-1	SS	728.00	0.81	2.031	1,478.298	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.25
LAWA112B15	LAW	VSL-11R2270-1	SS	1091.00	0.81	2.031	2,215.416	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.34
LAWA112B15	LAW	VSL-11R2270-1	SS	1449.00	0.81	2.031	2,942.381	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.45
LAWA112B15	LAW	VSL-11R2270-1	SS	1826.00	0.81	2.031	3,707.928	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.52
LAWA125	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.21
LAWA125	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.43
LAWA125	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.64
LAWA125	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.74
LAWA125	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.92
LAWA125	LAW	VSL-11R2270-1	SS	272.00	0.81	2.031	552.331	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.96
LAWA125	LAW	VSL-11R2270-1	SS	369.00	0.81	2.031	749.302	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.07
LAWA125	LAW	VSL-11R2270-1	SS	544.00	0.81	2.031	1,104.662	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.17
LAWA125	LAW	VSL-11R2270-1	SS	729.00	0.81	2.031	1,480.328	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.24
LAWA125	LAW	VSL-11R2270-1	SS	1099.00	0.81	2.031	2,231.661	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.34
LAWA125	LAW	VSL-11R2270-1	SS	1462.00	0.81	2.031	2,968.779	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.43
LAWA125	LAW	VSL-11R2270-1	SS	1838.00	0.81	2.031	3,732.295	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.47
LAWA126	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.74
LAWA126	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.94
LAWA126	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.24
LAWA126	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.35
LAWA126	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.64
LAWA126	LAW	VSL-11R2270-1	SS	272.00	0.81	2.031	552.331	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.74
LAWA126	LAW	VSL-11R2270-1	SS	369.00	0.81	2.031	749.302	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.84
LAWA126	LAW	VSL-11R2270-1	SS	544.00	0.81	2.031	1,104.662	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.94
LAWA126	LAW	VSL-11R2270-1	SS	729.00	0.81	2.031	1,480.328	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.05
LAWA126	LAW	VSL-11R2270-1	SS	1099.00	0.81	2.031	2,231.661	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.14
LAWA126	LAW	VSL-11R2270-1	SS	1462.00	0.81	2.031	2,968.779	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.24
LAWA126	LAW	VSL-11R2270-1	SS	1838.00	0.81	2.031	3,732.295	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.34
LAWA127R1	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.46
LAWA127R1	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.58
LAWA127R1	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.77
LAWA127R1	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.87
LAWA127R1	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.25
LAWA127R1	LAW	VSL-11R2270-1	SS	272.00	0.81	2.031	552.331	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.37
LAWA127R1	LAW	VSL-11R2270-1	SS	369.00	0.81	2.031	749.302	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.45
LAWA127R1	LAW	VSL-11R2270-1	SS	544.00	0.81	2.031	1,104.662	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.57
LAWA127R1	LAW	VSL-11R2270-1	SS	729.00	0.81	2.031	1,480.328	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.66
LAWA127R1	LAW	VSL-11R2270-1	SS	1099.00	0.81	2.031	2,231.661	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.75
LAWA127R1	LAW	VSL-11R2270-1	SS	1462.00	0.81	2.031	2,968.779	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.85
LAWA127R1	LAW	VSL-11R2270-1	SS	1838.00	0.81	2.031	3,732.295	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.97
LAWA127R2	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.33
LAWA127R2	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.46
LAWA127R2	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.56
LAWA127R2	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.84
LAWA127R2	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.97
LAWA127R2	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.04
LAWA127R2	LAW	VSL-11R2270-1	SS	1099.00	0.81	2.031	2,231.661	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.25
LAWA127R2	LAW	VSL-11R2270-1	SS	1854.00	0.81	2.031	3,764.786	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.36
LAWA128	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.03
LAWA128	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.24

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
LAWA112B14	177.93	65.80	1.12			544.03	27.98	8.83						
LAWA112B14	298.41	128.76	0.37			691.76	48.34	6.81						
LAWA112B14	455.94	326.39	1.32			1264.57	79.25	2.47						
LAWA112B14	1644.70	3345.40	1.18			9531.50	754.85	2.48					1.04	
LAWA112B14	1460.10	3074.53	0.53			8231.70	623.48	1.10					0.66	
LAWA112B14	1355.27	2840.10	0.98			7825.87	585.44	4.83				47.00	0.76	0.65
LAWA112B14	1656.73	3169.90	1.24			8638.63	724.89		1.40		0.35	0.44	0.77	0.68
LAWA112B14	1630.50	2896.17	1.11			8142.60	645.46	0.85	1.39		0.26	0.53	0.77	0.67
LAWA112B15	72.46	23.71	1.60			154.80	14.06	4.26						
LAWA112B15	102.47	35.86	1.28			238.77	19.63	6.13						
LAWA112B15	122.00	42.65	1.27			306.53	23.74	7.03						
LAWA112B15	153.90	55.03	1.35			434.27	31.59	9.36						
LAWA112B15	160.27	58.53	1.32			492.93	32.99	9.00						
LAWA112B15	213.28	78.70	0.32			564.28	46.12	11.28						
LAWA112B15	284.30	145.75	1.23			675.37	60.88	2.66						
LAWA112B15	1356.87	2497.90	1.28			6880.10	615.05	2.68						
LAWA112B15	1445.53	3172.07	0.29		1.49	8493.77	638.00	1.87					1.01	
LAWA112B15	1424.20	2936.30	1.30			7876.43	629.39	4.61	1.74				0.96	
LAWA112B15	1599.87	3137.27	1.72			9075.73	783.02		1.44		0.34	0.65	0.88	1.07
LAWA112B15	1522.47	2902.53	0.91			8437.97	779.48	0.87	1.53		0.26		1.07	
LAWA125	88.74	57.18				239.93	27.63	7.28	2.00		0.91	0.61	1.10	
LAWA125	116.23	101.80	0.13			385.97	47.12	8.81	2.30		1.09		1.82	
LAWA125	145.97	135.27	0.24			516.60	62.58	11.47	2.37		1.16		2.45	
LAWA125	155.33	157.60				566.47	75.52	11.90	1.76		0.78		2.63	
LAWA125	164.47	169.13				619.23	78.34	12.44			0.44		1.67	
LAWA125	208.50	224.50	0.65			826.73	106.34	15.56			0.28		0.97	
LAWA125	210.57	221.66	0.82			854.60	108.54	14.61					0.71	
LAWA125	261.08	277.63				1012.37	124.93	10.25						
LAWA125	463.69	492.26	0.28			1645.83	229.87	3.41						
LAWA125	884.75	1000.74				3352.73	399.85	0.70						
LAWA125	1159.43	1485.53	0.15			4810.17	576.80		1.22					
LAWA125	1790.03	2329.77	0.49			7206.77	839.84	1.06	1.33				2.35	
LAWA126	68.28	36.47				143.50	18.33	6.07	1.24		0.60		1.36	
LAWA126	93.56	75.28	0.22			255.33	32.41	6.94	1.87		1.15		2.10	0.83
LAWA126	107.47	97.07	0.30			321.07	40.47	8.73	2.06		1.07	0.54	2.36	0.94
LAWA126	122.13	119.60	0.15			381.77	52.62	9.23	2.30		1.05	0.67	2.41	1.07
LAWA126	123.53	124.43				395.97	52.13	9.10	2.08		1.07	0.55	2.21	1.05
LAWA126	160.74	167.79	0.28			546.68	72.87	12.24	2.91		1.34	0.74	3.23	1.00
LAWA126	165.86	175.27	0.28			579.41	76.27	11.74	1.44		0.72		2.40	0.75
LAWA126	148.30	172.24	0.10			539.84	71.08	10.39						
LAWA126	165.94	181.65	0.17			573.77	74.00	6.17						
LAWA126	276.88	318.51				998.00	128.27	3.11						
LAWA126	521.44	704.93				2231.30	281.09							
LAWA126	894.76	1171.03	0.32			3414.57	411.04	0.70					0.63	
LAWA127R1	58.43	21.13				82.72	8.86	4.96			0.29		1.04	
LAWA127R1	72.80	45.16	0.25			140.20	14.30	4.86	1.18		0.68		1.55	0.56
LAWA127R1	84.64	64.86	0.21			204.27	18.69	5.60	1.27		0.81	0.50	1.82	0.80
LAWA127R1	98.64	88.49	0.12			242.83	25.54	5.84	1.55		0.90	0.65	1.91	1.05
LAWA127R1	102.40	97.70	0.16			243.73	26.31	5.61	1.16		0.81	0.65	1.58	1.11
LAWA127R1	124.38	130.77	0.60			368.28	35.64	7.25	1.53		0.98	0.79	2.40	1.24
LAWA127R1	119.18	128.86	0.23			358.22	33.85	6.11	1.16		0.58	0.53	1.43	0.96
LAWA127R1	115.84	140.19	0.20			367.97	36.16	7.29				0.52		0.82
LAWA127R1	113.86	139.83	0.30			372.47	35.37	5.59	1.27		0.64	0.63	1.37	0.78
LAWA127R1	121.45	163.50	0.15			457.00	43.21	5.16			0.40		1.46	0.45
LAWA127R1	133.27	171.77				495.61	43.75	4.16					1.77	
LAWA127R1	162.19	196.33	0.09			554.05	50.88	4.03						
LAWA127R2	62.08	23.17				85.36	10.57	5.34			0.40		0.89	
LAWA127R2	80.25	49.24	0.27			134.80	15.53	5.49	1.31		0.62		1.41	0.79
LAWA127R2	80.24	63.67				210.07	19.50	5.78	1.24		0.81		1.51	0.99
LAWA127R2	99.47	105.00	0.52			347.07	29.44	5.07				0.67		0.99
LAWA127R2	101.52	112.65	0.32			310.38	29.22	7.93				0.63		1.15
LAWA127R2	108.87	118.30	0.28			344.74	34.30	5.93	1.19		0.69	0.72	1.73	1.60
LAWA127R2	120.44	142.53	0.37			386.45	38.86	6.05				0.78		1.28
LAWA127R2	149.35	193.21	0.29			463.70	45.54	3.14				0.52		0.91
LAWA128	75.47	13.95				119.20	13.86	8.28	1.47		0.34		1.45	
LAWA128	97.11	21.12	0.25			168.77	19.86	9.56	2.39		0.56		2.14	0.56

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
LAWA112B14		Not Studied		75.95	13.738	11.5433951	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA112B14		Not Studied		75.95	13.738	11.5433951	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA112B14		Not Studied		75.95	13.738	11.5433951	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA112B14		Not Studied		75.95	13.738	11.5433951	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA112B14		Not Studied		75.95	13.738	11.5433951	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA112B14		Not Studied		75.95	13.738	11.5433951	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA112B14		Not Studied		75.95	13.738	11.5433951	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA112B14		Not Studied		75.95	13.738	11.5433951	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA112B15		Not Studied		76.17	13.757	11.0833169	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA112B15		Not Studied		76.17	13.757	11.0833169	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA112B15		Not Studied		76.17	13.757	11.0833169	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA112B15		Not Studied		76.17	13.757	11.0833169	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA112B15		Not Studied		76.17	13.757	11.0833169	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA112B15		Not Studied		76.17	13.757	11.0833169	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA112B15		Not Studied		76.17	13.757	11.0833169	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA112B15		Not Studied		76.17	13.757	11.0833169	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA112B15		Not Studied		76.17	13.757	11.0833169	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA112B15		Not Studied		76.17	13.757	11.0833169	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA112B15		Not Studied		76.17	13.757	11.0833169	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA112B15		Not Studied		76.17	13.757	11.0833169	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA125		Not Studied		76.63	12.963	14.8300601	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA125		Not Studied		76.63	12.963	14.8300601	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA125		Not Studied		76.63	12.963	14.8300601	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA125		Not Studied		76.63	12.963	14.8300601	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA125		Not Studied		76.63	12.963	14.8300601	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA125		Not Studied		76.63	12.963	14.8300601	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA125		Not Studied		76.63	12.963	14.8300601	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA125		Not Studied		76.63	12.963	14.8300601	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA125		Not Studied		76.63	12.963	14.8300601	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA125		Not Studied		76.63	12.963	14.8300601	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA125		Not Studied		76.63	12.963	14.8300601	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA125		Not Studied		76.63	12.963	14.8300601	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA126		Not Studied		76.24	13.163	14.3242616	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA126		Not Studied		76.24	13.163	14.3242616	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA126		Not Studied		76.24	13.163	14.3242616	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA126		Not Studied		76.24	13.163	14.3242616	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA126		Not Studied		76.24	13.163	14.3242616	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA126		Not Studied		76.24	13.163	14.3242616	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA126		Not Studied		76.24	13.163	14.3242616	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA126		Not Studied		76.24	13.163	14.3242616	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA126		Not Studied		76.24	13.163	14.3242616	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA126		Not Studied		76.24	13.163	14.3242616	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA126		Not Studied		76.24	13.163	14.3242616	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA126		Chabazite and Herschelite	XRD/SEM	76.24	13.163	14.3242616	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA127R1		Not Studied		75.78	13.477	13.2996869	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA127R1		Not Studied		75.78	13.477	13.2996869	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA127R1		Not Studied		75.78	13.477	13.2996869	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA127R1		Not Studied		75.78	13.477	13.2996869	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA127R1		Not Studied		75.78	13.477	13.2996869	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA127R1		Not Studied		75.78	13.477	13.2996869	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA127R1		Not Studied		75.78	13.477	13.2996869	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA127R1		Not Studied		75.78	13.477	13.2996869	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA127R1		Not Studied		75.78	13.477	13.2996869	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA127R1		Not Studied		75.78	13.477	13.2996869	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA127R1		Not Studied		75.78	13.477	13.2996869	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA127R1		Not Studied		75.78	13.477	13.2996869	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA127R2		Not Studied		75.84	13.495	13.0986095	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA127R2		Not Studied		75.84	13.495	13.0986095	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA127R2		Not Studied		75.84	13.495	13.0986095	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA127R2		Not Studied		75.84	13.495	13.0986095	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA127R2		Not Studied		75.84	13.495	13.0986095	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA127R2		Not Studied		75.84	13.495	13.0986095	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA127R2		Not Studied		75.84	13.495	13.0986095	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA127R2		Not Studied		75.84	13.495	13.0986095	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA128		Not Studied		75.46	13.893	11.4520976	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA128		Not Studied		75.46	13.893	11.4520976	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
LAWA112B14	HOMOGENEOUS	6.10	9.86	0.00	7.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.89	0.00	0.00
LAWA112B14	HOMOGENEOUS	6.10	9.86	0.00	7.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.89	0.00	0.00
LAWA112B14	HOMOGENEOUS	6.10	9.86	0.00	7.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.89	0.00	0.00
LAWA112B14	HOMOGENEOUS	6.10	9.86	0.00	7.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.89	0.00	0.00
LAWA112B14	HOMOGENEOUS	6.10	9.86	0.00	7.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.89	0.00	0.00
LAWA112B14	HOMOGENEOUS	6.10	9.86	0.00	7.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.89	0.00	0.00
LAWA112B14	HOMOGENEOUS	6.10	9.86	0.00	7.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.89	0.00	0.00
LAWA112B14	HOMOGENEOUS	6.10	9.86	0.00	7.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.89	0.00	0.00
LAWA112B15	HOMOGENEOUS	6.15	9.80	0.00	7.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.41	0.00	0.00
LAWA112B15	HOMOGENEOUS	6.15	9.80	0.00	7.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.41	0.00	0.00
LAWA112B15	HOMOGENEOUS	6.15	9.80	0.00	7.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.41	0.00	0.00
LAWA112B15	HOMOGENEOUS	6.15	9.80	0.00	7.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.41	0.00	0.00
LAWA112B15	HOMOGENEOUS	6.15	9.80	0.00	7.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.41	0.00	0.00
LAWA112B15	HOMOGENEOUS	6.15	9.80	0.00	7.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.41	0.00	0.00
LAWA112B15	HOMOGENEOUS	6.15	9.80	0.00	7.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.41	0.00	0.00
LAWA112B15	HOMOGENEOUS	6.15	9.80	0.00	7.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.41	0.00	0.00
LAWA112B15	HOMOGENEOUS	6.15	9.80	0.00	7.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.41	0.00	0.00
LAWA112B15	HOMOGENEOUS	6.15	9.80	0.00	7.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.41	0.00	0.00
LAWA112B15	HOMOGENEOUS	6.15	9.80	0.00	7.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.41	0.00	0.00
LAWA112B15	HOMOGENEOUS	6.15	9.80	0.00	7.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.41	0.00	0.00
LAWA125	HOMOGENEOUS	5.64	9.55	0.00	1.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.39	4.21	0.00	0.00
LAWA125	HOMOGENEOUS	5.64	9.55	0.00	1.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.39	4.21	0.00	0.00
LAWA125	HOMOGENEOUS	5.64	9.55	0.00	1.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.39	4.21	0.00	0.00
LAWA125	HOMOGENEOUS	5.64	9.55	0.00	1.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.39	4.21	0.00	0.00
LAWA125	HOMOGENEOUS	5.64	9.55	0.00	1.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.39	4.21	0.00	0.00
LAWA125	HOMOGENEOUS	5.64	9.55	0.00	1.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.39	4.21	0.00	0.00
LAWA125	HOMOGENEOUS	5.64	9.55	0.00	1.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.39	4.21	0.00	0.00
LAWA125	HOMOGENEOUS	5.64	9.55	0.00	1.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.39	4.21	0.00	0.00
LAWA125	HOMOGENEOUS	5.64	9.55	0.00	1.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.39	4.21	0.00	0.00
LAWA125	HOMOGENEOUS	5.64	9.55	0.00	1.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.39	4.21	0.00	0.00
LAWA125	HOMOGENEOUS	5.64	9.55	0.00	1.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.39	4.21	0.00	0.00
LAWA125	HOMOGENEOUS	5.64	9.55	0.00	1.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.39	4.21	0.00	0.00
LAWA126	HOMOGENEOUS	5.64	9.82	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.54	3.88	0.00	0.00
LAWA126	HOMOGENEOUS	5.64	9.82	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.54	3.88	0.00	0.00
LAWA126	HOMOGENEOUS	5.64	9.82	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.54	3.88	0.00	0.00
LAWA126	HOMOGENEOUS	5.64	9.82	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.54	3.88	0.00	0.00
LAWA126	HOMOGENEOUS	5.64	9.82	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.54	3.88	0.00	0.00
LAWA126	HOMOGENEOUS	5.64	9.82	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.54	3.88	0.00	0.00
LAWA126	HOMOGENEOUS	5.64	9.82	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.54	3.88	0.00	0.00
LAWA126	HOMOGENEOUS	5.64	9.82	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.54	3.88	0.00	0.00
LAWA126	HOMOGENEOUS	5.64	9.82	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.54	3.88	0.00	0.00
LAWA126	HOMOGENEOUS	5.64	9.82	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.54	3.88	0.00	0.00
LAWA126	HOMOGENEOUS	5.64	9.82	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.54	3.88	0.00	0.00
LAWA126	HOMOGENEOUS	5.64	9.82	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.54	3.88	0.00	0.00
LAWA127R1	HOMOGENEOUS	5.65	10.21	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.76	3.43	0.00	0.00
LAWA127R1	HOMOGENEOUS	5.65	10.21	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.76	3.43	0.00	0.00
LAWA127R1	HOMOGENEOUS	5.65	10.21	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.76	3.43	0.00	0.00
LAWA127R1	HOMOGENEOUS	5.65	10.21	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.76	3.43	0.00	0.00
LAWA127R1	HOMOGENEOUS	5.65	10.21	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.76	3.43	0.00	0.00
LAWA127R1	HOMOGENEOUS	5.65	10.21	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.76	3.43	0.00	0.00
LAWA127R1	HOMOGENEOUS	5.65	10.21	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.76	3.43	0.00	0.00
LAWA127R1	HOMOGENEOUS	5.65	10.21	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.76	3.43	0.00	0.00
LAWA127R1	HOMOGENEOUS	5.65	10.21	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.76	3.43	0.00	0.00
LAWA127R1	HOMOGENEOUS	5.65	10.21	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.76	3.43	0.00	0.00
LAWA127R1	HOMOGENEOUS	5.65	10.21	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.76	3.43	0.00	0.00
LAWA127R1	HOMOGENEOUS	5.65	10.21	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.76	3.43	0.00	0.00
LAWA127R2	HOMOGENEOUS	5.66	10.22	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.77	3.43	0.00	0.00
LAWA127R2	HOMOGENEOUS	5.66	10.22	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.77	3.43	0.00	0.00
LAWA127R2	HOMOGENEOUS	5.66	10.22	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.77	3.43	0.00	0.00
LAWA127R2	HOMOGENEOUS	5.66	10.22	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.77	3.43	0.00	0.00
LAWA127R2	HOMOGENEOUS	5.66	10.22	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.77	3.43	0.00	0.00
LAWA127R2	HOMOGENEOUS	5.66	10.22	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.77	3.43	0.00	0.00
LAWA127R2	HOMOGENEOUS	5.66	10.22	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.77	3.43	0.00	0.00
LAWA127R2	HOMOGENEOUS	5.66	10.22	0.00	2.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.77	3.43	0.00	0.00
LAWA128	HOMOGENEOUS	6.03	7.07	0.00	2.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.79	3.88	0.00	0.00
LAWA128	HOMOGENEOUS	6.03	7.07	0.00	2.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.79	3.88	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
LAWA112B14	0.00	1.48	0.00	0.00	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.22	0.00	0.00	0.00
LAWA112B14	0.00	1.48	0.00	0.00	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.22	0.00	0.00	0.00
LAWA112B14	0.00	1.48	0.00	0.00	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.22	0.00	0.00	0.00
LAWA112B14	0.00	1.48	0.00	0.00	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.22	0.00	0.00	0.00
LAWA112B14	0.00	1.48	0.00	0.00	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.22	0.00	0.00	0.00
LAWA112B14	0.00	1.48	0.00	0.00	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.22	0.00	0.00	0.00
LAWA112B14	0.00	1.48	0.00	0.00	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.22	0.00	0.00	0.00
LAWA112B14	0.00	1.48	0.00	0.00	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.22	0.00	0.00	0.00
LAWA112B15	0.00	1.48	0.00	0.00	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.98	0.00	0.00	0.00
LAWA112B15	0.00	1.48	0.00	0.00	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.98	0.00	0.00	0.00
LAWA112B15	0.00	1.48	0.00	0.00	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.98	0.00	0.00	0.00
LAWA112B15	0.00	1.48	0.00	0.00	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.98	0.00	0.00	0.00
LAWA112B15	0.00	1.48	0.00	0.00	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.98	0.00	0.00	0.00
LAWA112B15	0.00	1.48	0.00	0.00	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.98	0.00	0.00	0.00
LAWA112B15	0.00	1.48	0.00	0.00	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.98	0.00	0.00	0.00
LAWA112B15	0.00	1.48	0.00	0.00	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.98	0.00	0.00	0.00
LAWA112B15	0.00	1.48	0.00	0.00	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.98	0.00	0.00	0.00
LAWA112B15	0.00	1.48	0.00	0.00	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.98	0.00	0.00	0.00
LAWA112B15	0.00	1.48	0.00	0.00	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.98	0.00	0.00	0.00
LAWA112B15	0.00	1.48	0.00	0.00	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.98	0.00	0.00	0.00
LAWA125	0.00	1.44	0.00	0.00	19.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.89	0.00	0.00	0.00
LAWA125	0.00	1.44	0.00	0.00	19.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.89	0.00	0.00	0.00
LAWA125	0.00	1.44	0.00	0.00	19.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.89	0.00	0.00	0.00
LAWA125	0.00	1.44	0.00	0.00	19.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.89	0.00	0.00	0.00
LAWA125	0.00	1.44	0.00	0.00	19.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.89	0.00	0.00	0.00
LAWA125	0.00	1.44	0.00	0.00	19.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.89	0.00	0.00	0.00
LAWA125	0.00	1.44	0.00	0.00	19.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.89	0.00	0.00	0.00
LAWA125	0.00	1.44	0.00	0.00	19.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.89	0.00	0.00	0.00
LAWA125	0.00	1.44	0.00	0.00	19.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.89	0.00	0.00	0.00
LAWA125	0.00	1.44	0.00	0.00	19.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.89	0.00	0.00	0.00
LAWA125	0.00	1.44	0.00	0.00	19.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.89	0.00	0.00	0.00
LAWA125	0.00	1.44	0.00	0.00	19.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.89	0.00	0.00	0.00
LAWA126	0.00	1.48	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.10	0.00	0.00	0.00
LAWA126	0.00	1.48	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.10	0.00	0.00	0.00
LAWA126	0.00	1.48	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.10	0.00	0.00	0.00
LAWA126	0.00	1.48	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.10	0.00	0.00	0.00
LAWA126	0.00	1.48	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.10	0.00	0.00	0.00
LAWA126	0.00	1.48	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.10	0.00	0.00	0.00
LAWA126	0.00	1.48	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.10	0.00	0.00	0.00
LAWA126	0.00	1.48	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.10	0.00	0.00	0.00
LAWA126	0.00	1.48	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.10	0.00	0.00	0.00
LAWA126	0.00	1.48	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.10	0.00	0.00	0.00
LAWA126	0.00	1.48	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.10	0.00	0.00	0.00
LAWA126	0.00	1.48	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.10	0.00	0.00	0.00
LAWA127R1	0.00	1.54	0.00	0.00	16.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.83	0.00	0.00	0.00
LAWA127R1	0.00	1.54	0.00	0.00	16.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.83	0.00	0.00	0.00
LAWA127R1	0.00	1.54	0.00	0.00	16.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.83	0.00	0.00	0.00
LAWA127R1	0.00	1.54	0.00	0.00	16.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.83	0.00	0.00	0.00
LAWA127R1	0.00	1.54	0.00	0.00	16.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.83	0.00	0.00	0.00
LAWA127R1	0.00	1.54	0.00	0.00	16.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.83	0.00	0.00	0.00
LAWA127R1	0.00	1.54	0.00	0.00	16.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.83	0.00	0.00	0.00
LAWA127R1	0.00	1.54	0.00	0.00	16.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.83	0.00	0.00	0.00
LAWA127R1	0.00	1.54	0.00	0.00	16.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.83	0.00	0.00	0.00
LAWA127R1	0.00	1.54	0.00	0.00	16.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.83	0.00	0.00	0.00
LAWA127R1	0.00	1.54	0.00	0.00	16.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.83	0.00	0.00	0.00
LAWA127R1	0.00	1.54	0.00	0.00	16.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.83	0.00	0.00	0.00
LAWA127R2	0.00	1.54	0.00	0.00	16.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.89	0.00	0.00	0.00
LAWA127R2	0.00	1.54	0.00	0.00	16.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.89	0.00	0.00	0.00
LAWA127R2	0.00	1.54	0.00	0.00	16.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.89	0.00	0.00	0.00
LAWA127R2	0.00	1.54	0.00	0.00	16.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.89	0.00	0.00	0.00
LAWA127R2	0.00	1.54	0.00	0.00	16.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.89	0.00	0.00	0.00
LAWA127R2	0.00	1.54	0.00	0.00	16.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.89	0.00	0.00	0.00
LAWA127R2	0.00	1.54	0.00	0.00	16.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.89	0.00	0.00	0.00
LAWA127R2	0.00	1.54	0.00	0.00	16.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.89	0.00	0.00	0.00
LAWA128	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.07	0.00	0.00	0.00
LAWA128	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.07	0.00	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
LAWA112B14	0.00	0.00	2.00	0.00	0.00	2.97	3.01	0.86	100.00		
LAWA112B14	0.00	0.00	2.00	0.00	0.00	2.97	3.01	0.86	100.00		
LAWA112B14	0.00	0.00	2.00	0.00	0.00	2.97	3.01	0.86	100.00		
LAWA112B14	0.00	0.00	2.00	0.00	0.00	2.97	3.01	0.86	100.00		
LAWA112B14	0.00	0.00	2.00	0.00	0.00	2.97	3.01	0.86	100.00		
LAWA112B14	0.00	0.00	2.00	0.00	0.00	2.97	3.01	0.86	100.00		
LAWA112B14	0.00	0.00	2.00	0.00	0.00	2.97	3.01	0.86	100.00		
LAWA112B14	0.00	0.00	2.00	0.00	0.00	2.97	3.01	0.86	100.00		
LAWA112B15	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.67	100.00		
LAWA112B15	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.67	100.00		
LAWA112B15	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.67	100.00		
LAWA112B15	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.67	100.00		
LAWA112B15	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.67	100.00		
LAWA112B15	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.67	100.00		
LAWA112B15	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.67	100.00		
LAWA112B15	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.67	100.00		
LAWA112B15	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.67	100.00		
LAWA112B15	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.67	100.00		
LAWA112B15	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.67	100.00		
LAWA112B15	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.67	100.00		
LAWA125	0.00	0.00	1.94	0.00	0.00	2.88	2.91	1.24	100.00		
LAWA125	0.00	0.00	1.94	0.00	0.00	2.88	2.91	1.24	100.00		
LAWA125	0.00	0.00	1.94	0.00	0.00	2.88	2.91	1.24	100.00		
LAWA125	0.00	0.00	1.94	0.00	0.00	2.88	2.91	1.24	100.00		
LAWA125	0.00	0.00	1.94	0.00	0.00	2.88	2.91	1.24	100.00		
LAWA125	0.00	0.00	1.94	0.00	0.00	2.88	2.91	1.24	100.00		
LAWA125	0.00	0.00	1.94	0.00	0.00	2.88	2.91	1.24	100.00		
LAWA125	0.00	0.00	1.94	0.00	0.00	2.88	2.91	1.24	100.00		
LAWA125	0.00	0.00	1.94	0.00	0.00	2.88	2.91	1.24	100.00		
LAWA125	0.00	0.00	1.94	0.00	0.00	2.88	2.91	1.24	100.00		
LAWA125	0.00	0.00	1.94	0.00	0.00	2.88	2.91	1.24	100.00		
LAWA125	0.00	0.00	1.94	0.00	0.00	2.88	2.91	1.24	100.00		
LAWA126	0.00	0.00	2.00	0.00	0.00	2.96	2.99	1.17	100.00		
LAWA126	0.00	0.00	2.00	0.00	0.00	2.96	2.99	1.17	100.00		
LAWA126	0.00	0.00	2.00	0.00	0.00	2.96	2.99	1.17	100.00		
LAWA126	0.00	0.00	2.00	0.00	0.00	2.96	2.99	1.17	100.00		
LAWA126	0.00	0.00	2.00	0.00	0.00	2.96	2.99	1.17	100.00		
LAWA126	0.00	0.00	2.00	0.00	0.00	2.96	2.99	1.17	100.00		
LAWA126	0.00	0.00	2.00	0.00	0.00	2.96	2.99	1.17	100.00		
LAWA126	0.00	0.00	2.00	0.00	0.00	2.96	2.99	1.17	100.00		
LAWA126	0.00	0.00	2.00	0.00	0.00	2.96	2.99	1.17	100.00		
LAWA126	0.00	0.00	2.00	0.00	0.00	2.96	2.99	1.17	100.00		
LAWA126	0.00	0.00	2.00	0.00	0.00	2.96	2.99	1.17	100.00		
LAWA126	0.00	0.00	2.00	0.00	0.00	2.96	2.99	1.17	100.00		
LAWA127R1	0.00	0.00	2.07	0.00	0.00	3.07	3.11	0.96	100.00		
LAWA127R1	0.00	0.00	2.07	0.00	0.00	3.07	3.11	0.96	100.00		
LAWA127R1	0.00	0.00	2.07	0.00	0.00	3.07	3.11	0.96	100.00		
LAWA127R1	0.00	0.00	2.07	0.00	0.00	3.07	3.11	0.96	100.00		
LAWA127R1	0.00	0.00	2.07	0.00	0.00	3.07	3.11	0.96	100.00		
LAWA127R1	0.00	0.00	2.07	0.00	0.00	3.07	3.11	0.96	100.00		
LAWA127R1	0.00	0.00	2.07	0.00	0.00	3.07	3.11	0.96	100.00		
LAWA127R1	0.00	0.00	2.07	0.00	0.00	3.07	3.11	0.96	100.00		
LAWA127R1	0.00	0.00	2.07	0.00	0.00	3.07	3.11	0.96	100.00		
LAWA127R1	0.00	0.00	2.07	0.00	0.00	3.07	3.11	0.96	100.00		
LAWA127R1	0.00	0.00	2.07	0.00	0.00	3.07	3.11	0.96	100.00		
LAWA127R1	0.00	0.00	2.07	0.00	0.00	3.07	3.11	0.96	100.00		
LAWA127R2	0.00	0.00	2.08	0.00	0.00	3.08	3.12	0.85	100.00		
LAWA127R2	0.00	0.00	2.08	0.00	0.00	3.08	3.12	0.85	100.00		
LAWA127R2	0.00	0.00	2.08	0.00	0.00	3.08	3.12	0.85	100.00		
LAWA127R2	0.00	0.00	2.08	0.00	0.00	3.08	3.12	0.85	100.00		
LAWA127R2	0.00	0.00	2.08	0.00	0.00	3.08	3.12	0.85	100.00		
LAWA127R2	0.00	0.00	2.08	0.00	0.00	3.08	3.12	0.85	100.00		
LAWA127R2	0.00	0.00	2.08	0.00	0.00	3.08	3.12	0.85	100.00		
LAWA127R2	0.00	0.00	2.08	0.00	0.00	3.08	3.12	0.85	100.00		
LAWA128	0.00	0.00	2.09	0.00	0.00	3.09	3.13	1.16	100.00		
LAWA128	0.00	0.00	2.09	0.00	0.00	3.09	3.13	1.16	100.00		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
LAWA128	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.47
LAWA128	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.55
LAWA128	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.75
LAWA128	LAW	VSL-11R2270-1	SS	272.00	0.81	2.031	552.331	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.85
LAWA128	LAW	VSL-11R2270-1	SS	369.00	0.81	2.031	749.302	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.93
LAWA128	LAW	VSL-11R2270-1	SS	544.00	0.81	2.031	1,104.662	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.05
LAWA128	LAW	VSL-11R2270-1	SS	729.00	0.81	2.031	1,480.328	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.16
LAWA128	LAW	VSL-11R2270-1	SS	1099.00	0.81	2.031	2,231.661	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.26
LAWA128	LAW	VSL-11R2270-1	SS	1462.00	0.81	2.031	2,968.779	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.32
LAWA128	LAW	VSL-11R2270-1	SS	1838.00	0.81	2.031	3,732.295	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.46
LAWA129	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.85
LAWA129	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.06
LAWA129	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.25
LAWA129	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.34
LAWA129	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.53
LAWA129	LAW	VSL-11R2270-1	SS	272.00	0.81	2.031	552.331	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.65
LAWA129	LAW	VSL-11R2270-1	SS	369.00	0.81	2.031	749.302	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.75
LAWA129	LAW	VSL-11R2270-1	SS	544.00	0.81	2.031	1,104.662	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.87
LAWA129	LAW	VSL-11R2270-1	SS	729.00	0.81	2.031	1,480.328	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.95
LAWA129	LAW	VSL-11R2270-1	SS	1099.00	0.81	2.031	2,231.661	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.04
LAWA129	LAW	VSL-11R2270-1	SS	1462.00	0.81	2.031	2,968.779	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.14
LAWA129	LAW	VSL-11R2270-1	SS	1838.00	0.81	2.031	3,732.295	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.25
LAWA130	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.65
LAWA130	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.84
LAWA130	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.04
LAWA130	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.14
LAWA130	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.35
LAWA130	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.45
LAWA130	LAW	VSL-11R2270-1	SS	364.00	0.81	2.031	739.149	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.56
LAWA130	LAW	VSL-11R2270-1	SS	544.00	0.81	2.031	1,104.662	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.64
LAWA130	LAW	VSL-11R2270-1	SS	728.00	0.81	2.031	1,478.298	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.74
LAWA130	LAW	VSL-11R2270-1	SS	1091.00	0.81	2.031	2,215.416	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.85
LAWA130	LAW	VSL-11R2270-1	SS	1449.00	0.81	2.031	2,942.381	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.94
LAWA130	LAW	VSL-11R2270-1	SS	1826.00	0.81	2.031	3,707.928	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.03
LAWA133	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.14
LAWA133	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.22
LAWA133	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.34
LAWA133	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.64
LAWA133	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.74
LAWA133	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.84
LAWA133	LAW	VSL-11R2270-1	SS	1099.00	0.81	2.031	2,231.661	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.05
LAWA134	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.52
LAWA134	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.66
LAWA134	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.97
LAWA134	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.24
LAWA134	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.35
LAWA134	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.43
LAWA134	LAW	VSL-11R2270-1	SS	1099.00	0.81	2.031	2,231.661	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.64
LAWA134	LAW	VSL-11R2270-1	SS	1854.00	0.81	2.031	3,764.786	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.76
LAWA135	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.43
LAWA135	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.57
LAWA135	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.67
LAWA135	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.94
LAWA135	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.04
LAWA135	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.15
LAWA135	LAW	VSL-11R2270-1	SS	1099.00	0.81	2.031	2,231.661	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.35
LAWA135	LAW	VSL-11R2270-1	SS	1854.00	0.81	2.031	3,764.786	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.37
LAWA136	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.56
LAWA136	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.67
LAWA136	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.75
LAWA136	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.04
LAWA136	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.15
LAWA136	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.26
LAWA136	LAW	VSL-11R2270-1	SS	1099.00	0.81	2.031	2,231.661	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.45
LAWA136	LAW	VSL-11R2270-1	SS	1854.00	0.81	2.031	3,764.786	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.55
LAWA41	LAW	VSL-11R2270-1	SS	7.00	0.80	2.008	14.055	**2.680**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.11
LAWA41	LAW	VSL-11R2270-1	SS	13.00	0.80	2.008	26.103	**2.680**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.17

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
LAWA128	117.47	27.25	0.28			227.07	23.86	11.67	3.06		0.71	0.61	3.01	0.78
LAWA128	134.43	35.65	0.23			241.60	31.35	13.26	3.32		0.81	0.75	3.02	1.02
LAWA128	140.73	39.93	0.26			263.87	32.48	13.76	3.58		0.90	0.69	3.18	1.12
LAWA128	168.57	50.20	1.21			373.39	41.39	17.11	4.83		1.19	0.74	4.33	1.22
LAWA128	180.66	53.68	0.57			390.30	45.94	17.91	4.81		1.15	0.68	4.47	1.20
LAWA128	161.26	54.07	0.23			377.12	44.35	16.65	2.22		0.39	0.52	1.57	1.06
LAWA128	161.20	55.77	0.21			388.31	45.61	15.05	2.12		0.54		2.17	
LAWA128	207.67	93.42				543.75	62.49	7.66	1.26				0.68	
LAWA128	693.29	441.01				1811.87	244.52	1.06					0.47	
LAWA128	1571.23	1124.70	0.24			4013.83	450.19	0.99	1.20				1.32	
LAWA129	62.28	14.30				101.73	12.19	7.06						
LAWA129	78.62	23.41	0.17			148.57	17.89	7.62						
LAWA129	91.30	32.47	0.19			197.90	22.00	9.16						
LAWA129	107.60	43.94				232.27	28.98	10.19						
LAWA129	114.57	50.79				258.53	31.00	10.79						
LAWA129	138.17	64.65	0.95			343.05	40.70	14.28			0.25		0.62	
LAWA129	145.86	70.45	0.08			367.56	43.36	14.06					0.44	
LAWA129	135.60	72.73	0.12			359.32	43.09	13.40						
LAWA129	147.32	79.79	0.15			377.39	44.53	7.72						
LAWA129	814.70	769.08	0.57			2434.53	317.53							
LAWA129	1849.13	2125.77	1.05			6612.33	824.15		1.20					
LAWA129	2444.27	2766.03	1.32			8093.73	860.88	0.93	1.70			0.53	2.18	0.67
LAWA130	76.74	25.59				126.53	14.81	6.11			0.73		1.80	
LAWA130	98.09	50.11				217.10	22.55	7.87			0.52	0.54	2.69	0.87
LAWA130	109.47	64.01	0.30			286.90	28.13	8.75			0.70	0.63	2.77	1.15
LAWA130	142.37	92.65	0.70			419.00	40.79	11.40	1.15		0.91	0.89	3.58	1.41
LAWA130	137.30	94.21	0.55			469.83	38.76	10.53	1.70		0.96	0.79	3.67	1.53
LAWA130	169.78	120.41				474.77	53.94	13.82	1.84		1.12	0.72	4.41	1.24
LAWA130	171.08	127.24	0.33			506.83	55.35	13.39			0.71	0.67	3.34	1.08
LAWA130	170.89	141.61				592.36	55.96	12.51				0.45		0.81
LAWA130	166.12	132.62				573.09	57.64	9.93			0.31		1.20	
LAWA130	358.04	252.42	0.24			946.64	112.73	2.97						
LAWA130	869.44	911.13	0.22			2939.57	316.69							
LAWA130	1078.77	1033.90	0.54			3220.03	378.62						0.59	
LAWA133	92.72	29.89	0.40			168.33	3.39	6.39						
LAWA133	126.07	45.59	0.49			230.77	3.20	6.07						
LAWA133	133.73	52.51				333.10	3.62	6.41						
LAWA133	211.53	100.47	0.56			566.67	7.80	5.26						
LAWA133	588.18	774.51	1.42			2529.23	39.58	11.12			1.04		0.51	
LAWA133	857.27	1222.93	0.94			3832.07	71.75	0.74						
LAWA133	1266.47	1701.20	1.43			5418.83	131.77	5.40					0.81	
LAWA134	63.06	28.39				102.50	13.12	6.65					1.29	0.82
LAWA134	92.28	62.56	0.26			175.33	23.41	7.33	1.24		0.58		1.56	1.06
LAWA134	91.35	74.71				266.73	26.78	7.66	1.39		0.98	0.60		0.75
LAWA134	113.81	114.06	0.33			393.50	39.81	7.54				0.52		0.93
LAWA134	113.00	119.85	0.26			368.98	39.81	9.56				0.46	1.67	1.26
LAWA134	116.93	122.44	0.21			412.89	43.58	8.38	1.30		0.64		0.46	0.63
LAWA134	132.69	144.45	0.32			448.54	48.40	8.60						
LAWA134	171.95	203.39	0.17			620.24	61.35	4.24					0.77	
LAWA135	62.68	27.20				93.78	12.17	6.92					1.20	0.78
LAWA135	86.07	57.54	0.20			157.63	19.63	6.48	1.39		0.59	0.49	1.50	1.03
LAWA135	85.58	70.24				236.10	22.91	6.69	1.40		0.87			0.91
LAWA135	107.75	108.79	0.39			357.01	34.47	6.38				0.58		0.77
LAWA135	109.28	117.79	0.23			324.65	36.22	8.21				0.46	1.58	1.25
LAWA135	109.67	113.69	0.12			371.15	37.60	6.49	1.14		0.62	0.51		0.68
LAWA135	137.61	146.21	0.38			428.77	44.87	6.82						0.49
LAWA135	167.76	188.77	0.11			491.72	52.65	2.42					0.53	
LAWA136	61.06	23.49	0.15			89.12	12.30	5.34					0.73	
LAWA136	85.09	46.05	0.29			137.80	20.20	6.38			0.31		0.91	
LAWA136	81.74	54.61				203.07	21.40	6.29			0.56			
LAWA136	108.39	87.35	0.43			318.24	32.88	5.74						
LAWA136	107.02	92.03	0.20			282.61	32.51	6.70					0.92	0.52
LAWA136	120.45	111.96	0.21			339.70	38.54	6.29			0.37			
LAWA136	151.20	126.12	0.30			411.55	44.94	4.45					0.73	
LAWA136	211.18	192.75	0.28			515.17	60.71	1.97			0.26			
LAWA41	80.83	21.95	0.45			154.13	15.90	10.44	1.27		0.46		0.91	
LAWA41	105.50	33.76	0.54			194.40	17.27	11.67	2.10		0.57		1.41	0.81

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
LAWA128		Not Studied		75.46	13.893	11.4520976	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA128		Not Studied		75.46	13.893	11.4520976	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA128		Not Studied		75.46	13.893	11.4520976	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA128		Not Studied		75.46	13.893	11.4520976	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA128		Not Studied		75.46	13.893	11.4520976	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA128		Not Studied		75.46	13.893	11.4520976	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA128		Not Studied		75.46	13.893	11.4520976	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA128		Not Studied		75.46	13.893	11.4520976	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA128		Not Studied		75.46	13.893	11.4520976	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA128		Not Studied		75.46	13.893	11.4520976	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA129		Not Studied		78.35	10.994	23.1893513	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA129		Not Studied		78.35	10.994	23.1893513	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA129		Not Studied		78.35	10.994	23.1893513	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA129		Not Studied		78.35	10.994	23.1893513	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA129		Not Studied		78.35	10.994	23.1893513	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA129		Not Studied		78.35	10.994	23.1893513	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA129		Not Studied		78.35	10.994	23.1893513	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA129		Not Studied		78.35	10.994	23.1893513	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA129		Not Studied		78.35	10.994	23.1893513	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA129		Not Studied		78.35	10.994	23.1893513	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA129		Not Studied		78.35	10.994	23.1893513	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA129		Not Studied		78.35	10.994	23.1893513	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA130		Not Studied		77.32	10.961	25.0353512	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA130		Not Studied		77.32	10.961	25.0353512	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA130		Not Studied		77.32	10.961	25.0353512	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA130		Not Studied		77.32	10.961	25.0353512	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA130		Not Studied		77.32	10.961	25.0353512	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA130		Not Studied		77.32	10.961	25.0353512	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA130		Not Studied		77.32	10.961	25.0353512	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA130		Not Studied		77.32	10.961	25.0353512	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA130		Not Studied		77.32	10.961	25.0353512	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA130		Not Studied		77.32	10.961	25.0353512	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA130		Not Studied		77.32	10.961	25.0353512	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA130		Not Studied		77.32	10.961	25.0353512	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA133		Not Studied		73.85	15.176	6.7972262	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA133		Not Studied		73.85	15.176	6.7972262	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA133		Not Studied		73.85	15.176	6.7972262	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA133		Not Studied		73.85	15.176	6.7972262	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA133		Not Studied		73.85	15.176	6.7972262	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA133		Not Studied		73.85	15.176	6.7972262	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA133		Not Studied		73.85	15.176	6.7972262	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA134		Not Studied		76.17	13.293	13.6990856	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA134		Not Studied		76.17	13.293	13.6990856	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA134		Not Studied		76.17	13.293	13.6990856	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA134		Not Studied		76.17	13.293	13.6990856	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA134		Not Studied		76.17	13.293	13.6990856	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA134		Not Studied		76.17	13.293	13.6990856	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA134		Not Studied		76.17	13.293	13.6990856	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA134		Not Studied		76.17	13.293	13.6990856	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA135		Not Studied		75.99	13.398	13.4027141	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA135		Not Studied		75.99	13.398	13.4027141	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA135		Not Studied		75.99	13.398	13.4027141	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA135		Not Studied		75.99	13.398	13.4027141	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA135		Not Studied		75.99	13.398	13.4027141	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA135		Not Studied		75.99	13.398	13.4027141	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA135		Not Studied		75.99	13.398	13.4027141	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA135		Not Studied		75.99	13.398	13.4027141	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA136		Not Studied		74.99	14.398	9.3584141	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA136		Not Studied		74.99	14.398	9.3584141	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA136		Not Studied		74.99	14.398	9.3584141	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA136		Not Studied		74.99	14.398	9.3584141	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA136		Not Studied		74.99	14.398	9.3584141	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA136		Not Studied		74.99	14.398	9.3584141	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA136		Not Studied		74.99	14.398	9.3584141	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA136		Not Studied		74.99	14.398	9.3584141	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
LAWA128	HOMOGENEOUS	6.03	7.07	0.00	2.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.79	3.88	0.00	0.00
LAWA128	HOMOGENEOUS	6.03	7.07	0.00	2.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.79	3.88	0.00	0.00
LAWA128	HOMOGENEOUS	6.03	7.07	0.00	2.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.79	3.88	0.00	0.00
LAWA128	HOMOGENEOUS	6.03	7.07	0.00	2.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.79	3.88	0.00	0.00
LAWA128	HOMOGENEOUS	6.03	7.07	0.00	2.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.79	3.88	0.00	0.00
LAWA128	HOMOGENEOUS	6.03	7.07	0.00	2.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.79	3.88	0.00	0.00
LAWA128	HOMOGENEOUS	6.03	7.07	0.00	2.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.79	3.88	0.00	0.00
LAWA128	HOMOGENEOUS	6.03	7.07	0.00	2.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.79	3.88	0.00	0.00
LAWA128	HOMOGENEOUS	6.03	7.07	0.00	2.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.79	3.88	0.00	0.00
LAWA128	HOMOGENEOUS	6.03	7.07	0.00	2.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.79	3.88	0.00	0.00
LAWA129	HOMOGENEOUS	7.47	8.52	0.00	3.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.88	0.00	0.00
LAWA129	HOMOGENEOUS	7.47	8.52	0.00	3.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.88	0.00	0.00
LAWA129	HOMOGENEOUS	7.47	8.52	0.00	3.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.88	0.00	0.00
LAWA129	HOMOGENEOUS	7.47	8.52	0.00	3.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.88	0.00	0.00
LAWA129	HOMOGENEOUS	7.47	8.52	0.00	3.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.88	0.00	0.00
LAWA129	HOMOGENEOUS	7.47	8.52	0.00	3.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.88	0.00	0.00
LAWA129	HOMOGENEOUS	7.47	8.52	0.00	3.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.88	0.00	0.00
LAWA129	HOMOGENEOUS	7.47	8.52	0.00	3.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.88	0.00	0.00
LAWA129	HOMOGENEOUS	7.47	8.52	0.00	3.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.88	0.00	0.00
LAWA129	HOMOGENEOUS	7.47	8.52	0.00	3.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.88	0.00	0.00
LAWA129	HOMOGENEOUS	7.47	8.52	0.00	3.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.88	0.00	0.00
LAWA129	HOMOGENEOUS	7.47	8.52	0.00	3.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.88	0.00	0.00
LAWA130	HOMOGENEOUS	6.03	8.94	0.00	2.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.86	3.88	0.00	0.00
LAWA130	HOMOGENEOUS	6.03	8.94	0.00	2.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.86	3.88	0.00	0.00
LAWA130	HOMOGENEOUS	6.03	8.94	0.00	2.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.86	3.88	0.00	0.00
LAWA130	HOMOGENEOUS	6.03	8.94	0.00	2.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.86	3.88	0.00	0.00
LAWA130	HOMOGENEOUS	6.03	8.94	0.00	2.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.86	3.88	0.00	0.00
LAWA130	HOMOGENEOUS	6.03	8.94	0.00	2.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.86	3.88	0.00	0.00
LAWA130	HOMOGENEOUS	6.03	8.94	0.00	2.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.86	3.88	0.00	0.00
LAWA130	HOMOGENEOUS	6.03	8.94	0.00	2.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.86	3.88	0.00	0.00
LAWA130	HOMOGENEOUS	6.03	8.94	0.00	2.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.86	3.88	0.00	0.00
LAWA130	HOMOGENEOUS	6.03	8.94	0.00	2.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.86	3.88	0.00	0.00
LAWA130	HOMOGENEOUS	6.03	8.94	0.00	2.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.86	3.88	0.00	0.00
LAWA130	HOMOGENEOUS	6.03	8.94	0.00	2.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.86	3.88	0.00	0.00
LAWA133	HOMOGENEOUS	6.20	8.90	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.49	0.43	0.00	0.00
LAWA133	HOMOGENEOUS	6.20	8.90	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.49	0.43	0.00	0.00
LAWA133	HOMOGENEOUS	6.20	8.90	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.49	0.43	0.00	0.00
LAWA133	HOMOGENEOUS	6.20	8.90	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.49	0.43	0.00	0.00
LAWA133	HOMOGENEOUS	6.20	8.90	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.49	0.43	0.00	0.00
LAWA133	HOMOGENEOUS	6.20	8.90	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.49	0.43	0.00	0.00
LAWA133	HOMOGENEOUS	6.20	8.90	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.49	0.43	0.00	0.00
LAWA134	HOMOGENEOUS	5.65	9.96	0.00	2.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.63	3.73	0.00	0.00
LAWA134	HOMOGENEOUS	5.65	9.96	0.00	2.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.63	3.73	0.00	0.00
LAWA134	HOMOGENEOUS	5.65	9.96	0.00	2.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.63	3.73	0.00	0.00
LAWA134	HOMOGENEOUS	5.65	9.96	0.00	2.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.63	3.73	0.00	0.00
LAWA134	HOMOGENEOUS	5.65	9.96	0.00	2.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.63	3.73	0.00	0.00
LAWA134	HOMOGENEOUS	5.65	9.96	0.00	2.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.63	3.73	0.00	0.00
LAWA134	HOMOGENEOUS	5.65	9.96	0.00	2.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.63	3.73	0.00	0.00
LAWA134	HOMOGENEOUS	5.65	9.96	0.00	2.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.63	3.73	0.00	0.00
LAWA135	HOMOGENEOUS	5.66	10.09	0.00	2.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.70	3.58	0.00	0.00
LAWA135	HOMOGENEOUS	5.66	10.09	0.00	2.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.70	3.58	0.00	0.00
LAWA135	HOMOGENEOUS	5.66	10.09	0.00	2.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.70	3.58	0.00	0.00
LAWA135	HOMOGENEOUS	5.66	10.09	0.00	2.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.70	3.58	0.00	0.00
LAWA135	HOMOGENEOUS	5.66	10.09	0.00	2.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.70	3.58	0.00	0.00
LAWA135	HOMOGENEOUS	5.66	10.09	0.00	2.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.70	3.58	0.00	0.00
LAWA135	HOMOGENEOUS	5.66	10.09	0.00	2.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.70	3.58	0.00	0.00
LAWA135	HOMOGENEOUS	5.66	10.09	0.00	2.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.70	3.58	0.00	0.00
LAWA136	HOMOGENEOUS	5.66	10.09	0.00	3.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.70	3.58	0.00	0.00
LAWA136	HOMOGENEOUS	5.66	10.09	0.00	3.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.70	3.58	0.00	0.00
LAWA136	HOMOGENEOUS	5.66	10.09	0.00	3.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.70	3.58	0.00	0.00
LAWA136	HOMOGENEOUS	5.66	10.09	0.00	3.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.70	3.58	0.00	0.00
LAWA136	HOMOGENEOUS	5.66	10.09	0.00	3.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.70	3.58	0.00	0.00
LAWA136	HOMOGENEOUS	5.66	10.09	0.00	3.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.70	3.58	0.00	0.00
LAWA136	HOMOGENEOUS	5.66	10.09	0.00	3.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.70	3.58	0.00	0.00
LAWA136	HOMOGENEOUS	5.66	10.09	0.00	3.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.70	3.58	0.00	0.00
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
LAWA128	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.07	0.00	0.00	0.00
LAWA128	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.07	0.00	0.00	0.00
LAWA128	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.07	0.00	0.00	0.00
LAWA128	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.07	0.00	0.00	0.00
LAWA128	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.07	0.00	0.00	0.00
LAWA128	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.07	0.00	0.00	0.00
LAWA128	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.07	0.00	0.00	0.00
LAWA128	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.07	0.00	0.00	0.00
LAWA128	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.07	0.00	0.00	0.00
LAWA128	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.07	0.00	0.00	0.00
LAWA129	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.51	0.00	0.00	0.00
LAWA129	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.51	0.00	0.00	0.00
LAWA129	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.51	0.00	0.00	0.00
LAWA129	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.51	0.00	0.00	0.00
LAWA129	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.51	0.00	0.00	0.00
LAWA129	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.51	0.00	0.00	0.00
LAWA129	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.51	0.00	0.00	0.00
LAWA129	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.51	0.00	0.00	0.00
LAWA129	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.51	0.00	0.00	0.00
LAWA129	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.51	0.00	0.00	0.00
LAWA129	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.51	0.00	0.00	0.00
LAWA129	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.51	0.00	0.00	0.00
LAWA130	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.05	0.00	0.00	0.00
LAWA130	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.05	0.00	0.00	0.00
LAWA130	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.05	0.00	0.00	0.00
LAWA130	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.05	0.00	0.00	0.00
LAWA130	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.05	0.00	0.00	0.00
LAWA130	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.05	0.00	0.00	0.00
LAWA130	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.05	0.00	0.00	0.00
LAWA130	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.05	0.00	0.00	0.00
LAWA130	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.05	0.00	0.00	0.00
LAWA130	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.05	0.00	0.00	0.00
LAWA130	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.05	0.00	0.00	0.00
LAWA130	0.00	1.18	0.00	0.00	18.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.05	0.00	0.00	0.00
LAWA133	0.00	2.00	0.00	0.00	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.54	0.00	0.00	0.00
LAWA133	0.00	2.00	0.00	0.00	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.54	0.00	0.00	0.00
LAWA133	0.00	2.00	0.00	0.00	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.54	0.00	0.00	0.00
LAWA133	0.00	2.00	0.00	0.00	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.54	0.00	0.00	0.00
LAWA133	0.00	2.00	0.00	0.00	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.54	0.00	0.00	0.00
LAWA133	0.00	2.00	0.00	0.00	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.54	0.00	0.00	0.00
LAWA133	0.00	2.00	0.00	0.00	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.54	0.00	0.00	0.00
LAWA134	0.00	1.50	0.00	0.00	17.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.75	0.00	0.00	0.00
LAWA134	0.00	1.50	0.00	0.00	17.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.75	0.00	0.00	0.00
LAWA134	0.00	1.50	0.00	0.00	17.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.75	0.00	0.00	0.00
LAWA134	0.00	1.50	0.00	0.00	17.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.75	0.00	0.00	0.00
LAWA134	0.00	1.50	0.00	0.00	17.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.75	0.00	0.00	0.00
LAWA134	0.00	1.50	0.00	0.00	17.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.75	0.00	0.00	0.00
LAWA134	0.00	1.50	0.00	0.00	17.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.75	0.00	0.00	0.00
LAWA134	0.00	1.50	0.00	0.00	17.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.75	0.00	0.00	0.00
LAWA135	0.00	1.52	0.00	0.00	17.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.30	0.00	0.00	0.00
LAWA135	0.00	1.52	0.00	0.00	17.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.30	0.00	0.00	0.00
LAWA135	0.00	1.52	0.00	0.00	17.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.30	0.00	0.00	0.00
LAWA135	0.00	1.52	0.00	0.00	17.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.30	0.00	0.00	0.00
LAWA135	0.00	1.52	0.00	0.00	17.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.30	0.00	0.00	0.00
LAWA135	0.00	1.52	0.00	0.00	17.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.30	0.00	0.00	0.00
LAWA135	0.00	1.52	0.00	0.00	17.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.30	0.00	0.00	0.00
LAWA135	0.00	1.52	0.00	0.00	17.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.30	0.00	0.00	0.00
LAWA136	0.00	1.52	0.00	0.00	17.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.30	0.00	0.00	0.00
LAWA136	0.00	1.52	0.00	0.00	17.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.30	0.00	0.00	0.00
LAWA136	0.00	1.52	0.00	0.00	17.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.30	0.00	0.00	0.00
LAWA136	0.00	1.52	0.00	0.00	17.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.30	0.00	0.00	0.00
LAWA136	0.00	1.52	0.00	0.00	17.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.30	0.00	0.00	0.00
LAWA136	0.00	1.52	0.00	0.00	17.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.30	0.00	0.00	0.00
LAWA136	0.00	1.52	0.00	0.00	17.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.30	0.00	0.00	0.00
LAWA136	0.00	1.52	0.00	0.00	17.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.30	0.00	0.00	0.00
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
LAWA128	0.00	0.00	2.09	0.00	0.00	3.09	3.13	1.16	100.00		
LAWA128	0.00	0.00	2.09	0.00	0.00	3.09	3.13	1.16	100.00		
LAWA128	0.00	0.00	2.09	0.00	0.00	3.09	3.13	1.16	100.00		
LAWA128	0.00	0.00	2.09	0.00	0.00	3.09	3.13	1.16	100.00		
LAWA128	0.00	0.00	2.09	0.00	0.00	3.09	3.13	1.16	100.00		
LAWA128	0.00	0.00	2.09	0.00	0.00	3.09	3.13	1.16	100.00		
LAWA128	0.00	0.00	2.09	0.00	0.00	3.09	3.13	1.16	100.00		
LAWA128	0.00	0.00	2.09	0.00	0.00	3.09	3.13	1.16	100.00		
LAWA128	0.00	0.00	2.09	0.00	0.00	3.09	3.13	1.16	100.00		
LAWA128	0.00	0.00	2.09	0.00	0.00	3.09	3.13	1.16	100.00		
LAWA129	0.00	0.00	2.09	0.00	0.00	3.09	3.13	1.17	100.00		
LAWA129	0.00	0.00	2.09	0.00	0.00	3.09	3.13	1.17	100.00		
LAWA129	0.00	0.00	2.09	0.00	0.00	3.09	3.13	1.17	100.00		
LAWA129	0.00	0.00	2.09	0.00	0.00	3.09	3.13	1.17	100.00		
LAWA129	0.00	0.00	2.09	0.00	0.00	3.09	3.13	1.17	100.00		
LAWA129	0.00	0.00	2.09	0.00	0.00	3.09	3.13	1.17	100.00		
LAWA129	0.00	0.00	2.09	0.00	0.00	3.09	3.13	1.17	100.00		
LAWA129	0.00	0.00	2.09	0.00	0.00	3.09	3.13	1.17	100.00		
LAWA129	0.00	0.00	2.09	0.00	0.00	3.09	3.13	1.17	100.00		
LAWA129	0.00	0.00	2.09	0.00	0.00	3.09	3.13	1.17	100.00		
LAWA129	0.00	0.00	2.09	0.00	0.00	3.09	3.13	1.17	100.00		
LAWA129	0.00	0.00	2.09	0.00	0.00	3.09	3.13	1.17	100.00		
LAWA130	0.00	0.00	2.09	0.00	0.00	4.14	3.13	1.19	100.00		
LAWA130	0.00	0.00	2.09	0.00	0.00	4.14	3.13	1.19	100.00		
LAWA130	0.00	0.00	2.09	0.00	0.00	4.14	3.13	1.19	100.00		
LAWA130	0.00	0.00	2.09	0.00	0.00	4.14	3.13	1.19	100.00		
LAWA130	0.00	0.00	2.09	0.00	0.00	4.14	3.13	1.19	100.00		
LAWA130	0.00	0.00	2.09	0.00	0.00	4.14	3.13	1.19	100.00		
LAWA130	0.00	0.00	2.09	0.00	0.00	4.14	3.13	1.19	100.00		
LAWA130	0.00	0.00	2.09	0.00	0.00	4.14	3.13	1.19	100.00		
LAWA130	0.00	0.00	2.09	0.00	0.00	4.14	3.13	1.19	100.00		
LAWA130	0.00	0.00	2.09	0.00	0.00	4.14	3.13	1.19	100.00		
LAWA130	0.00	0.00	2.09	0.00	0.00	4.14	3.13	1.19	100.00		
LAWA130	0.00	0.00	2.09	0.00	0.00	4.14	3.13	1.19	100.00		
LAWA133	0.00	0.00	2.00	0.00	0.00	2.97	3.00	1.02	100.00		
LAWA133	0.00	0.00	2.00	0.00	0.00	2.97	3.00	1.02	100.00		
LAWA133	0.00	0.00	2.00	0.00	0.00	2.97	3.00	1.02	100.00		
LAWA133	0.00	0.00	2.00	0.00	0.00	2.97	3.00	1.02	100.00		
LAWA133	0.00	0.00	2.00	0.00	0.00	2.97	3.00	1.02	100.00		
LAWA133	0.00	0.00	2.00	0.00	0.00	2.97	3.00	1.02	100.00		
LAWA133	0.00	0.00	2.00	0.00	0.00	2.97	3.00	1.02	100.00		
LAWA134	0.00	0.00	2.03	0.00	0.00	3.00	3.04	0.97	100.00		
LAWA134	0.00	0.00	2.03	0.00	0.00	3.00	3.04	0.97	100.00		
LAWA134	0.00	0.00	2.03	0.00	0.00	3.00	3.04	0.97	100.00		
LAWA134	0.00	0.00	2.03	0.00	0.00	3.00	3.04	0.97	100.00		
LAWA134	0.00	0.00	2.03	0.00	0.00	3.00	3.04	0.97	100.00		
LAWA134	0.00	0.00	2.03	0.00	0.00	3.00	3.04	0.97	100.00		
LAWA134	0.00	0.00	2.03	0.00	0.00	3.00	3.04	0.97	100.00		
LAWA134	0.00	0.00	2.03	0.00	0.00	3.00	3.04	0.97	100.00		
LAWA135	0.00	0.00	2.05	0.00	0.00	3.04	3.08	0.93	100.00		
LAWA135	0.00	0.00	2.05	0.00	0.00	3.04	3.08	0.93	100.00		
LAWA135	0.00	0.00	2.05	0.00	0.00	3.04	3.08	0.93	100.00		
LAWA135	0.00	0.00	2.05	0.00	0.00	3.04	3.08	0.93	100.00		
LAWA135	0.00	0.00	2.05	0.00	0.00	3.04	3.08	0.93	100.00		
LAWA135	0.00	0.00	2.05	0.00	0.00	3.04	3.08	0.93	100.00		
LAWA135	0.00	0.00	2.05	0.00	0.00	3.04	3.08	0.93	100.00		
LAWA135	0.00	0.00	2.05	0.00	0.00	3.04	3.08	0.93	100.00		
LAWA136	0.00	0.00	2.05	0.00	0.00	3.04	3.08	0.93	100.00		
LAWA136	0.00	0.00	2.05	0.00	0.00	3.04	3.08	0.93	100.00		
LAWA136	0.00	0.00	2.05	0.00	0.00	3.04	3.08	0.93	100.00		
LAWA136	0.00	0.00	2.05	0.00	0.00	3.04	3.08	0.93	100.00		
LAWA136	0.00	0.00	2.05	0.00	0.00	3.04	3.08	0.93	100.00		
LAWA136	0.00	0.00	2.05	0.00	0.00	3.04	3.08	0.93	100.00		
LAWA136	0.00	0.00	2.05	0.00	0.00	3.04	3.08	0.93	100.00		
LAWA136	0.00	0.00	2.05	0.00	0.00	3.04	3.08	0.93	100.00		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
LAWA41	LAW	VSL-11R2270-1	SS	56.00	0.80	2.008	112.442	**2.680**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.27
LAWA41	LAW	VSL-11R2270-1	SS	120.00	0.80	2.008	240.948	**2.680**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.54
LAWA41	LAW	VSL-11R2270-1	SS	180.00	0.80	2.008	361.422	**2.680**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.65
LAWA41	LAW	VSL-11R2270-1	SS	271.00	0.80	2.008	544.140	**2.680**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.75
LAWA41	LAW	VSL-11R2270-1	SS	365.00	0.80	2.008	732.883	**2.680**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.85
LAWA41	LAW	VSL-11R2270-1	SS	547.00	0.80	2.008	1,098.320	**2.680**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.93
LAWA41	LAW	VSL-11R2270-1	SS	730.00	0.80	2.008	1,465.765	**2.680**	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.12
LAWA41	LAW	VSL-11R2270-1	SS	1331.00	0.80	2.008	2,672.512	**2.680**	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.25
LAWA41	LAW	VSL-11R2270-1	T	7.00	0.80	2.008	14.055	**2.680**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.06
LAWA41	LAW	VSL-11R2270-1	T	27.00	0.80	2.008	54.213	**2.680**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.02
LAWA41	LAW	VSL-11R2270-1	T	56.00	0.80	2.008	112.442	**2.680**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.06
LAWA41	LAW	VSL-11R2270-1	T	120.00	0.80	2.008	240.948	**2.680**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.11
LAWA41	LAW	VSL-11R2270-1	T	181.00	0.80	2.008	363.429	**2.680**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.43
LAWA41	LAW	VSL-11R2270-1	T	259.00	0.80	2.008	520.046	**2.680**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.14
LAWA42	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.27
LAWA42	LAW	VSL-11R2270-1	SS	13.00	0.81	2.031	26.398	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.42
LAWA42	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.57
LAWA42	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.72
LAWA42	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.82
LAWA42	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.87
LAWA42	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.93
LAWA42	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.98
LAWA42	LAW	VSL-11R2270-1	SS	730.00	0.81	2.031	1,482.359	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.15
LAWA42	LAW	VSL-11R2270-1	SS	1331.00	0.81	2.031	2,702.767	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.26
LAWA42	LAW	VSL-11R2270-1	T	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.31
LAWA42	LAW	VSL-11R2270-1	T	27.00	0.81	2.031	54.827	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.25
LAWA42	LAW	VSL-11R2270-1	T	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.28
LAWA42	LAW	VSL-11R2270-1	T	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.28
LAWA42	LAW	VSL-11R2270-1	T	181.00	0.81	2.031	367.544	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.65
LAWA42	LAW	VSL-11R2270-1	T	259.00	0.81	2.031	525.933	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.35
LAWA43-1	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.21
LAWA43-1	LAW	VSL-11R2270-1	SS	13.00	0.81	2.031	26.398	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.27
LAWA43-1	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.43
LAWA43-1	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.51
LAWA43-1	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.64
LAWA43-1	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.76
LAWA43-1	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.84
LAWA43-1	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.92
LAWA43-1	LAW	VSL-11R2270-1	SS	730.00	0.81	2.031	1,482.359	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.12
LAWA43-1	LAW	VSL-11R2270-1	SS	1331.00	0.81	2.031	2,702.767	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.24
LAWA43-1	LAW	VSL-11R2270-1	T	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.11
LAWA43-1	LAW	VSL-11R2270-1	T	27.00	0.81	2.031	54.827	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.04
LAWA43-1	LAW	VSL-11R2270-1	T	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.06
LAWA43-1	LAW	VSL-11R2270-1	T	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.12
LAWA43-1	LAW	VSL-11R2270-1	T	181.00	0.81	2.031	367.544	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.43
LAWA43-1	LAW	VSL-11R2270-1	T	259.00	0.81	2.031	525.933	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.13
LAWA44	LAW	VSL-11R2270-1	SS	7.00	0.80	2.015	14.108	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.27
LAWA44	LAW	VSL-11R2270-1	SS	28.00	0.80	2.015	56.432	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.33
LAWA44	LAW	VSL-11R2270-1	SS	56.00	0.80	2.015	112.863	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.43
LAWA44	LAW	VSL-11R2270-1	SS	120.00	0.80	2.015	241.850	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.66
LAWA44	LAW	VSL-11R2270-1	SS	180.00	0.80	2.015	362.775	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.84
LAWA44	LAW	VSL-11R2270-1	SS	270.00	0.80	2.015	544.163	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.15
LAWA44	LAW	VSL-11R2270-1	SS	371.00	0.80	2.015	747.720	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.27
LAWA44	LAW	VSL-11R2270-1	SS	547.00	0.80	2.015	1,102.434	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.32
LAWA44	LAW	VSL-11R2270-1	SS	727.00	0.80	2.015	1,465.209	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.43
LAWA44	LAW	VSL-11R2270-1	SS	1296.00	0.80	2.015	2,611.982	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.55
LAWA44	LAW	VSL-11R2270-1	T	7.00	0.80	2.015	14.108	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.43
LAWA44	LAW	VSL-11R2270-1	T	28.00	0.80	2.015	56.432	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.41
LAWA44	LAW	VSL-11R2270-1	T	56.00	0.80	2.015	112.863	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.38
LAWA44	LAW	VSL-11R2270-1	T	120.00	0.80	2.015	241.850	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.37
LAWA44	LAW	VSL-11R2270-1	T	180.00	0.80	2.015	362.775	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.16
LAWA44	LAW	VSL-11R2270-1	T	240.00	0.80	2.015	483.700	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.95
LAWA44R10	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.27
LAWA44R10	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.33
LAWA44R10	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.46
LAWA44R10	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.64
LAWA44R10	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.92

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
LAWA41	117.67	43.71	0.95			255.90	26.06	13.96	2.48		0.70	0.56	1.77	0.95
LAWA41	128.59	51.43	0.40			345.02	29.97	15.60	2.80		0.78	0.62	1.92	1.05
LAWA41	143.80	61.72	0.89			433.60	37.73	15.75	2.87		0.79	0.48	1.80	0.80
LAWA41	150.73	65.57	0.31			409.47	36.63	16.28	2.62		0.86		2.10	0.60
LAWA41	170.73	77.46	0.32			471.00	43.12	17.76	2.46		0.77		1.70	0.64
LAWA41	182.20	83.90	0.34			507.50	52.07	16.99	1.53		0.38		0.92	
LAWA41	200.77	93.30	0.66			562.33	51.60	15.86						
LAWA41	1467.50	1423.53	0.69			5120.00	460.92	2.38					1.13	
LAWA41	89.89	24.53	0.71			172.27	16.75	11.17	1.34		0.47		0.93	
LAWA41	97.99	36.08	0.43			228.03	22.00	11.50	1.36		0.63		1.15	0.71
LAWA41	104.83	42.32	0.25			270.77	22.46	11.45	1.58		0.63		0.96	0.83
LAWA41	98.95	54.32				359.40	30.55	8.99	1.62		0.77		1.79	76.00
LAWA41	86.43	60.11	0.22			335.63	29.58	5.78			0.66		3.33	0.59
LAWA41	88.64	80.68	0.34			451.37	41.73	4.94	1.28		0.84		3.14	0.65
LAWA42	77.24	43.65	0.42			206.40	22.49	9.72			0.38		0.99	
LAWA42	101.77	63.78	0.68			264.23	26.82	11.49	1.60		0.45		1.26	0.46
LAWA42	108.50	76.46	0.55			315.20	37.45	13.07	1.69		0.51		1.53	0.55
LAWA42	120.12	91.18	0.42			424.36	43.97	15.45	1.78		0.45		1.37	
LAWA42	131.13	99.76	0.65			494.33	50.06	14.61	1.39		0.36		0.78	
LAWA42	136.20	107.10	0.57			487.67	49.70	15.04			0.39		0.82	
LAWA42	150.03	119.07	0.19			537.10	54.38	15.46						
LAWA42	158.67	124.33	0.30			546.90	62.02	14.55						
LAWA42	279.53	307.47	0.53			1093.80	119.43	9.52						
LAWA42	1117.33	2433.93	0.96			6907.70	657.01	4.24					1.64	
LAWA42	78.95	42.20	0.23			205.27	22.06	9.55			0.38		0.86	
LAWA42	90.01	64.37	0.21			279.87	30.78	10.43			0.56		1.13	0.05
LAWA42	96.64	74.09	0.17			339.30	33.07	10.81	1.17		0.51		0.75	0.57
LAWA42	89.52	88.13				423.27	41.78	8.73			0.50		0.83	0.48
LAWA42	78.79	95.17	0.12			390.33	40.29	6.23			0.45		2.36	
LAWA42	70.28	115.47	0.18			496.83	51.60	4.16			0.37		1.55	
LAWA43-1	57.66	17.59	0.37			127.80	12.98	22.22			0.25		0.77	
LAWA43-1	78.02	26.60	0.56			168.20	14.15	25.36	1.89		0.31		1.16	0.77
LAWA43-1	83.42	35.00	0.74			207.57	21.10	29.76	2.44		0.53	0.57	1.71	1.01
LAWA43-1	90.44	44.77	0.50			287.09	25.03	32.28	2.83		0.73	0.70	2.22	1.02
LAWA43-1	98.33	52.84	1.14			339.50	30.89	32.73	2.94		0.77	0.70	2.04	1.03
LAWA43-1	106.40	59.83	0.40			361.70	30.44	35.20	3.07		1.01	0.57	3.01	0.95
LAWA43-1	116.33	68.96	0.44			393.87	35.53	38.06	3.18		1.00	0.67	3.09	1.14
LAWA43-1	121.10	77.78	0.56			417.90	41.77	36.38	1.90		0.45		1.26	0.77
LAWA43-1	130.00	91.57	0.66			500.70	41.42	30.56	1.57		0.30		0.87	
LAWA43-1	717.31	2907.10	1.70			8554.17	1226.20	10.30	1.26				2.93	
LAWA43-1	59.47	18.14	0.40			132.47	12.52	23.18			0.26			
LAWA43-1	65.16	26.68	0.41			177.57	16.85	24.84	1.24		0.41		1.26	0.59
LAWA43-1	70.62	33.44	0.28			214.37	17.95	25.09	1.50		0.51	0.45	1.09	0.83
LAWA43-1	64.88	45.92				295.43	24.88	22.13	1.47		0.77	0.50	1.79	0.83
LAWA43-1	55.25	52.62	0.16			184.53	23.80	16.78	1.31		0.97		3.57	0.77
LAWA43-1	43.30	65.01	0.20			338.93	25.99	10.28	1.59		1.18	0.50	4.50	0.81
LAWA44	68.11	20.51	0.36			106.07		10.51	1.10		0.49			
LAWA44	83.46	36.20	0.39			162.17		11.86	1.53		0.61		1.35	0.65
LAWA44	92.22	45.62	0.67			223.97	3.09	12.12	2.02		0.79	0.54	0.98	0.86
LAWA44	106.43	59.32	0.46			261.37	3.30	13.86	2.29		0.82	0.68	0.84	0.97
LAWA44	115.37	67.95	0.38			304.47	4.31	12.60	2.75		1.22	0.94	2.33	1.42
LAWA44	127.67	78.74	0.40			313.77	4.18	13.21	2.52		1.14	0.74	2.73	1.05
LAWA44	134.50	86.12	0.26			335.10	4.20	13.01	2.62		1.17	0.78	2.81	1.16
LAWA44	135.43	90.23	0.13			464.83	6.50	11.58	2.18		0.85	0.64	1.76	1.13
LAWA44	153.37	101.07	0.47			429.30	5.74	12.04	2.31		0.92	0.44	2.53	0.79
LAWA44	254.97	174.92	0.17			679.49	8.57	6.81	1.36		0.34		1.05	0.62
LAWA44	64.48	20.79	0.31			100.63		8.36			0.32			
LAWA44	78.36	35.18	0.29			165.60	2.35	8.76	1.15		0.52		0.59	0.51
LAWA44	77.29	44.73	0.39			219.63	2.86	7.54	1.38		0.61		0.98	0.81
LAWA44	74.50	60.35	0.17			273.10	2.48	4.62			0.37		0.84	0.75
LAWA44	73.65	73.09	0.38			283.27	2.81	3.01			0.34		1.33	0.78
LAWA44	69.17	97.43	0.19			462.50	2.50						0.63	
LAWA44R10	90.30	29.81				139.90	2.33	8.94	1.56		0.59		1.11	
LAWA44R10	115.13	63.46	0.17			273.37	3.79	13.12	2.70		1.01	0.61	1.87	1.21
LAWA44R10	142.07	76.69	0.22			332.63	4.53	13.12	2.33		0.92	0.70	1.81	1.21
LAWA44R10	149.60	88.72	0.53			376.10	4.41	12.81	2.59		1.05	0.69	2.06	1.31
LAWA44R10	144.20	88.35	0.53			398.33	4.82	12.79	2.58		0.98	0.74	2.00	1.38

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44R10		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44R10		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44R10		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44R10		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44R10		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44R10	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44R10	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44R10	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44R10	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44R10	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44R10	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44R10	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44R10	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44R10	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44R10	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44R10	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44R10	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44R10	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44R10	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44R10	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
LAWA44R10	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.07
LAWA44R10	LAW	VSL-11R2270-1	SS	364.00	0.81	2.031	739.149	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.12
LAWA44R10	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.25
LAWA44R10	LAW	VSL-11R2270-1	SS	733.00	0.81	2.031	1,488.451	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.33
LAWA44R10	LAW	VSL-11R2270-1	SS	1093.00	0.81	2.031	2,219.477	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.43
LAWA44R10	LAW	VSL-11R2270-1	SS	2210.00	0.81	2.031	4,487.689	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.66
LAWA45	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.17
LAWA45	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.22
LAWA45	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.34
LAWA45	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.47
LAWA45	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.58
LAWA45	LAW	VSL-11R2270-1	SS	270.00	0.81	2.031	548.270	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.72
LAWA45	LAW	VSL-11R2270-1	SS	371.00	0.81	2.031	753.363	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.87
LAWA45	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.94
LAWA45	LAW	VSL-11R2270-1	SS	727.00	0.81	2.031	1,476.267	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.06
LAWA45	LAW	VSL-11R2270-1	SS	1296.00	0.81	2.031	2,631.695	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.17
LAWA45	LAW	VSL-11R2270-1	T	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.33
LAWA45	LAW	VSL-11R2270-1	T	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.27
LAWA45	LAW	VSL-11R2270-1	T	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.27
LAWA45	LAW	VSL-11R2270-1	T	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.26
LAWA45	LAW	VSL-11R2270-1	T	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.06
LAWA45	LAW	VSL-11R2270-1	T	240.00	0.81	2.031	487.351	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.82
LAWA49	LAW	VSL-11R2270-1	SS	7.00	0.81	2.038	14.268	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.51
LAWA49	LAW	VSL-11R2270-1	SS	28.00	0.81	2.038	57.073	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.60
LAWA49	LAW	VSL-11R2270-1	SS	56.00	0.81	2.038	114.146	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.82
LAWA49	LAW	VSL-11R2270-1	SS	120.00	0.81	2.038	244.598	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.11
LAWA49	LAW	VSL-11R2270-1	SS	180.00	0.81	2.038	366.898	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.22
LAWA49	LAW	VSL-11R2270-1	SS	271.00	0.81	2.038	552.385	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.32
LAWA49	LAW	VSL-11R2270-1	SS	365.00	0.81	2.038	743.987	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.42
LAWA49	LAW	VSL-11R2270-1	SS	545.00	0.81	2.038	1,110.885	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.53
LAWA49	LAW	VSL-11R2270-1	SS	729.00	0.81	2.038	1,485.936	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.64
LAWA49	LAW	VSL-11R2270-1	SS	1272.00	0.81	2.038	2,592.744	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.77
LAWA50	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.62
LAWA50	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.71
LAWA50	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.92
LAWA50	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.21
LAWA50	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.34
LAWA50	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.45
LAWA50	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.52
LAWA50	LAW	VSL-11R2270-1	SS	545.00	0.81	2.031	1,106.693	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.65
LAWA50	LAW	VSL-11R2270-1	SS	729.00	0.81	2.031	1,480.328	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.75
LAWA50	LAW	VSL-11R2270-1	SS	1272.00	0.81	2.031	2,582.960	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.85
LAWA51	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.03
LAWA51	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.12
LAWA51	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.22
LAWA51	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.26
LAWA51	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.22
LAWA51	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.34
LAWA51	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.43
LAWA51	LAW	VSL-11R2270-1	SS	545.00	0.81	2.031	1,106.693	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.52
LAWA51	LAW	VSL-11R2270-1	SS	729.00	0.81	2.031	1,480.328	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.65
LAWA51	LAW	VSL-11R2270-1	SS	1272.00	0.81	2.031	2,582.960	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.75
LAWA52	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.82
LAWA52	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.33
LAWA52	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.77
LAWA52	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.85
LAWA52	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.96
LAWA52	LAW	VSL-11R2270-1	SS	269.00	0.81	2.031	546.239	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.04
LAWA52	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.17
LAWA52	LAW	VSL-11R2270-1	SS	546.00	0.81	2.031	1,108.723	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.36
LAWA52	LAW	VSL-11R2270-1	SS	730.00	0.81	2.031	1,482.359	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.56
LAWA52	LAW	VSL-11R2270-1	SS	1827.00	0.81	2.031	3,709.959	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.92
LAWA52	LAW	VSL-11R2270-1	SS	2190.00	0.81	2.031	4,447.077	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.92
LAWA52	LAW	VSL-11R2270-1	SS	2558.00	0.81	2.031	5,194.348	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.96
LAWA53	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.52
LAWA53	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.62
LAWA53	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.76

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
LAWA44R10	142.83	89.34	0.36			389.43	4.28	12.24	2.19		0.94	0.57	1.79	1.06
LAWA44R10	184.35	115.63	0.47			498.47	6.32	15.67	3.83		1.51	0.89	2.70	1.23
LAWA44R10	181.41	120.75	0.50			511.40	6.45	14.55	2.51		0.72	0.62	1.48	1.37
LAWA44R10	162.80	115.91	0.25			445.19	6.70	11.13						
LAWA44R10	204.26	150.37	0.11			535.94	7.25	9.36						
LAWA44R10	941.46	1570.17	0.55			4420.57	77.85	0.93					0.54	
LAWA45	64.00	56.83	0.29			152.37		7.85	1.42		0.50		0.54	0.56
LAWA45	80.68	127.90	0.10			298.40	2.68	7.40	2.47		1.11	0.75	2.32	1.41
LAWA45	88.01	168.40	0.41			433.37	4.84	6.74	3.09		1.36	0.93	2.34	1.59
LAWA45	93.94	226.53	0.24			521.97	5.59	6.74	2.69		1.16	0.90	1.67	1.55
LAWA45	104.47	268.67	0.20			640.50	6.75	6.09	2.75		1.37	1.03	2.34	1.52
LAWA45	111.00	303.37	0.16			702.97	7.71	5.83	2.82		1.27	0.23	2.61	2.15
LAWA45	117.97	345.40				723.37	8.60	5.96	1.58		0.72	0.70	1.45	1.20
LAWA45	115.53	366.73				954.43	11.26	5.08						0.90
LAWA45	131.57	421.83	0.22			914.30	11.28	5.29						
LAWA45	191.19	576.51	0.10			1302.57	16.29	7.38						
LAWA45	61.69	59.53	0.18			154.90		7.71	1.54		0.56		0.91	0.57
LAWA45	76.76	128.73				324.97	3.39	6.61	2.64		1.33	0.69	2.18	1.18
LAWA45	74.36	163.87	0.25			444.57	4.44	5.00	2.62		1.32	0.78	2.58	1.43
LAWA45	75.19	227.87	0.19			561.70	4.91	2.72	1.30		0.63	0.71	1.38	1.20
LAWA45	74.30	267.90	0.31			578.07	4.58	1.85	1.13		0.46	0.55	2.12	1.03
LAWA45	68.09	325.50				867.07	3.74				0.41		1.11	
LAWA49	63.38	17.18	0.17			86.71		9.63	2.09		0.49		1.04	
LAWA49	79.41	33.82				144.70	1.79	10.61	4.11		0.92	0.60	2.31	1.05
LAWA49	90.37	48.75	0.23			192.17	2.13	11.47	5.59		1.23	0.96	3.02	1.52
LAWA49	103.83	65.13	0.20			247.50	2.44	11.92	7.01		1.50	1.41	4.01	2.22
LAWA49	117.63	75.49	0.29			276.27	3.15	12.39	8.30		1.80	1.60	4.84	2.55
LAWA49	126.87	92.09				314.33	3.61	13.80	9.86		2.38	1.99	5.92	2.94
LAWA49	135.90	104.40				348.80	4.12	13.58	10.05		2.19	1.93	6.17	3.08
LAWA49	134.03	108.47	0.34			414.23	4.82	12.55	9.14		2.00	1.86	5.90	2.55
LAWA49	202.92	170.34	0.12			542.34	7.70	19.98	12.68		2.76	2.87	7.43	4.37
LAWA49	197.59	183.28	0.28			617.19	8.15	15.82	10.05		2.51	2.26	7.38	3.32
LAWA50	61.00	17.28	0.28			88.98		10.93	1.89		0.44		0.86	
LAWA50	75.85	34.46	0.18			149.03	1.82	11.87	4.16		0.83	0.47	1.89	0.82
LAWA50	86.47	48.93	0.20			193.17	2.18	12.51	5.99		1.12	0.86	2.41	1.31
LAWA50	101.07	66.90	0.36			255.07	2.71	13.51	8.06		1.38	1.37	3.50	2.02
LAWA50	115.57	78.70	0.14			283.20	3.56	13.76	10.47		1.73	1.77	4.60	2.52
LAWA50	121.70	92.03				318.70	3.65	14.98	12.47		2.21	2.12	5.47	2.95
LAWA50	133.47	104.73				360.33	4.59	14.85	13.10		2.11	2.20	5.91	3.20
LAWA50	138.77	116.47	0.20			424.60	5.39	14.83	12.75		2.02	2.30	5.82	2.75
LAWA50	207.60	183.08	0.13			592.18	8.16	21.94	17.31		2.61	3.30	7.24	4.69
LAWA50	205.33	201.37	0.31			666.89	8.45	18.98	13.13		2.06	2.60	6.69	3.77
LAWA51	52.50	26.24	0.10			69.32		8.37	1.57		0.41		0.83	
LAWA51	63.67	75.34				169.13		7.53	2.91		1.22	0.63	2.66	1.10
LAWA51	71.23	115.63	0.22			254.27	2.32	6.62	3.46		1.79	0.92	3.44	1.50
LAWA51	76.60	158.53	0.30			333.50	2.96	4.80	2.59		1.21	1.00	2.43	1.90
LAWA51	88.16	190.57	0.96			375.37	3.80	4.54	2.87		1.57	1.08	3.32	1.98
LAWA51	93.47	237.33	0.15			456.33	3.90	4.58	2.89		1.33	1.31	2.41	2.42
LAWA51	97.47	273.73				528.20	5.21	3.55	2.44		1.15	1.25	2.62	2.40
LAWA51	102.53	303.53	1.78			642.47	6.36	3.43	2.78		1.60	1.26	3.39	2.02
LAWA51	152.31	510.19	0.53			943.76	11.22	5.23	3.53		1.80	1.79	3.37	2.98
LAWA51	135.51	516.27	0.20			977.76	9.99	3.29	1.67		0.46	1.17	1.39	1.83
LAWA52	67.82	16.36	1.19			163.60	3.15	5.56						
LAWA52	109.63	28.94	0.47			271.10	4.54	7.63						
LAWA52	125.40	37.70	0.95			333.87	6.00	8.01						
LAWA52	147.80	42.61	0.50			378.20	6.30	8.96						
LAWA52	168.13	48.86	0.51			443.90	6.55	9.92						
LAWA52	171.17	51.73	0.47			496.17	7.32	9.01						
LAWA52	590.70	651.33				3131.40	82.97	2.22						
LAWA52	726.00	880.10	1.08			3922.50	121.50						0.62	
LAWA52	1019.47	1299.77	1.05			6269.80	195.89	2.56	1.86				1.56	
LAWA52	1026.33	1995.47	0.68			7525.27	315.67	2.95	1.53				1.49	
LAWA52	922.63	1686.53	0.62			6808.13	239.31	2.37	1.56				1.36	
LAWA52	972.95	1735.87	0.93			6859.77	243.20	2.27	1.58				1.11	
LAWA53	68.32	15.40	0.79			156.27	2.57	6.76						
LAWA53	110.30	25.62	0.48			248.03	4.28	11.77						
LAWA53	124.50	30.05	0.80			316.20	4.87	10.73						

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
LAWA44R10		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44R10		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44R10		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44R10		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44R10		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44R10		Analcime only	XRD/SEM	73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA49		Not Studied		73.98	16.185	0.8917445	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA49		Not Studied		73.98	16.185	0.8917445	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA49		Not Studied		73.98	16.185	0.8917445	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA49		Not Studied		73.98	16.185	0.8917445	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA49		Not Studied		73.98	16.185	0.8917445	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA49		Not Studied		73.98	16.185	0.8917445	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA49		Not Studied		73.98	16.185	0.8917445	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA49		Not Studied		73.98	16.185	0.8917445	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA49		Not Studied		73.98	16.185	0.8917445	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA49		Not Studied		73.98	16.185	0.8917445	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA50		Not Studied		71.95	18.182	-7.1446351	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA50		Not Studied		71.95	18.182	-7.1446351	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA50		Not Studied		71.95	18.182	-7.1446351	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA50		Not Studied		71.95	18.182	-7.1446351	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA50		Not Studied		71.95	18.182	-7.1446351	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA50		Not Studied		71.95	18.182	-7.1446351	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA50		Not Studied		71.95	18.182	-7.1446351	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA50		Not Studied		71.95	18.182	-7.1446351	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA50		Not Studied		71.95	18.182	-7.1446351	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA50		Not Studied		71.95	18.182	-7.1446351	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA51		Not Studied		77.01	13.201	12.8797607	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA51		Not Studied		77.01	13.201	12.8797607	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA51		Not Studied		77.01	13.201	12.8797607	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA51		Not Studied		77.01	13.201	12.8797607	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA51		Not Studied		77.01	13.201	12.8797607	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA51		Not Studied		77.01	13.201	12.8797607	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA51		Not Studied		77.01	13.201	12.8797607	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA51		Not Studied		77.01	13.201	12.8797607	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA51		Not Studied		77.01	13.201	12.8797607	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA51		Not Studied		77.01	13.201	12.8797607	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA52		Not Studied		68.94	21.566	-21.4222378	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA52		Not Studied		68.94	21.566	-21.4222378	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA52		Not Studied		68.94	21.566	-21.4222378	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA52		Not Studied		68.94	21.566	-21.4222378	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA52		Not Studied		68.94	21.566	-21.4222378	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA52		Not Studied		68.94	21.566	-21.4222378	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA52		Not Studied		68.94	21.566	-21.4222378	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA52		Not Studied		68.94	21.566	-21.4222378	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA52		Not Studied		68.94	21.566	-21.4222378	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA52		Not Studied		68.94	21.566	-21.4222378	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA52		Not Studied		68.94	21.566	-21.4222378	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA52		Not Studied		68.94	21.566	-21.4222378	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA53		Not Studied		68.59	21.452	-20.2251811	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA53		Not Studied		68.59	21.452	-20.2251811	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA53		Not Studied		68.59	21.452	-20.2251811	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
LAWA44R10	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44R10	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44R10	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44R10	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44R10	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44R10	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA49	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.98	0.50	0.00	0.00
LAWA49	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.98	0.50	0.00	0.00
LAWA49	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.98	0.50	0.00	0.00
LAWA49	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.98	0.50	0.00	0.00
LAWA49	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.98	0.50	0.00	0.00
LAWA49	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.98	0.50	0.00	0.00
LAWA49	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.98	0.50	0.00	0.00
LAWA49	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.98	0.50	0.00	0.00
LAWA49	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.98	0.50	0.00	0.00
LAWA49	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.98	0.50	0.00	0.00
LAWA50	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.98	0.50	0.00	0.00
LAWA50	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.98	0.50	0.00	0.00
LAWA50	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.98	0.50	0.00	0.00
LAWA50	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.98	0.50	0.00	0.00
LAWA50	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.98	0.50	0.00	0.00
LAWA50	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.98	0.50	0.00	0.00
LAWA50	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.98	0.50	0.00	0.00
LAWA50	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.98	0.50	0.00	0.00
LAWA50	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.98	0.50	0.00	0.00
LAWA50	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.98	0.50	0.00	0.00
LAWA51	HOMOGENEOUS	6.20	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	0.45	0.00	0.00
LAWA51	HOMOGENEOUS	6.20	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	0.45	0.00	0.00
LAWA51	HOMOGENEOUS	6.20	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	0.45	0.00	0.00
LAWA51	HOMOGENEOUS	6.20	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	0.45	0.00	0.00
LAWA51	HOMOGENEOUS	6.20	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	0.45	0.00	0.00
LAWA51	HOMOGENEOUS	6.20	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	0.45	0.00	0.00
LAWA51	HOMOGENEOUS	6.20	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	0.45	0.00	0.00
LAWA51	HOMOGENEOUS	6.20	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	0.45	0.00	0.00
LAWA51	HOMOGENEOUS	6.20	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	0.45	0.00	0.00
LAWA51	HOMOGENEOUS	6.20	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	0.45	0.00	0.00
LAWA52	HOMOGENEOUS	6.18	6.19	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.51	0.50	0.00	0.00
LAWA52	HOMOGENEOUS	6.18	6.19	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.51	0.50	0.00	0.00
LAWA52	HOMOGENEOUS	6.18	6.19	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.51	0.50	0.00	0.00
LAWA52	HOMOGENEOUS	6.18	6.19	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.51	0.50	0.00	0.00
LAWA52	HOMOGENEOUS	6.18	6.19	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.51	0.50	0.00	0.00
LAWA52	HOMOGENEOUS	6.18	6.19	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.51	0.50	0.00	0.00
LAWA52	HOMOGENEOUS	6.18	6.19	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.51	0.50	0.00	0.00
LAWA52	HOMOGENEOUS	6.18	6.19	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.51	0.50	0.00	0.00
LAWA52	HOMOGENEOUS	6.18	6.19	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.51	0.50	0.00	0.00
LAWA52	HOMOGENEOUS	6.18	6.19	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.51	0.50	0.00	0.00
LAWA52	HOMOGENEOUS	6.18	6.19	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.51	0.50	0.00	0.00
LAWA52	HOMOGENEOUS	6.18	6.19	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.51	0.50	0.00	0.00
LAWA53	HOMOGENEOUS	6.15	6.17	0.00	7.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.47	0.49	0.00	0.00
LAWA53	HOMOGENEOUS	6.15	6.17	0.00	7.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.47	0.49	0.00	0.00
LAWA53	HOMOGENEOUS	6.15	6.17	0.00	7.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.47	0.49	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
LAWA44R10	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44R10	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44R10	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44R10	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44R10	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44R10	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA49	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.00
LAWA49	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.00
LAWA49	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.00
LAWA49	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.00
LAWA49	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.00
LAWA49	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.00
LAWA49	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.00
LAWA49	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.00
LAWA49	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.00
LAWA49	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.00
LAWA50	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.55	0.00	0.00	0.00
LAWA50	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.55	0.00	0.00	0.00
LAWA50	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.55	0.00	0.00	0.00
LAWA50	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.55	0.00	0.00	0.00
LAWA50	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.55	0.00	0.00	0.00
LAWA50	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.55	0.00	0.00	0.00
LAWA50	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.55	0.00	0.00	0.00
LAWA50	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.55	0.00	0.00	0.00
LAWA50	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.55	0.00	0.00	0.00
LAWA50	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.55	0.00	0.00	0.00
LAWA51	0.00	1.48	0.00	0.00	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.58	0.00	0.00	0.00
LAWA51	0.00	1.48	0.00	0.00	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.58	0.00	0.00	0.00
LAWA51	0.00	1.48	0.00	0.00	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.58	0.00	0.00	0.00
LAWA51	0.00	1.48	0.00	0.00	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.58	0.00	0.00	0.00
LAWA51	0.00	1.48	0.00	0.00	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.58	0.00	0.00	0.00
LAWA51	0.00	1.48	0.00	0.00	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.58	0.00	0.00	0.00
LAWA51	0.00	1.48	0.00	0.00	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.58	0.00	0.00	0.00
LAWA51	0.00	1.48	0.00	0.00	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.58	0.00	0.00	0.00
LAWA51	0.00	1.48	0.00	0.00	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.58	0.00	0.00	0.00
LAWA51	0.00	1.48	0.00	0.00	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.58	0.00	0.00	0.00
LAWA52	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.25	0.00	0.00	0.00
LAWA52	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.25	0.00	0.00	0.00
LAWA52	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.25	0.00	0.00	0.00
LAWA52	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.25	0.00	0.00	0.00
LAWA52	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.25	0.00	0.00	0.00
LAWA52	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.25	0.00	0.00	0.00
LAWA52	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.25	0.00	0.00	0.00
LAWA52	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.25	0.00	0.00	0.00
LAWA52	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.25	0.00	0.00	0.00
LAWA52	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.25	0.00	0.00	0.00
LAWA52	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.25	0.00	0.00	0.00
LAWA52	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.25	0.00	0.00	0.00
LAWA53	0.00	1.47	0.00	0.00	19.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.04	0.00	0.00	0.00
LAWA53	0.00	1.47	0.00	0.00	19.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.04	0.00	0.00	0.00
LAWA53	0.00	1.47	0.00	0.00	19.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.04	0.00	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
LAWA44R10	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44R10	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44R10	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44R10	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44R10	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44R10	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA49	0.00	0.00	2.00	0.00	0.00	2.48	2.99	0.90	100.00		
LAWA49	0.00	0.00	2.00	0.00	0.00	2.48	2.99	0.90	100.00		
LAWA49	0.00	0.00	2.00	0.00	0.00	2.48	2.99	0.90	100.00		
LAWA49	0.00	0.00	2.00	0.00	0.00	2.48	2.99	0.90	100.00		
LAWA49	0.00	0.00	2.00	0.00	0.00	2.48	2.99	0.90	100.00		
LAWA49	0.00	0.00	2.00	0.00	0.00	2.48	2.99	0.90	100.00		
LAWA49	0.00	0.00	2.00	0.00	0.00	2.48	2.99	0.90	100.00		
LAWA49	0.00	0.00	2.00	0.00	0.00	2.48	2.99	0.90	100.00		
LAWA49	0.00	0.00	2.00	0.00	0.00	2.48	2.99	0.90	100.00		
LAWA49	0.00	0.00	2.00	0.00	0.00	2.48	2.99	0.90	100.00		
LAWA50	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA50	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA50	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA50	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA50	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA50	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA50	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA50	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA50	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA50	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA51	0.00	0.00	2.00	0.00	0.00	2.49	3.00	0.82	100.00		
LAWA51	0.00	0.00	2.00	0.00	0.00	2.49	3.00	0.82	100.00		
LAWA51	0.00	0.00	2.00	0.00	0.00	2.49	3.00	0.82	100.00		
LAWA51	0.00	0.00	2.00	0.00	0.00	2.49	3.00	0.82	100.00		
LAWA51	0.00	0.00	2.00	0.00	0.00	2.49	3.00	0.82	100.00		
LAWA51	0.00	0.00	2.00	0.00	0.00	2.49	3.00	0.82	100.00		
LAWA51	0.00	0.00	2.00	0.00	0.00	2.49	3.00	0.82	100.00		
LAWA51	0.00	0.00	2.00	0.00	0.00	2.49	3.00	0.82	100.00		
LAWA51	0.00	0.00	2.00	0.00	0.00	2.49	3.00	0.82	100.00		
LAWA51	0.00	0.00	2.00	0.00	0.00	2.49	3.00	0.82	100.00		
LAWA52	0.00	0.00	1.11	0.00	0.00	2.99	2.99	0.92	100.00		
LAWA52	0.00	0.00	1.11	0.00	0.00	2.99	2.99	0.92	100.00		
LAWA52	0.00	0.00	1.11	0.00	0.00	2.99	2.99	0.92	100.00		
LAWA52	0.00	0.00	1.11	0.00	0.00	2.99	2.99	0.92	100.00		
LAWA52	0.00	0.00	1.11	0.00	0.00	2.99	2.99	0.92	100.00		
LAWA52	0.00	0.00	1.11	0.00	0.00	2.99	2.99	0.92	100.00		
LAWA52	0.00	0.00	1.11	0.00	0.00	2.99	2.99	0.92	100.00		
LAWA52	0.00	0.00	1.11	0.00	0.00	2.99	2.99	0.92	100.00		
LAWA52	0.00	0.00	1.11	0.00	0.00	2.99	2.99	0.92	100.00		
LAWA52	0.00	0.00	1.11	0.00	0.00	2.99	2.99	0.92	100.00		
LAWA52	0.00	0.00	1.11	0.00	0.00	2.99	2.99	0.92	100.00		
LAWA52	0.00	0.00	1.11	0.00	0.00	2.99	2.99	0.92	100.00		
LAWA53	0.00	0.00	1.10	0.00	0.00	2.98	2.98	1.43	100.00		
LAWA53	0.00	0.00	1.10	0.00	0.00	2.98	2.98	1.43	100.00		
LAWA53	0.00	0.00	1.10	0.00	0.00	2.98	2.98	1.43	100.00		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
LAWA53	LAW	VSL-11R2270-1	SS	263.00	0.81	2.031	534.055	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.04
LAWA53	LAW	VSL-11R2270-1	SS	362.00	0.81	2.031	735.088	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.15
LAWA53	LAW	VSL-11R2270-1	SS	552.00	0.81	2.031	1,120.907	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.25
LAWA53	LAW	VSL-11R2270-1	SS	1448.00	0.81	2.031	2,940.350	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.55
LAWA53	LAW	VSL-11R2270-1	SS	1896.00	0.81	2.031	3,850.072	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.57
LAWA56	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.97
LAWA56	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.74
LAWA56	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.86
LAWA56	LAW	VSL-11R2270-1	SS	263.00	0.81	2.031	534.055	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.14
LAWA56	LAW	VSL-11R2270-1	SS	362.00	0.81	2.031	735.088	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.25
LAWA56	LAW	VSL-11R2270-1	SS	552.00	0.81	2.031	1,120.907	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.35
LAWA56	LAW	VSL-11R2270-1	SS	1448.00	0.81	2.031	2,940.350	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.66
LAWA56	LAW	VSL-11R2270-1	SS	1896.00	0.81	2.031	3,850.072	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.75
LAWA60	LAW	VSL-11R2270-1	SS	7.00	0.81	2.038	14.268	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.21
LAWA60	LAW	VSL-11R2270-1	SS	28.00	0.81	2.038	57.073	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.52
LAWA60	LAW	VSL-11R2270-1	SS	56.00	0.81	2.038	114.146	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.82
LAWA60	LAW	VSL-11R2270-1	SS	120.00	0.81	2.038	244.598	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.12
LAWA60	LAW	VSL-11R2270-1	SS	180.00	0.81	2.038	366.898	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.23
LAWA60	LAW	VSL-11R2270-1	SS	269.00	0.81	2.038	548.308	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.35
LAWA60	LAW	VSL-11R2270-1	SS	365.00	0.81	2.038	743.987	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.45
LAWA60	LAW	VSL-11R2270-1	SS	546.00	0.81	2.038	1,112.923	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.55
LAWA60	LAW	VSL-11R2270-1	SS	730.00	0.81	2.038	1,487.974	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.65
LAWA60	LAW	VSL-11R2270-1	SS	1827.00	0.81	2.038	3,724.011	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.07
LAWA60	LAW	VSL-11R2270-1	SS	2190.00	0.81	2.038	4,463.922	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.02
LAWA60	LAW	VSL-11R2270-1	SS	2558.00	0.81	2.038	5,214.024	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.14
LAWA65	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.42
LAWA65	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.54
LAWA65	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.65
LAWA65	LAW	VSL-11R2270-1	SS	263.00	0.81	2.031	534.055	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.93
LAWA65	LAW	VSL-11R2270-1	SS	362.00	0.81	2.031	735.088	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.04
LAWA65	LAW	VSL-11R2270-1	SS	552.00	0.81	2.031	1,120.907	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.14
LAWA65	LAW	VSL-11R2270-1	SS	1448.00	0.81	2.031	2,940.350	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.45
LAWA76	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.82
LAWA76	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.14
LAWA76	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.26
LAWA76	LAW	VSL-11R2270-1	SS	119.00	0.81	2.031	241.645	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.35
LAWA76	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.53
LAWA76	LAW	VSL-11R2270-1	SS	270.00	0.81	2.031	548.270	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.84
LAWA76	LAW	VSL-11R2270-1	SS	364.00	0.81	2.031	739.149	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.97
LAWA81	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.88
LAWA81	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.91
LAWA81	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.98
LAWA81	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.25
LAWA81	LAW	VSL-11R2270-1	SS	181.00	0.81	2.031	367.544	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.34
LAWA81	LAW	VSL-11R2270-1	SS	269.00	0.81	2.031	546.239	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.45
LAWA81	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.56
LAWA81	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.74
LAWA81	LAW	VSL-11R2270-1	SS	730.00	0.81	2.031	1,482.359	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.92
LAWA81	LAW	VSL-11R2270-1	SS	1101.00	0.81	2.031	2,235.722	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.05
LAWA81	LAW	VSL-11R2270-1	SS	1472.00	0.81	2.031	2,989.085	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.15
LAWA81	LAW	VSL-11R2270-1	SS	2200.00	0.81	2.031	4,467.383	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.22
LAWA81	LAW	VSL-11R2270-1	SS	2562.00	0.81	2.031	5,202.471	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.27
LAWA82	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.51
LAWA82	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.65
LAWA82	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.76
LAWA82	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.97
LAWA82	LAW	VSL-11R2270-1	SS	181.00	0.81	2.031	367.544	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.05
LAWA82	LAW	VSL-11R2270-1	SS	269.00	0.81	2.031	546.239	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.14
LAWA82	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.25
LAWA82	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.36
LAWA82	LAW	VSL-11R2270-1	SS	730.00	0.81	2.031	1,482.359	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.62
LAWA82	LAW	VSL-11R2270-1	SS	1101.00	0.81	2.031	2,235.722	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.75
LAWA82	LAW	VSL-11R2270-1	SS	1472.00	0.81	2.031	2,989.085	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.87
LAWA82	LAW	VSL-11R2270-1	SS	2200.00	0.81	2.031	4,467.383	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.07
LAWA82	LAW	VSL-11R2270-1	SS	2562.00	0.81	2.031	5,202.471	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.15
LAWA82	LAW	VSL-11R2270-1	SS	2886.00	0.81	2.031	5,860.394	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.17
LAWA82	LAW	VSL-11R2270-1	SS	3044.00	0.81	2.031	6,181.234	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.22

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
LAWA53	184.26	46.76	0.74			487.79	7.10	10.53						
LAWA53	194.36	52.63	0.68			478.45	7.94	10.90						
LAWA53	356.83	249.71	0.65			1220.97	27.16	8.42						
LAWA53	882.50	1507.23	1.02			5969.13	221.80	2.51	1.28				1.26	
LAWA53	952.04	1950.60	1.48			7300.27	275.99	7.47	2.38				1.21	
LAWA56	64.09	64.70	0.23			172.57	2.26	8.37			0.65		0.86	
LAWA56	90.37	140.00	0.16			329.20	4.28	9.84	2.44		0.88		2.26	0.98
LAWA56	99.34	161.40	0.32			409.33	4.78	6.81	2.50		1.05	0.51	2.40	1.15
LAWA56	121.11	216.28	0.27			578.13	7.33	6.43	2.18		0.90		2.54	0.79
LAWA56	117.83	238.51				566.57	6.84	6.76						0.54
LAWA56	118.49	254.17				596.32	6.75	7.58	1.83		0.68		1.89	0.47
LAWA56	134.51	310.34	0.29			754.98	10.18	4.28						
LAWA56	182.81	376.46	0.41			980.33	17.02	5.88						
LAWA60	47.72	20.11	0.63			92.50		8.88						
LAWA60	57.61	42.44	0.25			172.73	2.48	10.54						
LAWA60	71.80	60.00	0.94			216.37	3.43	10.86						
LAWA60	79.71	72.60	0.35			239.47	3.32	10.73			0.25			
LAWA60	89.94	83.33	0.50			274.27	3.57	11.28						
LAWA60	92.37	88.43	0.23			302.03	4.44	11.54			0.37			
LAWA60	93.64	94.55				323.80	4.82	11.14						
LAWA60	121.53	113.10	0.62			364.53	6.45	7.65						
LAWA60	242.39	177.15	1.51			584.94	12.08	2.71						
LAWA60	1095.00	3637.07	3.03			8128.30	191.28	0.85						
LAWA60	968.78	3086.57	3.18			7350.37	193.70							
LAWA60	980.25	3244.47	3.05			7540.23	181.41							
LAWA65	93.65	27.02	0.27			194.73	3.22	10.21						
LAWA65	125.13	42.58	0.11			275.30	4.41	14.67			0.44			
LAWA65	150.80	54.64	0.21			363.43	5.30	13.44			0.37			
LAWA65	550.65	451.16	0.53			2232.60	40.15	7.97						
LAWA65	871.23	823.11	0.42			3367.53	75.41	6.36						
LAWA65	873.42	1026.10	0.49			3879.37	97.45	8.15						
LAWA65	1046.40	1341.67	1.37			5162.53	171.94	1.48						
LAWA76	76.23	47.77	0.78		32.96	98.61	3.70	3.06						
LAWA76	169.67	161.63	2.25		98.91	319.77	11.23	2.93						
LAWA76	200.83	223.03	2.66		115.53	390.97	14.39	2.79						
LAWA76	239.13	327.30	3.21		170.83	541.93	20.96	2.76						
LAWA76	277.23	583.63	1.95		285.20	878.00	36.68	3.44						
LAWA76	289.77	1871.00	5.20		687.80	2958.10	127.93	3.99						
LAWA76	269.87	2670.57	10.01		987.07	3593.13	191.03	4.72						
LAWA81	61.73	21.54	0.54			124.30		7.17						
LAWA81	76.29	30.15				161.63	3.83	9.68						
LAWA81	92.50	42.88	0.47			234.20	2.99	9.85			0.28			
LAWA81	105.70	52.85	0.21			264.50	3.87	10.11			0.46		0.84	
LAWA81	119.73	64.76	0.28			316.80	4.99	11.25			0.43		0.99	
LAWA81	131.87	77.67	0.40			356.50	4.79	10.69	1.43		0.48		1.09	
LAWA81	146.47	86.66	0.17			400.53	5.42	11.14			0.41			
LAWA81	168.30	103.50	0.59			465.77	5.65	11.82					0.66	
LAWA81	217.45	137.56	0.28			647.34	8.70	12.45					0.47	
LAWA81	782.69	1022.60	1.51			3478.83	78.79						0.47	
LAWA81	1263.77	1753.77	1.29			5041.03	118.35	0.81						
LAWA81	1154.43	1787.90	1.55			5366.00	150.98	4.85			0.58			
LAWA81	1499.83	2178.87	1.05			6543.77	154.53	1.07						
LAWA82	69.19	18.83	0.21			99.37		9.10	1.18		0.60		0.87	0.47
LAWA82	81.95	33.74				143.10	2.91	10.18	2.03		1.10	0.97	1.89	1.03
LAWA82	100.18	51.44	0.39			225.93	3.16	10.72	2.90		1.39	1.09	2.38	1.07
LAWA82	112.50	70.80				259.73	3.07	10.82	2.91		1.70	1.20	3.63	1.34
LAWA82	125.93	87.69				326.17	4.30	12.15	2.72		1.72	0.81	3.52	0.85
LAWA82	130.47	95.91	0.17			347.07	3.45	11.28	3.38		1.68	0.93	3.87	1.07
LAWA82	136.87	104.67				374.23	3.72	11.13	2.06		1.80	0.79	2.65	0.95
LAWA82	147.00	115.33	0.31			404.47	3.66	11.31	2.61		1.14	0.65	2.63	0.86
LAWA82	191.15	152.45	0.23			550.60	10.16	14.64	2.46		1.12	0.72	2.92	0.97
LAWA82	182.07	152.50	0.30			590.91	6.22	13.23	1.18		0.63	0.65	1.64	
LAWA82	224.09	156.35				541.53	4.94	6.54						0.47
LAWA82	307.84	242.53	0.28			790.87	10.53	3.77						
LAWA82	491.60	413.46				1143.63	13.32	1.04						
LAWA82	621.60	648.74	0.09			1827.00	27.70	0.68						
LAWA82	750.39	819.18	0.09			2375.87	34.47							

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
LAWA53		Not Studied		68.59	21.452	-20.2251811	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA53		Not Studied		68.59	21.452	-20.2251811	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA53		Not Studied		68.59	21.452	-20.2251811	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA53		Not Studied		68.59	21.452	-20.2251811	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA53		Analcime only	XRD/SEM	68.59	21.452	-20.2251811	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA56		Not Studied		74.54	15.595	3.314762	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA56		Not Studied		74.54	15.595	3.314762	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA56		Not Studied		74.54	15.595	3.314762	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA56		Not Studied		74.54	15.595	3.314762	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA56		Not Studied		74.54	15.595	3.314762	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA56		Not Studied		74.54	15.595	3.314762	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA56		Not Studied		74.54	15.595	3.314762	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA56		Not Studied		74.54	15.595	3.314762	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA60		Not Studied		76.28	12.849	16.0383413	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA60		Not Studied		76.28	12.849	16.0383413	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA60		Not Studied		76.28	12.849	16.0383413	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA60		Not Studied		76.28	12.849	16.0383413	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA60		Not Studied		76.28	12.849	16.0383413	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA60		Not Studied		76.28	12.849	16.0383413	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA60		Not Studied		76.28	12.849	16.0383413	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA60		Not Studied		76.28	12.849	16.0383413	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA60		Not Studied		76.28	12.849	16.0383413	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA60		Not Studied		76.28	12.849	16.0383413	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA60		Not Studied		76.28	12.849	16.0383413	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA60		Not Studied		76.28	12.849	16.0383413	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA65		Not Studied		68.68	16.92	5.2359545	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA65		Not Studied		68.68	16.92	5.2359545	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA65		Not Studied		68.68	16.92	5.2359545	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA65		Not Studied		68.68	16.92	5.2359545	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA65		Not Studied		68.68	16.92	5.2359545	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA65		Not Studied		68.68	16.92	5.2359545	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA65		Not Studied		68.68	16.92	5.2359545	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA76		Not Studied		68.42	21.402	-19.6573681	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA76		Not Studied		68.42	21.402	-19.6573681	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA76		Not Studied		68.42	21.402	-19.6573681	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA76		Not Studied		68.42	21.402	-19.6573681	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA76		Not Studied		68.42	21.402	-19.6573681	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA76		Not Studied		68.42	21.402	-19.6573681	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA76		Not Studied		68.42	21.402	-19.6573681	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA81		Not Studied		73.96	17.17	-4.6392685	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA81		Not Studied		73.96	17.17	-4.6392685	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA81		Not Studied		73.96	17.17	-4.6392685	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA81		Not Studied		73.96	17.17	-4.6392685	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA81		Not Studied		73.96	17.17	-4.6392685	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA81		Not Studied		73.96	17.17	-4.6392685	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA81		Not Studied		73.96	17.17	-4.6392685	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA81		Not Studied		73.96	17.17	-4.6392685	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA81		Not Studied		73.96	17.17	-4.6392685	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA81		Not Studied		73.96	17.17	-4.6392685	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA81		Not Studied		73.96	17.17	-4.6392685	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA81		Not Studied		73.96	17.17	-4.6392685	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA81		Not Studied		73.96	17.17	-4.6392685	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA82		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA82		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA82		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA82		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA82		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA82		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA82		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA82		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA82		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA82		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA82		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA82		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA82		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA82		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA82		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
LAWA53	HOMOGENEOUS	6.15	6.17	0.00	7.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.47	0.49	0.00	0.00
LAWA53	HOMOGENEOUS	6.15	6.17	0.00	7.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.47	0.49	0.00	0.00
LAWA53	HOMOGENEOUS	6.15	6.17	0.00	7.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.47	0.49	0.00	0.00
LAWA53	HOMOGENEOUS	6.15	6.17	0.00	7.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.47	0.49	0.00	0.00
LAWA53	HOMOGENEOUS	6.15	6.17	0.00	7.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.47	0.49	0.00	0.00
LAWA56	HOMOGENEOUS	6.15	12.05	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.47	0.50	0.00	0.00
LAWA56	HOMOGENEOUS	6.15	12.05	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.47	0.50	0.00	0.00
LAWA56	HOMOGENEOUS	6.15	12.05	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.47	0.50	0.00	0.00
LAWA56	HOMOGENEOUS	6.15	12.05	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.47	0.50	0.00	0.00
LAWA56	HOMOGENEOUS	6.15	12.05	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.47	0.50	0.00	0.00
LAWA56	HOMOGENEOUS	6.15	12.05	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.47	0.50	0.00	0.00
LAWA56	HOMOGENEOUS	6.15	12.05	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.47	0.50	0.00	0.00
LAWA56	HOMOGENEOUS	6.15	12.05	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.47	0.50	0.00	0.00
LAWA60	HOMOGENEOUS	8.53	11.23	0.00	4.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00
LAWA60	HOMOGENEOUS	8.53	11.23	0.00	4.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00
LAWA60	HOMOGENEOUS	8.53	11.23	0.00	4.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00
LAWA60	HOMOGENEOUS	8.53	11.23	0.00	4.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00
LAWA60	HOMOGENEOUS	8.53	11.23	0.00	4.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00
LAWA60	HOMOGENEOUS	8.53	11.23	0.00	4.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00
LAWA60	HOMOGENEOUS	8.53	11.23	0.00	4.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00
LAWA60	HOMOGENEOUS	8.53	11.23	0.00	4.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00
LAWA60	HOMOGENEOUS	8.53	11.23	0.00	4.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00
LAWA60	HOMOGENEOUS	8.53	11.23	0.00	4.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00
LAWA60	HOMOGENEOUS	8.53	11.23	0.00	4.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00
LAWA60	HOMOGENEOUS	8.53	11.23	0.00	4.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00
LAWA65	HOMOGENEOUS	6.16	6.17	0.00	3.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.48	0.50	0.00	0.00
LAWA65	HOMOGENEOUS	6.16	6.17	0.00	3.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.48	0.50	0.00	0.00
LAWA65	HOMOGENEOUS	6.16	6.17	0.00	3.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.48	0.50	0.00	0.00
LAWA65	HOMOGENEOUS	6.16	6.17	0.00	3.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.48	0.50	0.00	0.00
LAWA65	HOMOGENEOUS	6.16	6.17	0.00	3.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.48	0.50	0.00	0.00
LAWA65	HOMOGENEOUS	6.16	6.17	0.00	3.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.48	0.50	0.00	0.00
LAWA65	HOMOGENEOUS	6.16	6.17	0.00	3.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.48	0.50	0.00	0.00
LAWA76	HOMOGENEOUS	6.13	10.92	0.00	7.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.45	0.50	0.00	0.00
LAWA76	HOMOGENEOUS	6.13	10.92	0.00	7.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.45	0.50	0.00	0.00
LAWA76	HOMOGENEOUS	6.13	10.92	0.00	7.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.45	0.50	0.00	0.00
LAWA76	HOMOGENEOUS	6.13	10.92	0.00	7.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.45	0.50	0.00	0.00
LAWA76	HOMOGENEOUS	6.13	10.92	0.00	7.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.45	0.50	0.00	0.00
LAWA76	HOMOGENEOUS	6.13	10.92	0.00	7.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.45	0.50	0.00	0.00
LAWA76	HOMOGENEOUS	6.13	10.92	0.00	7.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.45	0.50	0.00	0.00
LAWA81	HOMOGENEOUS	6.20	8.90	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA81	HOMOGENEOUS	6.20	8.90	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA81	HOMOGENEOUS	6.20	8.90	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA81	HOMOGENEOUS	6.20	8.90	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA81	HOMOGENEOUS	6.20	8.90	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA81	HOMOGENEOUS	6.20	8.90	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA81	HOMOGENEOUS	6.20	8.90	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA81	HOMOGENEOUS	6.20	8.90	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA81	HOMOGENEOUS	6.20	8.90	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA81	HOMOGENEOUS	6.20	8.90	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA81	HOMOGENEOUS	6.20	8.90	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA81	HOMOGENEOUS	6.20	8.90	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA81	HOMOGENEOUS	6.20	8.90	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA82	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA82	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA82	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA82	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA82	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA82	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA82	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA82	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA82	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA82	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA82	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA82	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA82	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA82	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA82	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
LAWA53	0.00	1.47	0.00	0.00	19.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.04	0.00	0.00	0.00
LAWA53	0.00	1.47	0.00	0.00	19.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.04	0.00	0.00	0.00
LAWA53	0.00	1.47	0.00	0.00	19.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.04	0.00	0.00	0.00
LAWA53	0.00	1.47	0.00	0.00	19.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.04	0.00	0.00	0.00
LAWA53	0.00	1.47	0.00	0.00	19.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.04	0.00	0.00	0.00
LAWA56	0.00	1.48	0.00	0.00	19.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.08	0.00	0.00	0.00
LAWA56	0.00	1.48	0.00	0.00	19.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.08	0.00	0.00	0.00
LAWA56	0.00	1.48	0.00	0.00	19.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.08	0.00	0.00	0.00
LAWA56	0.00	1.48	0.00	0.00	19.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.08	0.00	0.00	0.00
LAWA56	0.00	1.48	0.00	0.00	19.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.08	0.00	0.00	0.00
LAWA56	0.00	1.48	0.00	0.00	19.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.08	0.00	0.00	0.00
LAWA56	0.00	1.48	0.00	0.00	19.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.08	0.00	0.00	0.00
LAWA56	0.00	1.48	0.00	0.00	19.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.08	0.00	0.00	0.00
LAWA60	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA60	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA60	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA60	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA60	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA60	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA60	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA60	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA60	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA60	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA60	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA60	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA65	0.00	6.03	0.00	0.00	19.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.09	0.00	0.00	0.00
LAWA65	0.00	6.03	0.00	0.00	19.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.09	0.00	0.00	0.00
LAWA65	0.00	6.03	0.00	0.00	19.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.09	0.00	0.00	0.00
LAWA65	0.00	6.03	0.00	0.00	19.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.09	0.00	0.00	0.00
LAWA65	0.00	6.03	0.00	0.00	19.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.09	0.00	0.00	0.00
LAWA65	0.00	6.03	0.00	0.00	19.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.09	0.00	0.00	0.00
LAWA65	0.00	6.03	0.00	0.00	19.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.09	0.00	0.00	0.00
LAWA76	4.99	1.47	0.00	0.00	10.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.92	0.00	0.00	0.00
LAWA76	4.99	1.47	0.00	0.00	10.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.92	0.00	0.00	0.00
LAWA76	4.99	1.47	0.00	0.00	10.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.92	0.00	0.00	0.00
LAWA76	4.99	1.47	0.00	0.00	10.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.92	0.00	0.00	0.00
LAWA76	4.99	1.47	0.00	0.00	10.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.92	0.00	0.00	0.00
LAWA76	4.99	1.47	0.00	0.00	10.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.92	0.00	0.00	0.00
LAWA76	4.99	1.47	0.00	0.00	10.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.92	0.00	0.00	0.00
LAWA81	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA81	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA81	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA81	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA81	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA81	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA81	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA81	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA81	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA81	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA81	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA81	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA81	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA82	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA82	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA82	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA82	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA82	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA82	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA82	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA82	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA82	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA82	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA82	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA82	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA82	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA82	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA82	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
LAWA53	0.00	0.00	1.10	0.00	0.00	2.98	2.98	1.43	100.00		
LAWA53	0.00	0.00	1.10	0.00	0.00	2.98	2.98	1.43	100.00		
LAWA53	0.00	0.00	1.10	0.00	0.00	2.98	2.98	1.43	100.00		
LAWA53	0.00	0.00	1.10	0.00	0.00	2.98	2.98	1.43	100.00		
LAWA53	0.00	0.00	1.10	0.00	0.00	2.98	2.98	1.43	100.00		
LAWA56	0.00	0.00	1.10	0.00	0.00	2.98	2.98	1.33	100.00		
LAWA56	0.00	0.00	1.10	0.00	0.00	2.98	2.98	1.33	100.00		
LAWA56	0.00	0.00	1.10	0.00	0.00	2.98	2.98	1.33	100.00		
LAWA56	0.00	0.00	1.10	0.00	0.00	2.98	2.98	1.33	100.00		
LAWA56	0.00	0.00	1.10	0.00	0.00	2.98	2.98	1.33	100.00		
LAWA56	0.00	0.00	1.10	0.00	0.00	2.98	2.98	1.33	100.00		
LAWA56	0.00	0.00	1.10	0.00	0.00	2.98	2.98	1.33	100.00		
LAWA56	0.00	0.00	1.10	0.00	0.00	2.98	2.98	1.33	100.00		
LAWA60	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.93	100.00		
LAWA60	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.93	100.00		
LAWA60	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.93	100.00		
LAWA60	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.93	100.00		
LAWA60	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.93	100.00		
LAWA60	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.93	100.00		
LAWA60	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.93	100.00		
LAWA60	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.93	100.00		
LAWA60	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.93	100.00		
LAWA60	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.93	100.00		
LAWA60	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.93	100.00		
LAWA60	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.93	100.00		
LAWA65	0.00	0.00	1.10	0.00	0.00	2.98	2.98	1.30	100.00		
LAWA65	0.00	0.00	1.10	0.00	0.00	2.98	2.98	1.30	100.00		
LAWA65	0.00	0.00	1.10	0.00	0.00	2.98	2.98	1.30	100.00		
LAWA65	0.00	0.00	1.10	0.00	0.00	2.98	2.98	1.30	100.00		
LAWA65	0.00	0.00	1.10	0.00	0.00	2.98	2.98	1.30	100.00		
LAWA65	0.00	0.00	1.10	0.00	0.00	2.98	2.98	1.30	100.00		
LAWA65	0.00	0.00	1.10	0.00	0.00	2.98	2.98	1.30	100.00		
LAWA76	0.00	0.00	1.10	0.00	0.00	2.97	2.97	1.68	100.00		
LAWA76	0.00	0.00	1.10	0.00	0.00	2.97	2.97	1.68	100.00		
LAWA76	0.00	0.00	1.10	0.00	0.00	2.97	2.97	1.68	100.00		
LAWA76	0.00	0.00	1.10	0.00	0.00	2.97	2.97	1.68	100.00		
LAWA76	0.00	0.00	1.10	0.00	0.00	2.97	2.97	1.68	100.00		
LAWA76	0.00	0.00	1.10	0.00	0.00	2.97	2.97	1.68	100.00		
LAWA76	0.00	0.00	1.10	0.00	0.00	2.97	2.97	1.68	100.00		
LAWA81	0.00	0.00	0.00	0.00	0.00	2.97	2.99	0.92	100.00		
LAWA81	0.00	0.00	0.00	0.00	0.00	2.97	2.99	0.92	100.00		
LAWA81	0.00	0.00	0.00	0.00	0.00	2.97	2.99	0.92	100.00		
LAWA81	0.00	0.00	0.00	0.00	0.00	2.97	2.99	0.92	100.00		
LAWA81	0.00	0.00	0.00	0.00	0.00	2.97	2.99	0.92	100.00		
LAWA81	0.00	0.00	0.00	0.00	0.00	2.97	2.99	0.92	100.00		
LAWA81	0.00	0.00	0.00	0.00	0.00	2.97	2.99	0.92	100.00		
LAWA81	0.00	0.00	0.00	0.00	0.00	2.97	2.99	0.92	100.00		
LAWA81	0.00	0.00	0.00	0.00	0.00	2.97	2.99	0.92	100.00		
LAWA81	0.00	0.00	0.00	0.00	0.00	2.97	2.99	0.92	100.00		
LAWA81	0.00	0.00	0.00	0.00	0.00	2.97	2.99	0.92	100.00		
LAWA81	0.00	0.00	0.00	0.00	0.00	2.97	2.99	0.92	100.00		
LAWA81	0.00	0.00	0.00	0.00	0.00	2.97	2.99	0.92	100.00		
LAWA82	0.00	0.00	3.99	0.00	0.00	2.97	2.99	0.92	100.00		
LAWA82	0.00	0.00	3.99	0.00	0.00	2.97	2.99	0.92	100.00		
LAWA82	0.00	0.00	3.99	0.00	0.00	2.97	2.99	0.92	100.00		
LAWA82	0.00	0.00	3.99	0.00	0.00	2.97	2.99	0.92	100.00		
LAWA82	0.00	0.00	3.99	0.00	0.00	2.97	2.99	0.92	100.00		
LAWA82	0.00	0.00	3.99	0.00	0.00	2.97	2.99	0.92	100.00		
LAWA82	0.00	0.00	3.99	0.00	0.00	2.97	2.99	0.92	100.00		
LAWA82	0.00	0.00	3.99	0.00	0.00	2.97	2.99	0.92	100.00		
LAWA82	0.00	0.00	3.99	0.00	0.00	2.97	2.99	0.92	100.00		
LAWA82	0.00	0.00	3.99	0.00	0.00	2.97	2.99	0.92	100.00		
LAWA82	0.00	0.00	3.99	0.00	0.00	2.97	2.99	0.92	100.00		
LAWA82	0.00	0.00	3.99	0.00	0.00	2.97	2.99	0.92	100.00		
LAWA82	0.00	0.00	3.99	0.00	0.00	2.97	2.99	0.92	100.00		
LAWA82	0.00	0.00	3.99	0.00	0.00	2.97	2.99	0.92	100.00		
LAWA82	0.00	0.00	3.99	0.00	0.00	2.97	2.99	0.92	100.00		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
LAWA82	LAW	VSL-11R2270-1	SS	3405.00	0.81	2.031	6,914.291	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.24
LAWA83	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.57
LAWA83	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.68
LAWA83	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.83
LAWA83	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.93
LAWA83	LAW	VSL-11R2270-1	SS	181.00	0.81	2.031	367.544	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.02
LAWA83	LAW	VSL-11R2270-1	SS	269.00	0.81	2.031	546.239	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.12
LAWA83	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.23
LAWA83	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.32
LAWA83	LAW	VSL-11R2270-1	SS	730.00	0.81	2.031	1,482.359	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.57
LAWA83	LAW	VSL-11R2270-1	SS	1101.00	0.81	2.031	2,235.722	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.65
LAWA83	LAW	VSL-11R2270-1	SS	1472.00	0.81	2.031	2,989.085	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.76
LAWA83	LAW	VSL-11R2270-1	SS	2200.00	0.81	2.031	4,467.383	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.95
LAWA83	LAW	VSL-11R2270-1	SS	2562.00	0.81	2.031	5,202.471	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.96
LAWA83	LAW	VSL-11R2270-1	SS	2886.00	0.81	2.031	5,860.394	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.05
LAWA83	LAW	VSL-11R2270-1	SS	3044.00	0.81	2.031	6,181.234	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.12
LAWA83	LAW	VSL-11R2270-1	SS	3405.00	0.81	2.031	6,914.291	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.14
LAWA84	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.41
LAWA84	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.52
LAWA84	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.72
LAWA84	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.95
LAWA84	LAW	VSL-11R2270-1	SS	181.00	0.81	2.031	367.544	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.06
LAWA84	LAW	VSL-11R2270-1	SS	269.00	0.81	2.031	546.239	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.13
LAWA84	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.27
LAWA84	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.37
LAWA84	LAW	VSL-11R2270-1	SS	730.00	0.81	2.031	1,482.359	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.64
LAWA84	LAW	VSL-11R2270-1	SS	1101.00	0.81	2.031	2,235.722	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.76
LAWA84	LAW	VSL-11R2270-1	SS	1472.00	0.81	2.031	2,989.085	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.85
LAWA84	LAW	VSL-11R2270-1	SS	2200.00	0.81	2.031	4,467.383	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.97
LAWA84	LAW	VSL-11R2270-1	SS	2562.00	0.81	2.031	5,202.471	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.97
LAWA84	LAW	VSL-11R2270-1	SS	2886.00	0.81	2.031	5,860.394	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.05
LAWA84	LAW	VSL-11R2270-1	SS	3044.00	0.81	2.031	6,181.234	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.16
LAWA84	LAW	VSL-11R2270-1	SS	3405.00	0.81	2.031	6,914.291	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.22
LAWA87	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.97
LAWA87	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.23
LAWA87	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.37
LAWA87	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.53
LAWA87	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.65
LAWA87	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.77
LAWA87	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.83
LAWA87	LAW	VSL-11R2270-1	SS	545.00	0.81	2.031	1,106.693	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.94
LAWA87	LAW	VSL-11R2270-1	SS	730.00	0.81	2.031	1,482.359	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.97
LAWA87	LAW	VSL-11R2270-1	SS	1093.00	0.81	2.031	2,219.477	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.06
LAWA87	LAW	VSL-11R2270-1	SS	1455.00	0.81	2.031	2,954.565	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.14
LAWA87	LAW	VSL-11R2270-1	SS	1832.00	0.81	2.031	3,720.112	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.25
LAWA87	LAW	VSL-11R2270-1	SS	2198.00	0.81	2.031	4,463.322	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.23
LAWA87	LAW	VSL-11R2270-1	SS	2556.00	0.81	2.031	5,190.287	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.34
LAWA88	LAW	VSL-11R2270-1	SS	7.00	0.80	2.015	14.108	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.91
LAWA88	LAW	VSL-11R2270-1	SS	28.00	0.80	2.015	56.432	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.18
LAWA88	LAW	VSL-11R2270-1	SS	56.00	0.80	2.015	112.863	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.31
LAWA88	LAW	VSL-11R2270-1	SS	120.00	0.80	2.015	241.850	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.51
LAWA88	LAW	VSL-11R2270-1	SS	180.00	0.80	2.015	362.775	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.61
LAWA88	LAW	VSL-11R2270-1	SS	271.00	0.80	2.015	546.178	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.72
LAWA88	LAW	VSL-11R2270-1	SS	365.00	0.80	2.015	735.628	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.84
LAWA88	LAW	VSL-11R2270-1	SS	545.00	0.80	2.015	1,098.403	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.93
LAWA88	LAW	VSL-11R2270-1	SS	730.00	0.80	2.015	1,471.255	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.95
LAWA88	LAW	VSL-11R2270-1	SS	1093.00	0.80	2.015	2,202.852	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.04
LAWA88	LAW	VSL-11R2270-1	SS	1455.00	0.80	2.015	2,932.433	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.15
LAWA88	LAW	VSL-11R2270-1	SS	1832.00	0.80	2.015	3,692.246	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.25
LAWA88	LAW	VSL-11R2270-1	SS	2198.00	0.80	2.015	4,429.889	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.24
LAWA88	LAW	VSL-11R2270-1	SS	2556.00	0.80	2.015	5,151.408	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.35
LAWA88	LAW	VSL-11R2270-1	SS	3023.00	0.80	2.015	6,092.608	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.44
LAWA88	LAW	VSL-11R2270-1	SS	3389.00	0.80	2.015	6,830.251	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.46
LAWA88R1	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.92
LAWA88R1	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.15
LAWA88R1	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.33
LAWA88R1	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.52

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
LAWA82	1356.40	1721.03	0.24			4535.53	72.04							
LAWA83	66.95	17.09	0.34			100.80		6.67			0.43		0.74	
LAWA83	79.92	22.00	0.13			126.47	2.26	8.55			0.59		1.09	0.71
LAWA83	94.69	30.58	0.46			177.37		9.38	1.64		0.78	0.51	0.97	0.91
LAWA83	103.00	41.03	0.28			204.43	2.57	9.87	1.59		0.99	0.69	1.94	1.54
LAWA83	113.90	52.71	0.35			252.80	2.87	10.93			1.02		1.97	
LAWA83	116.80	59.21	0.57			267.00	2.88	9.96	2.04		1.08	0.81	2.26	1.30
LAWA83	125.23	69.00	0.22			302.63	3.07	10.54			1.25	0.71	1.53	0.88
LAWA83	138.23	78.95	0.64			331.60	3.34	11.06	1.88		0.95	0.65	1.99	1.08
LAWA83	183.98	105.96	0.31			526.61	5.58	14.83	2.33		1.33	0.96	2.86	0.66
LAWA83	158.03	96.83	1.65			458.27	4.95	12.19	2.08		1.36	0.87	3.25	0.99
LAWA83	177.66	107.64	0.09			464.92	4.71	10.68					0.53	0.92
LAWA83	297.00	224.68	0.43			789.85	10.82	4.37			0.26			
LAWA83	563.95	590.98				1637.77	21.66	1.04						
LAWA83	794.28	1022.97	0.18			2690.70	42.97	0.74						
LAWA83	948.02	1290.70	0.20			3864.23	60.18	0.70						
LAWA83	1346.50	2095.00	0.22			5398.17	99.86							
LAWA84	66.25	16.33	0.43			99.20		6.96			0.41		0.71	
LAWA84	76.36	19.27	0.17			118.17		8.91			0.55		1.00	
LAWA84	91.51	23.42	0.58			159.97		9.65			0.65			0.71
LAWA84	100.94	29.44	0.30			175.73	2.23	10.26			0.87	0.47	1.42	1.01
LAWA84	109.87	40.01	0.27			225.30	2.89	11.03			0.92		1.48	
LAWA84	115.57	52.45	0.27			243.13	2.51	10.19	1.20		0.93	0.60	1.62	0.98
LAWA84	121.60	60.11				272.07	2.87	9.84			0.99	0.56	0.94	
LAWA84	138.30	74.59	0.64			311.30	3.09	9.94	1.25		0.85	0.68	1.51	0.54
LAWA84	180.68	105.16	0.21			437.09	4.68	11.61			0.67	0.97	1.22	
LAWA84	172.07	102.89	0.69			422.18	4.59	9.26	1.13		0.98	0.73	1.78	
LAWA84	209.86	125.89	0.14			478.55	5.04	4.05						
LAWA84	342.34	235.38	0.27			877.61	12.06	2.76			0.25			
LAWA84	474.91	357.03				1156.60	14.21							
LAWA84	559.00	605.29	0.11			1791.63	25.70							
LAWA84	625.43	777.81	0.17			2420.67	34.93							
LAWA84	1016.37	1584.03	0.28			4408.63	70.95							
LAWA87	102.07	32.85	0.15			163.67	14.42	4.01	1.91		0.82		1.45	
LAWA87	142.00	55.36	0.46			298.80	21.64	4.53	2.88		0.95		1.22	
LAWA87	155.70	65.80	0.69			317.60	24.03	5.18	3.62		1.11		2.42	0.48
LAWA87	166.28	76.77	0.47			337.79	28.73	5.03	3.33		1.05		2.69	0.48
LAWA87	177.83	86.97	0.51			424.17	29.84	5.53	3.85		1.13		2.65	
LAWA87	208.40	98.90				411.30	35.01	6.25	2.91		1.06		2.10	
LAWA87	197.67	96.89	0.25			446.90	33.14	5.80	3.04		1.06		2.36	
LAWA87	202.87	90.30	0.24			550.80	37.89	5.73			0.36		0.99	
LAWA87	281.89	137.41	0.15			619.58	49.13	7.18	1.65		0.33		0.51	
LAWA87	406.37	237.67	0.27			975.65	87.44	5.10						
LAWA87	922.32	716.62	0.20			2520.63	224.95	1.27						
LAWA87	1252.90	1059.43	0.21			3429.43	321.57	3.24						
LAWA87	1589.17	1504.80	0.32			5383.63	440.80						0.84	
LAWA87	1715.70	1546.93	0.27			5244.90	454.20	1.83					0.78	
LAWA88	70.24	26.11	0.14			126.50	10.49	8.16	1.14		0.47		1.21	
LAWA88	99.52	56.37	0.66			265.70	17.30	10.51	2.27		0.77	0.50	1.19	1.01
LAWA88	109.30	70.29	0.88			297.07	20.15	11.40	2.41		0.91	0.57	2.33	1.17
LAWA88	122.57	85.10	0.55			315.81	25.25	11.37	2.18		0.90	0.57	2.66	1.12
LAWA88	124.57	97.44	0.52			397.70	26.56	11.94	2.50		0.99	0.62	3.74	1.07
LAWA88	144.27	111.10				399.20	29.88	13.32	1.65		0.78		1.86	
LAWA88	138.13	110.93	0.42			439.70	29.90	12.47	1.96		0.93		2.35	0.82
LAWA88	146.67	112.47	0.42			526.23	33.07	13.09	1.50		0.63		1.86	0.78
LAWA88	197.20	164.57	0.12			614.98	46.41	17.15	1.84		0.56	0.57	1.36	
LAWA88	205.61	174.59	0.24			696.36	48.52	15.55			0.26		0.85	
LAWA88	267.12	211.00	0.23			827.25	54.98	7.57						
LAWA88	549.80	405.27				1349.30	118.48	3.11						
LAWA88	875.63	824.09	0.34			2967.23	198.85	0.73						
LAWA88	1144.67	1126.47	0.36			3679.03	268.78	1.29					0.49	
LAWA88	1519.37	2174.60	0.51			5815.70	601.13	0.95						
LAWA88	2023.57	2774.77	0.67			7109.93	681.30	0.92						
LAWA88R1	93.01	49.18				192.17	17.02	9.33	1.44		0.61		1.27	0.46
LAWA88R1	114.47	96.86	0.13			353.53	27.90	14.00	2.26		1.05		2.02	1.16
LAWA88R1	136.57	112.30	0.26			421.27	31.89	13.96	2.31		0.91	0.58	2.01	1.16
LAWA88R1	149.27	128.67	0.41			496.27	34.53	14.65	2.31		0.99	0.56	1.98	1.08

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
LAWA82		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA83		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA83		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA83		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA83		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA83		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA83		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA83		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA83		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA83		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA83		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA83		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA83		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA83		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA83		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA83		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA83		Not Studied		73.96	13.181	17.8898057	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA84		Not Studied		73.96	11.187	29.1515189	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA84		Not Studied		73.96	11.187	29.1515189	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA84		Not Studied		73.96	11.187	29.1515189	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA84		Not Studied		73.96	11.187	29.1515189	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA84		Not Studied		73.96	11.187	29.1515189	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA84		Not Studied		73.96	11.187	29.1515189	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA84		Not Studied		73.96	11.187	29.1515189	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA84		Not Studied		73.96	11.187	29.1515189	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA84		Not Studied		73.96	11.187	29.1515189	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA84		Not Studied		73.96	11.187	29.1515189	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA84		Not Studied		73.96	11.187	29.1515189	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA84		Not Studied		73.96	11.187	29.1515189	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA84		Not Studied		73.96	11.187	29.1515189	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA84		Not Studied		73.96	11.187	29.1515189	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA84		Not Studied		73.96	11.187	29.1515189	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA84		Not Studied		73.96	11.187	29.1515189	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA87		Not Studied		75.93	13.444	13.2391253	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA87		Not Studied		75.93	13.444	13.2391253	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA87		Not Studied		75.93	13.444	13.2391253	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA87		Not Studied		75.93	13.444	13.2391253	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA87		Not Studied		75.93	13.444	13.2391253	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA87		Not Studied		75.93	13.444	13.2391253	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA87		Not Studied		75.93	13.444	13.2391253	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA87		Not Studied		75.93	13.444	13.2391253	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA87		Not Studied		75.93	13.444	13.2391253	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA87		Not Studied		75.93	13.444	13.2391253	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA87		Not Studied		75.93	13.444	13.2391253	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA87		Not Studied		75.93	13.444	13.2391253	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA87		Not Studied		75.93	13.444	13.2391253	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA87		Not Studied		75.93	13.444	13.2391253	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA88		Not Studied		76.29	13.607	11.7396704	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA88		Not Studied		76.29	13.607	11.7396704	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA88		Not Studied		76.29	13.607	11.7396704	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA88		Not Studied		76.29	13.607	11.7396704	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA88		Not Studied		76.29	13.607	11.7396704	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA88		Not Studied		76.29	13.607	11.7396704	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA88		Not Studied		76.29	13.607	11.7396704	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA88		Not Studied		76.29	13.607	11.7396704	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA88		Not Studied		76.29	13.607	11.7396704	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA88		Not Studied		76.29	13.607	11.7396704	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA88		Not Studied		76.29	13.607	11.7396704	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA88		Not Studied		76.29	13.607	11.7396704	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA88		Not Studied		76.29	13.607	11.7396704	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA88		Not Studied		76.29	13.607	11.7396704	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA88		Not Studied		76.29	13.607	11.7396704	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA88		Not Studied		76.29	13.607	11.7396704	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA88R1		Not Studied		76.29	13.605	11.7493625	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA88R1		Not Studied		76.29	13.605	11.7493625	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA88R1		Not Studied		76.29	13.605	11.7493625	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA88R1		Not Studied		76.29	13.605	11.7493625	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
LAWA82	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA83	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.99	0.50	0.00	0.00
LAWA83	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.99	0.50	0.00	0.00
LAWA83	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.99	0.50	0.00	0.00
LAWA83	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.99	0.50	0.00	0.00
LAWA83	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.99	0.50	0.00	0.00
LAWA83	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.99	0.50	0.00	0.00
LAWA83	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.99	0.50	0.00	0.00
LAWA83	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.99	0.50	0.00	0.00
LAWA83	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.99	0.50	0.00	0.00
LAWA83	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.99	0.50	0.00	0.00
LAWA83	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.99	0.50	0.00	0.00
LAWA83	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.99	0.50	0.00	0.00
LAWA83	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.99	0.50	0.00	0.00
LAWA83	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.99	0.50	0.00	0.00
LAWA83	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.99	0.50	0.00	0.00
LAWA83	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.99	0.50	0.00	0.00
LAWA84	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	0.50	0.00	0.00
LAWA84	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	0.50	0.00	0.00
LAWA84	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	0.50	0.00	0.00
LAWA84	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	0.50	0.00	0.00
LAWA84	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	0.50	0.00	0.00
LAWA84	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	0.50	0.00	0.00
LAWA84	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	0.50	0.00	0.00
LAWA84	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	0.50	0.00	0.00
LAWA84	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	0.50	0.00	0.00
LAWA84	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	0.50	0.00	0.00
LAWA84	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	0.50	0.00	0.00
LAWA84	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	0.50	0.00	0.00
LAWA84	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	0.50	0.00	0.00
LAWA84	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	0.50	0.00	0.00
LAWA84	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	0.50	0.00	0.00
LAWA84	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	0.50	0.00	0.00
LAWA87	HOMOGENEOUS	4.48	8.87	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.97	2.58	0.00	0.00
LAWA87	HOMOGENEOUS	4.48	8.87	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.97	2.58	0.00	0.00
LAWA87	HOMOGENEOUS	4.48	8.87	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.97	2.58	0.00	0.00
LAWA87	HOMOGENEOUS	4.48	8.87	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.97	2.58	0.00	0.00
LAWA87	HOMOGENEOUS	4.48	8.87	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.97	2.58	0.00	0.00
LAWA87	HOMOGENEOUS	4.48	8.87	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.97	2.58	0.00	0.00
LAWA87	HOMOGENEOUS	4.48	8.87	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.97	2.58	0.00	0.00
LAWA87	HOMOGENEOUS	4.48	8.87	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.97	2.58	0.00	0.00
LAWA87	HOMOGENEOUS	4.48	8.87	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.97	2.58	0.00	0.00
LAWA87	HOMOGENEOUS	4.48	8.87	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.97	2.58	0.00	0.00
LAWA87	HOMOGENEOUS	4.48	8.87	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.97	2.58	0.00	0.00
LAWA87	HOMOGENEOUS	4.48	8.87	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.97	2.58	0.00	0.00
LAWA87	HOMOGENEOUS	4.48	8.87	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.97	2.58	0.00	0.00
LAWA87	HOMOGENEOUS	4.48	8.87	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.97	2.58	0.00	0.00
LAWA88	HOMOGENEOUS	6.08	9.70	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA88	HOMOGENEOUS	6.08	9.70	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA88	HOMOGENEOUS	6.08	9.70	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA88	HOMOGENEOUS	6.08	9.70	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA88	HOMOGENEOUS	6.08	9.70	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA88	HOMOGENEOUS	6.08	9.70	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA88	HOMOGENEOUS	6.08	9.70	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA88	HOMOGENEOUS	6.08	9.70	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA88	HOMOGENEOUS	6.08	9.70	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA88	HOMOGENEOUS	6.08	9.70	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA88	HOMOGENEOUS	6.08	9.70	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA88	HOMOGENEOUS	6.08	9.70	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA88	HOMOGENEOUS	6.08	9.70	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA88	HOMOGENEOUS	6.08	9.70	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA88	HOMOGENEOUS	6.08	9.70	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA88	HOMOGENEOUS	6.08	9.70	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA88R1	HOMOGENEOUS	6.08	9.70	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA88R1	HOMOGENEOUS	6.08	9.70	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA88R1	HOMOGENEOUS	6.08	9.70	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA88R1	HOMOGENEOUS	6.08	9.70	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
LAWA82	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA83	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA83	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA83	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA83	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA83	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA83	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA83	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA83	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA83	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA83	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA83	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA83	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA83	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA83	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA83	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA83	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA84	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA84	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA84	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA84	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA84	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA84	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA84	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA84	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA84	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA84	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA84	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA84	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA84	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA84	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA84	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA84	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA87	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.47	0.00	0.00	0.00
LAWA87	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.47	0.00	0.00	0.00
LAWA87	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.47	0.00	0.00	0.00
LAWA87	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.47	0.00	0.00	0.00
LAWA87	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.47	0.00	0.00	0.00
LAWA87	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.47	0.00	0.00	0.00
LAWA87	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.47	0.00	0.00	0.00
LAWA87	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.47	0.00	0.00	0.00
LAWA87	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.47	0.00	0.00	0.00
LAWA87	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.47	0.00	0.00	0.00
LAWA87	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.47	0.00	0.00	0.00
LAWA87	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.47	0.00	0.00	0.00
LAWA87	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.47	0.00	0.00	0.00
LAWA87	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.47	0.00	0.00	0.00
LAWA88	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA88	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA88	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA88	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA88	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA88	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA88	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA88	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA88	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA88	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA88	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA88	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA88	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA88	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA88	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA88	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA88R1	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA88R1	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA88R1	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA88R1	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
LAWA82	0.00	0.00	3.99	0.00	0.00	2.97	2.99	0.92	100.00		
LAWA83	0.00	0.00	1.99	0.00	0.00	2.97	2.99	2.92	100.00		
LAWA83	0.00	0.00	1.99	0.00	0.00	2.97	2.99	2.92	100.00		
LAWA83	0.00	0.00	1.99	0.00	0.00	2.97	2.99	2.92	100.00		
LAWA83	0.00	0.00	1.99	0.00	0.00	2.97	2.99	2.92	100.00		
LAWA83	0.00	0.00	1.99	0.00	0.00	2.97	2.99	2.92	100.00		
LAWA83	0.00	0.00	1.99	0.00	0.00	2.97	2.99	2.92	100.00		
LAWA83	0.00	0.00	1.99	0.00	0.00	2.97	2.99	2.92	100.00		
LAWA83	0.00	0.00	1.99	0.00	0.00	2.97	2.99	2.92	100.00		
LAWA83	0.00	0.00	1.99	0.00	0.00	2.97	2.99	2.92	100.00		
LAWA83	0.00	0.00	1.99	0.00	0.00	2.97	2.99	2.92	100.00		
LAWA83	0.00	0.00	1.99	0.00	0.00	2.97	2.99	2.92	100.00		
LAWA83	0.00	0.00	1.99	0.00	0.00	2.97	2.99	2.92	100.00		
LAWA83	0.00	0.00	1.99	0.00	0.00	2.97	2.99	2.92	100.00		
LAWA83	0.00	0.00	1.99	0.00	0.00	2.97	2.99	2.92	100.00		
LAWA83	0.00	0.00	1.99	0.00	0.00	2.97	2.99	2.92	100.00		
LAWA83	0.00	0.00	1.99	0.00	0.00	2.97	2.99	2.92	100.00		
LAWA84	0.00	0.00	1.99	0.00	0.00	2.97	2.99	4.91	100.00		
LAWA84	0.00	0.00	1.99	0.00	0.00	2.97	2.99	4.91	100.00		
LAWA84	0.00	0.00	1.99	0.00	0.00	2.97	2.99	4.91	100.00		
LAWA84	0.00	0.00	1.99	0.00	0.00	2.97	2.99	4.91	100.00		
LAWA84	0.00	0.00	1.99	0.00	0.00	2.97	2.99	4.91	100.00		
LAWA84	0.00	0.00	1.99	0.00	0.00	2.97	2.99	4.91	100.00		
LAWA84	0.00	0.00	1.99	0.00	0.00	2.97	2.99	4.91	100.00		
LAWA84	0.00	0.00	1.99	0.00	0.00	2.97	2.99	4.91	100.00		
LAWA84	0.00	0.00	1.99	0.00	0.00	2.97	2.99	4.91	100.00		
LAWA84	0.00	0.00	1.99	0.00	0.00	2.97	2.99	4.91	100.00		
LAWA84	0.00	0.00	1.99	0.00	0.00	2.97	2.99	4.91	100.00		
LAWA84	0.00	0.00	1.99	0.00	0.00	2.97	2.99	4.91	100.00		
LAWA84	0.00	0.00	1.99	0.00	0.00	2.97	2.99	4.91	100.00		
LAWA84	0.00	0.00	1.99	0.00	0.00	2.97	2.99	4.91	100.00		
LAWA84	0.00	0.00	1.99	0.00	0.00	2.97	2.99	4.91	100.00		
LAWA84	0.00	0.00	1.99	0.00	0.00	2.97	2.99	4.91	100.00		
LAWA87	0.00	0.00	1.99	0.00	0.00	2.96	2.99	0.70	100.00		
LAWA87	0.00	0.00	1.99	0.00	0.00	2.96	2.99	0.70	100.00		
LAWA87	0.00	0.00	1.99	0.00	0.00	2.96	2.99	0.70	100.00		
LAWA87	0.00	0.00	1.99	0.00	0.00	2.96	2.99	0.70	100.00		
LAWA87	0.00	0.00	1.99	0.00	0.00	2.96	2.99	0.70	100.00		
LAWA87	0.00	0.00	1.99	0.00	0.00	2.96	2.99	0.70	100.00		
LAWA87	0.00	0.00	1.99	0.00	0.00	2.96	2.99	0.70	100.00		
LAWA87	0.00	0.00	1.99	0.00	0.00	2.96	2.99	0.70	100.00		
LAWA87	0.00	0.00	1.99	0.00	0.00	2.96	2.99	0.70	100.00		
LAWA87	0.00	0.00	1.99	0.00	0.00	2.96	2.99	0.70	100.00		
LAWA87	0.00	0.00	1.99	0.00	0.00	2.96	2.99	0.70	100.00		
LAWA87	0.00	0.00	1.99	0.00	0.00	2.96	2.99	0.70	100.00		
LAWA87	0.00	0.00	1.99	0.00	0.00	2.96	2.99	0.70	100.00		
LAWA87	0.00	0.00	1.99	0.00	0.00	2.96	2.99	0.70	100.00		
LAWA88	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA88	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA88	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA88	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA88	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA88	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA88	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA88	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA88	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA88	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA88	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA88	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA88	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA88	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA88	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA88	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA88R1	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA88R1	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA88R1	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA88R1	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.70	100.00		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
LAWA88R1	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.85
LAWA88R1	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.98
LAWA88R1	LAW	VSL-11R2270-1	SS	364.00	0.81	2.031	739.149	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.15
LAWA88R1	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.26
LAWA88R1	LAW	VSL-11R2270-1	SS	733.00	0.81	2.031	1,488.451	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.35
LAWA88R1	LAW	VSL-11R2270-1	SS	1093.00	0.81	2.031	2,219.477	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.44
LAWA88R1	LAW	VSL-11R2270-1	SS	2210.00	0.81	2.031	4,487.689	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.67
LAWA89	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.81
LAWA89	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.12
LAWA89	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.26
LAWA89	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.37
LAWA89	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.43
LAWA89	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.55
LAWA89	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.65
LAWA89	LAW	VSL-11R2270-1	SS	545.00	0.81	2.031	1,106.693	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.74
LAWA89	LAW	VSL-11R2270-1	SS	730.00	0.81	2.031	1,482.359	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.83
LAWA89	LAW	VSL-11R2270-1	SS	1093.00	0.81	2.031	2,219.477	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.95
LAWA89	LAW	VSL-11R2270-1	SS	1455.00	0.81	2.031	2,954.565	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.05
LAWA89	LAW	VSL-11R2270-1	SS	1832.00	0.81	2.031	3,720.112	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.15
LAWA89	LAW	VSL-11R2270-1	SS	2198.00	0.81	2.031	4,463.322	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.14
LAWA89	LAW	VSL-11R2270-1	SS	2556.00	0.81	2.031	5,190.287	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.26
LAWA89	LAW	VSL-11R2270-1	SS	3023.00	0.81	2.031	6,138.590	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.45
LAWA89	LAW	VSL-11R2270-1	SS	3389.00	0.81	2.031	6,881.800	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.47
LAWA90	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.98
LAWA90	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.18
LAWA90	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.31
LAWA90	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.51
LAWA90	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.62
LAWA90	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.71
LAWA90	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.84
LAWA90	LAW	VSL-11R2270-1	SS	545.00	0.81	2.031	1,106.693	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.95
LAWA90	LAW	VSL-11R2270-1	SS	730.00	0.81	2.031	1,482.359	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.96
LAWA90	LAW	VSL-11R2270-1	SS	1093.00	0.81	2.031	2,219.477	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.06
LAWA90	LAW	VSL-11R2270-1	SS	1455.00	0.81	2.031	2,954.565	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.15
LAWA90	LAW	VSL-11R2270-1	SS	1832.00	0.81	2.031	3,720.112	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.26
LAWA90	LAW	VSL-11R2270-1	SS	2198.00	0.81	2.031	4,463.322	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.24
LAWA90	LAW	VSL-11R2270-1	SS	2556.00	0.81	2.031	5,190.287	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.34
LAWA93	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.86
LAWA93	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.15
LAWA93	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.27
LAWA93	LAW	VSL-11R2270-1	SS	119.00	0.81	2.031	241.645	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.36
LAWA93	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.58
LAWA93	LAW	VSL-11R2270-1	SS	270.00	0.81	2.031	548.270	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.95
LAWA93	LAW	VSL-11R2270-1	SS	364.00	0.81	2.031	739.149	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.13
LAWA96	LAW	VSL-11R2270-1	SS	7.00	0.80	2.015	14.108	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.63
LAWA96	LAW	VSL-11R2270-1	SS	28.00	0.80	2.015	56.432	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.84
LAWA96	LAW	VSL-11R2270-1	SS	56.00	0.80	2.015	112.863	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.92
LAWA96	LAW	VSL-11R2270-1	SS	120.00	0.80	2.015	241.850	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.96
LAWA96	LAW	VSL-11R2270-1	SS	181.00	0.80	2.015	364.791	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.12
LAWA96	LAW	VSL-11R2270-1	SS	269.00	0.80	2.015	542.147	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.22
LAWA96	LAW	VSL-11R2270-1	SS	365.00	0.80	2.015	735.628	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.33
LAWA96	LAW	VSL-11R2270-1	SS	547.00	0.80	2.015	1,102.434	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.42
LAWA96	LAW	VSL-11R2270-1	SS	730.00	0.80	2.015	1,471.255	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.52
LAWA96	LAW	VSL-11R2270-1	SS	1087.00	0.80	2.015	2,190.759	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.66
LAWA96	LAW	VSL-11R2270-1	SS	1455.00	0.80	2.015	2,932.433	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.75
LAWA96	LAW	VSL-11R2270-1	SS	2191.00	0.80	2.015	4,415.781	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.87
LAWA96	LAW	VSL-11R2270-1	SS	2551.00	0.80	2.015	5,141.331	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.94
LAWB30	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.11
LAWB30	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.18
LAWB30	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.32
LAWB30	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.55
LAWB30	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.02
LAWB30	LAW	VSL-11R2270-1	SS	269.00	0.81	2.031	546.239	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.14
LAWB30	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.27
LAWB30	LAW	VSL-11R2270-1	SS	546.00	0.81	2.031	1,108.723	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.55
LAWB30	LAW	VSL-11R2270-1	SS	730.00	0.81	2.031	1,482.359	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.77
LAWB30	LAW	VSL-11R2270-1	SS	1827.00	0.81	2.031	3,709.959	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.04

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
LAWA88R1	151.03	134.63	0.31			546.63	38.48	15.31	2.18		0.80	0.59	1.96	1.02
LAWA88R1	151.87	138.93	0.28			539.87	37.30	14.69	1.75		0.72	0.45	1.62	0.84
LAWA88R1	193.42	177.76	0.40			684.29	48.75	18.57	2.78		1.05	0.50	2.38	0.89
LAWA88R1	192.31	192.99	0.43			699.45	54.26	15.19	1.67		0.27		0.87	0.65
LAWA88R1	177.40	177.75	0.12			597.87	48.56	9.27						
LAWA88R1	319.81	327.52	0.10			964.43	85.53	6.76						
LAWA88R1	1264.07	1781.00	0.48			4919.13	436.14	0.75					0.82	
LAWA89	74.45	35.12				138.10	9.91	9.07	1.86		0.66	1.03	1.78	1.12
LAWA89	97.49	67.84	0.25			268.73	15.93	10.26	2.83		1.11	1.43	2.16	1.58
LAWA89	109.87	88.46	0.57			308.77	19.19	11.33	3.09		1.39	1.40	3.61	1.68
LAWA89	123.94	110.58	0.21			348.09	25.30	10.93	2.87		1.38	1.17	4.07	1.55
LAWA89	127.70	131.37	0.19			459.20	28.10	11.72	2.96		1.36	1.19	3.94	1.39
LAWA89	145.73	154.13				454.07	31.35	12.93	1.62		1.00	0.76	2.88	0.78
LAWA89	141.27	153.00	0.16			490.20	32.15	12.13	1.78		1.01	0.94	2.78	1.13
LAWA89	149.53	166.07	0.32			607.37	34.57	11.92			0.47	0.61	1.44	0.83
LAWA89	194.89	217.19				707.69	50.10	15.10	1.11		0.22	0.94		0.44
LAWA89	204.51	236.59	0.13			767.86	55.59	14.18						
LAWA89	212.54	234.83				771.27	51.32	7.30						
LAWA89	325.22	271.77				879.90	60.87	3.63						
LAWA89	440.23	393.16	0.13			1313.90	87.83	0.95						
LAWA89	659.62	564.21				1907.07	153.71	1.04						
LAWA89	1023.90	959.84	0.11			2660.50	227.60							
LAWA89	1272.03	1223.07	0.12			3358.40	238.04							
LAWA90	73.74	29.35	0.26			144.53	12.93	6.42	1.30		0.45		1.10	
LAWA90	97.52	47.47	0.60			243.63	18.85	8.39	1.79		0.58			
LAWA90	108.93	57.08	0.74			266.27	20.54	9.20	1.99		0.68		1.67	
LAWA90	120.19	65.96	0.59			285.09	24.64	8.77	2.05		0.69		2.08	
LAWA90	128.77	79.54	0.53			379.83	28.56	9.53	2.33		0.74		2.18	
LAWA90	149.30	95.98	0.19			407.63	30.54	10.46	1.22		0.62		1.26	
LAWA90	148.67	100.05	0.20			423.43	32.81	10.35	1.91		0.85		2.00	
LAWA90	164.10	114.87	0.39			519.90	36.70	10.48	1.19		0.38		1.06	
LAWA90	212.07	157.67	0.19			642.76	52.72	12.09						
LAWA90	668.19	622.88	0.65			2022.97	189.12	3.55						
LAWA90	1130.77	1317.50	0.77			4098.90	342.17							
LAWA90	1403.07	1925.80	0.94			5543.90	456.25	3.93						
LAWA90	1478.97	2215.63	1.56			6930.10	514.78						0.93	
LAWA90	1704.23	2403.40	0.76			6836.07	550.80	1.74	1.29				0.78	
LAWA93	67.04	36.25	0.85		26.92	79.66	3.22	3.29						
LAWA93	154.27	121.37	2.08		79.15	247.47	9.46	3.45						
LAWA93	181.23	166.07	2.29		103.63	302.93	11.39	2.95						
LAWA93	237.47	254.13	2.83		150.40	459.33	18.70	3.35						
LAWA93	271.30	430.60	1.39		219.60	702.13	28.48	4.53						
LAWA93	328.77	1754.87	3.85		644.03	2690.30	104.89	5.31						
LAWA93	319.77	2735.13	6.11		998.30	3653.93	169.90	5.54						
LAWA96	70.07	15.14	0.35			111.40		6.35						
LAWA96	88.46	19.56	0.94			166.10	2.43	8.64					0.54	
LAWA96	99.31	19.99	0.19			169.32	1.76	9.86					0.49	
LAWA96	115.67	23.76	0.22			221.80	2.62	11.30			0.26		0.50	
LAWA96	123.87	26.96	0.15			217.57	2.80	11.51			0.23			
LAWA96	143.73	32.32				250.60	3.32	12.72						
LAWA96	132.00	31.08	0.22			254.47	2.91	11.58						
LAWA96	197.34	49.50	0.10			396.10	4.84	16.23			0.23			
LAWA96	186.87	49.30	0.48			390.14	4.23	12.44			0.29		0.55	
LAWA96	630.92	604.63	0.29			1964.33	30.31	10.79			0.25		0.61	
LAWA96	876.68	1009.03	0.17			3073.30	56.77	5.94					0.57	
LAWA96	1400.47	1675.57	0.12			6270.20	94.74						0.75	
LAWA96	1827.73	2096.63				6906.50	124.37	4.40						
LAWB30	35.13	15.09	2.65		9.91	27.90		3.37						
LAWB30	42.93	21.33	1.84		15.08	41.01		4.04						
LAWB30	53.93	28.99	2.62		19.93	54.86	1.96	3.98						
LAWB30	62.20	35.31	2.11		23.34	65.13		3.85						
LAWB30	72.96	44.46	2.46		29.27	81.20	2.34	3.81						
LAWB30	87.22	66.12	2.11		44.70	125.07	4.00	3.76						
LAWB30	105.40	111.33	2.67		64.59	189.27	6.59	3.64						
LAWB30	127.57	280.07	4.01		117.43	431.93	12.76	3.43						
LAWB30	190.96	798.15	7.28		299.04	1055.27	36.08	6.67						
LAWB30	95.83	3164.50	36.29		846.07	3258.60	120.97	3.23						

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
LAWA88R1		Not Studied		76.29	13.605	11.7493625	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA88R1		Not Studied		76.29	13.605	11.7493625	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA88R1		Not Studied		76.29	13.605	11.7493625	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA88R1		Not Studied		76.29	13.605	11.7493625	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA88R1		Not Studied		76.29	13.605	11.7493625	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA88R1		Not Studied		76.29	13.605	11.7493625	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA88R1		Analcime only	XRD/SEM	76.29	13.605	11.7493625	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA89		Not Studied		76.29	11.615	22.990088	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA89		Not Studied		76.29	11.615	22.990088	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA89		Not Studied		76.29	11.615	22.990088	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA89		Not Studied		76.29	11.615	22.990088	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA89		Not Studied		76.29	11.615	22.990088	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA89		Not Studied		76.29	11.615	22.990088	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA89		Not Studied		76.29	11.615	22.990088	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA89		Not Studied		76.29	11.615	22.990088	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA89		Not Studied		76.29	11.615	22.990088	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA89		Not Studied		76.29	11.615	22.990088	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA89		Not Studied		76.29	11.615	22.990088	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA89		Not Studied		76.29	11.615	22.990088	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA89		Not Studied		76.29	11.615	22.990088	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA89		Not Studied		76.29	11.615	22.990088	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA89		Not Studied		76.29	11.615	22.990088	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA89		Not Studied		76.29	11.615	22.990088	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA90		Not Studied		76.29	15.598	0.4949006	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA90		Not Studied		76.29	15.598	0.4949006	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA90		Not Studied		76.29	15.598	0.4949006	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA90		Not Studied		76.29	15.598	0.4949006	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA90		Not Studied		76.29	15.598	0.4949006	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA90		Not Studied		76.29	15.598	0.4949006	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA90		Not Studied		76.29	15.598	0.4949006	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA90		Not Studied		76.29	15.598	0.4949006	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA90		Not Studied		76.29	15.598	0.4949006	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA90		Not Studied		76.29	15.598	0.4949006	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA90		Not Studied		76.29	15.598	0.4949006	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA90		Not Studied		76.29	15.598	0.4949006	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA90		Not Studied		76.29	15.598	0.4949006	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA90		Not Studied		76.29	15.598	0.4949006	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA93		Not Studied		68.94	21.566	-21.4206343	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA93		Not Studied		68.94	21.566	-21.4206343	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA93		Not Studied		68.94	21.566	-21.4206343	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA93		Not Studied		68.94	21.566	-21.4206343	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA93		Not Studied		68.94	21.566	-21.4206343	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA93		Not Studied		68.94	21.566	-21.4206343	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA93		Not Studied		68.94	21.566	-21.4206343	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA96		Not Studied		71.96	13.182	21.0831404	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA96		Not Studied		71.96	13.182	21.0831404	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA96		Not Studied		71.96	13.182	21.0831404	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA96		Not Studied		71.96	13.182	21.0831404	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA96		Not Studied		71.96	13.182	21.0831404	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA96		Not Studied		71.96	13.182	21.0831404	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA96		Not Studied		71.96	13.182	21.0831404	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA96		Not Studied		71.96	13.182	21.0831404	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA96		Not Studied		71.96	13.182	21.0831404	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA96		Not Studied		71.96	13.182	21.0831404	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA96		Not Studied		71.96	13.182	21.0831404	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA96		Not Studied		71.96	13.182	21.0831404	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA96		Not Studied		71.96	13.182	21.0831404	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWB30		Not Studied		65.06	24.115	-29.606521	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB30		Not Studied		65.06	24.115	-29.606521	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB30		Not Studied		65.06	24.115	-29.606521	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB30		Not Studied		65.06	24.115	-29.606521	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB30		Not Studied		65.06	24.115	-29.606521	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB30		Not Studied		65.06	24.115	-29.606521	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB30		Not Studied		65.06	24.115	-29.606521	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB30		Not Studied		65.06	24.115	-29.606521	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB30		Not Studied		65.06	24.115	-29.606521	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB30		Not Studied		65.06	24.115	-29.606521	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
LAWA88R1	HOMOGENEOUS	6.08	9.70	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA88R1	HOMOGENEOUS	6.08	9.70	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA88R1	HOMOGENEOUS	6.08	9.70	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA88R1	HOMOGENEOUS	6.08	9.70	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA88R1	HOMOGENEOUS	6.08	9.70	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA88R1	HOMOGENEOUS	6.08	9.70	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA88R1	HOMOGENEOUS	6.08	9.70	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA89	HOMOGENEOUS	6.08	9.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA89	HOMOGENEOUS	6.08	9.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA89	HOMOGENEOUS	6.08	9.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA89	HOMOGENEOUS	6.08	9.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA89	HOMOGENEOUS	6.08	9.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA89	HOMOGENEOUS	6.08	9.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA89	HOMOGENEOUS	6.08	9.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA89	HOMOGENEOUS	6.08	9.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA89	HOMOGENEOUS	6.08	9.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA89	HOMOGENEOUS	6.08	9.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA89	HOMOGENEOUS	6.08	9.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA89	HOMOGENEOUS	6.08	9.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA89	HOMOGENEOUS	6.08	9.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA89	HOMOGENEOUS	6.08	9.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA89	HOMOGENEOUS	6.08	9.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA89	HOMOGENEOUS	6.08	9.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA90	HOMOGENEOUS	6.08	9.70	0.00	3.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA90	HOMOGENEOUS	6.08	9.70	0.00	3.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA90	HOMOGENEOUS	6.08	9.70	0.00	3.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA90	HOMOGENEOUS	6.08	9.70	0.00	3.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA90	HOMOGENEOUS	6.08	9.70	0.00	3.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA90	HOMOGENEOUS	6.08	9.70	0.00	3.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA90	HOMOGENEOUS	6.08	9.70	0.00	3.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA90	HOMOGENEOUS	6.08	9.70	0.00	3.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA90	HOMOGENEOUS	6.08	9.70	0.00	3.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA90	HOMOGENEOUS	6.08	9.70	0.00	3.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA90	HOMOGENEOUS	6.08	9.70	0.00	3.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA90	HOMOGENEOUS	6.08	9.70	0.00	3.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA90	HOMOGENEOUS	6.08	9.70	0.00	3.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA90	HOMOGENEOUS	6.08	9.70	0.00	3.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.53	2.58	0.00	0.00
LAWA93	HOMOGENEOUS	6.18	11.10	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.51	0.50	0.00	0.00
LAWA93	HOMOGENEOUS	6.18	11.10	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.51	0.50	0.00	0.00
LAWA93	HOMOGENEOUS	6.18	11.10	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.51	0.50	0.00	0.00
LAWA93	HOMOGENEOUS	6.18	11.10	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.51	0.50	0.00	0.00
LAWA93	HOMOGENEOUS	6.18	11.10	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.51	0.50	0.00	0.00
LAWA93	HOMOGENEOUS	6.18	11.10	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.51	0.50	0.00	0.00
LAWA93	HOMOGENEOUS	6.18	11.10	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.51	0.50	0.00	0.00
LAWA96	HOMOGENEOUS	6.20	7.90	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	0.50	0.00	0.00
LAWA96	HOMOGENEOUS	6.20	7.90	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	0.50	0.00	0.00
LAWA96	HOMOGENEOUS	6.20	7.90	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	0.50	0.00	0.00
LAWA96	HOMOGENEOUS	6.20	7.90	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	0.50	0.00	0.00
LAWA96	HOMOGENEOUS	6.20	7.90	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	0.50	0.00	0.00
LAWA96	HOMOGENEOUS	6.20	7.90	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	0.50	0.00	0.00
LAWA96	HOMOGENEOUS	6.20	7.90	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	0.50	0.00	0.00
LAWA96	HOMOGENEOUS	6.20	7.90	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	0.50	0.00	0.00
LAWA96	HOMOGENEOUS	6.20	7.90	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	0.50	0.00	0.00
LAWA96	HOMOGENEOUS	6.20	7.90	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	0.50	0.00	0.00
LAWA96	HOMOGENEOUS	6.20	7.90	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	0.50	0.00	0.00
LAWA96	HOMOGENEOUS	6.20	7.90	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	0.50	0.00	0.00
LAWA96	HOMOGENEOUS	6.20	7.90	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	0.50	0.00	0.00
LAWB30	HOMOGENEOUS	8.60	10.04	0.00	7.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.28	0.32	0.00	0.00
LAWB30	HOMOGENEOUS	8.60	10.04	0.00	7.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.28	0.32	0.00	0.00
LAWB30	HOMOGENEOUS	8.60	10.04	0.00	7.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.28	0.32	0.00	0.00
LAWB30	HOMOGENEOUS	8.60	10.04	0.00	7.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.28	0.32	0.00	0.00
LAWB30	HOMOGENEOUS	8.60	10.04	0.00	7.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.28	0.32	0.00	0.00
LAWB30	HOMOGENEOUS	8.60	10.04	0.00	7.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.28	0.32	0.00	0.00
LAWB30	HOMOGENEOUS	8.60	10.04	0.00	7.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.28	0.32	0.00	0.00
LAWB30	HOMOGENEOUS	8.60	10.04	0.00	7.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.28	0.32	0.00	0.00
LAWB30	HOMOGENEOUS	8.60	10.04	0.00	7.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.28	0.32	0.00	0.00
LAWB30	HOMOGENEOUS	8.60	10.04	0.00	7.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.28	0.32	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li_2O	MgO	MnO	MoO_3	Na_2O	Nd_2O_3	NiO	PO_4	P_2O_5	PbO	Pd	Pr_2O_3	RuO_2	SiO_2	Sm_2O_3	SO_4	SrO
LAWA88R1	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA88R1	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA88R1	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA88R1	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA88R1	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA88R1	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA88R1	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA89	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA89	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA89	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA89	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA89	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA89	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA89	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA89	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA89	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA89	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA89	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA89	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA89	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA89	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA89	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA89	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA90	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA90	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA90	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA90	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA90	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA90	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA90	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA90	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA90	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA90	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA90	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA90	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA90	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA90	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
LAWA93	5.07	1.48	0.00	0.00	10.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.25	0.00	0.00	0.00
LAWA93	5.07	1.48	0.00	0.00	10.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.25	0.00	0.00	0.00
LAWA93	5.07	1.48	0.00	0.00	10.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.25	0.00	0.00	0.00
LAWA93	5.07	1.48	0.00	0.00	10.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.25	0.00	0.00	0.00
LAWA93	5.07	1.48	0.00	0.00	10.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.25	0.00	0.00	0.00
LAWA93	5.07	1.48	0.00	0.00	10.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.25	0.00	0.00	0.00
LAWA93	5.07	1.48	0.00	0.00	10.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.25	0.00	0.00	0.00
LAWA96	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.56	0.00	0.00	0.00
LAWA96	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.56	0.00	0.00	0.00
LAWA96	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.56	0.00	0.00	0.00
LAWA96	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.56	0.00	0.00	0.00
LAWA96	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.56	0.00	0.00	0.00
LAWA96	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.56	0.00	0.00	0.00
LAWA96	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.56	0.00	0.00	0.00
LAWA96	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.56	0.00	0.00	0.00
LAWA96	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.56	0.00	0.00	0.00
LAWA96	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.56	0.00	0.00	0.00
LAWA96	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.56	0.00	0.00	0.00
LAWA96	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.56	0.00	0.00	0.00
LAWA96	0.00	1.99	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.56	0.00	0.00	0.00
LAWB30	4.07	3.08	0.00	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.73	0.00	0.00	0.00
LAWB30	4.07	3.08	0.00	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.73	0.00	0.00	0.00
LAWB30	4.07	3.08	0.00	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.73	0.00	0.00	0.00
LAWB30	4.07	3.08	0.00	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.73	0.00	0.00	0.00
LAWB30	4.07	3.08	0.00	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.73	0.00	0.00	0.00
LAWB30	4.07	3.08	0.00	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.73	0.00	0.00	0.00
LAWB30	4.07	3.08	0.00	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.73	0.00	0.00	0.00
LAWB30	4.07	3.08	0.00	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.73	0.00	0.00	0.00
LAWB30	4.07	3.08	0.00	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.73	0.00	0.00	0.00
LAWB30	4.07	3.08	0.00	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.73	0.00	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
LAWA88R1	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA88R1	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA88R1	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA88R1	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA88R1	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA88R1	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA88R1	0.00	0.00	1.99	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA89	0.00	0.00	3.98	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA89	0.00	0.00	3.98	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA89	0.00	0.00	3.98	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA89	0.00	0.00	3.98	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA89	0.00	0.00	3.98	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA89	0.00	0.00	3.98	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA89	0.00	0.00	3.98	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA89	0.00	0.00	3.98	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA89	0.00	0.00	3.98	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA89	0.00	0.00	3.98	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA89	0.00	0.00	3.98	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA89	0.00	0.00	3.98	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA89	0.00	0.00	3.98	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA89	0.00	0.00	3.98	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA89	0.00	0.00	3.98	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA89	0.00	0.00	3.98	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA90	0.00	0.00	0.00	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA90	0.00	0.00	0.00	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA90	0.00	0.00	0.00	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA90	0.00	0.00	0.00	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA90	0.00	0.00	0.00	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA90	0.00	0.00	0.00	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA90	0.00	0.00	0.00	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA90	0.00	0.00	0.00	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA90	0.00	0.00	0.00	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA90	0.00	0.00	0.00	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA90	0.00	0.00	0.00	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA90	0.00	0.00	0.00	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA90	0.00	0.00	0.00	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA90	0.00	0.00	0.00	0.00	0.00	2.95	2.99	0.70	100.00		
LAWA93	0.00	0.00	1.11	0.00	0.00	2.99	2.99	0.93	100.00		
LAWA93	0.00	0.00	1.11	0.00	0.00	2.99	2.99	0.93	100.00		
LAWA93	0.00	0.00	1.11	0.00	0.00	2.99	2.99	0.93	100.00		
LAWA93	0.00	0.00	1.11	0.00	0.00	2.99	2.99	0.93	100.00		
LAWA93	0.00	0.00	1.11	0.00	0.00	2.99	2.99	0.93	100.00		
LAWA93	0.00	0.00	1.11	0.00	0.00	2.99	2.99	0.93	100.00		
LAWA93	0.00	0.00	1.11	0.00	0.00	2.99	2.99	0.93	100.00		
LAWA96	0.00	0.00	1.99	0.00	0.00	2.97	2.99	4.91	100.00		
LAWA96	0.00	0.00	1.99	0.00	0.00	2.97	2.99	4.91	100.00		
LAWA96	0.00	0.00	1.99	0.00	0.00	2.97	2.99	4.91	100.00		
LAWA96	0.00	0.00	1.99	0.00	0.00	2.97	2.99	4.91	100.00		
LAWA96	0.00	0.00	1.99	0.00	0.00	2.97	2.99	4.91	100.00		
LAWA96	0.00	0.00	1.99	0.00	0.00	2.97	2.99	4.91	100.00		
LAWA96	0.00	0.00	1.99	0.00	0.00	2.97	2.99	4.91	100.00		
LAWA96	0.00	0.00	1.99	0.00	0.00	2.97	2.99	4.91	100.00		
LAWA96	0.00	0.00	1.99	0.00	0.00	2.97	2.99	4.91	100.00		
LAWA96	0.00	0.00	1.99	0.00	0.00	2.97	2.99	4.91	100.00		
LAWA96	0.00	0.00	1.99	0.00	0.00	2.97	2.99	4.91	100.00		
LAWA96	0.00	0.00	1.99	0.00	0.00	2.97	2.99	4.91	100.00		
LAWA96	0.00	0.00	1.99	0.00	0.00	2.97	2.99	4.91	100.00		
LAWB30	0.00	0.00	0.00	0.00	0.00	4.12	3.12	0.51	100.00		
LAWB30	0.00	0.00	0.00	0.00	0.00	4.12	3.12	0.51	100.00		
LAWB30	0.00	0.00	0.00	0.00	0.00	4.12	3.12	0.51	100.00		
LAWB30	0.00	0.00	0.00	0.00	0.00	4.12	3.12	0.51	100.00		
LAWB30	0.00	0.00	0.00	0.00	0.00	4.12	3.12	0.51	100.00		
LAWB30	0.00	0.00	0.00	0.00	0.00	4.12	3.12	0.51	100.00		
LAWB30	0.00	0.00	0.00	0.00	0.00	4.12	3.12	0.51	100.00		
LAWB30	0.00	0.00	0.00	0.00	0.00	4.12	3.12	0.51	100.00		
LAWB30	0.00	0.00	0.00	0.00	0.00	4.12	3.12	0.51	100.00		
LAWB30	0.00	0.00	0.00	0.00	0.00	4.12	3.12	0.51	100.00		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
LAWB30	LAW	VSL-11R2270-1	SS	2190.00	0.81	2.031	4,447.077	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.03
LAWB30	LAW	VSL-11R2270-1	SS	2558.00	0.81	2.031	5,194.348	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.16
LAWB31	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.41
LAWB31	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.51
LAWB31	LAW	VSL-11R2270-1	SS	86.00	0.81	2.031	174.634	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.63
LAWB31	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.73
LAWB31	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.82
LAWB31	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.95
LAWB31	LAW	VSL-11R2270-1	SS	366.00	0.81	2.031	743.210	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.08
LAWB31	LAW	VSL-11R2270-1	SS	546.00	0.81	2.031	1,108.723	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.12
LAWB31	LAW	VSL-11R2270-1	SS	730.00	0.81	2.031	1,482.359	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.27
LAWB31	LAW	VSL-11R2270-1	SS	1091.00	0.81	2.031	2,215.416	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.35
LAWB31	LAW	VSL-11R2270-1	SS	1458.00	0.81	2.031	2,960.657	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.45
LAWB31	LAW	VSL-11R2270-1	SS	2186.00	0.81	2.031	4,438.954	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.55
LAWB31	LAW	VSL-11R2270-1	SS	2548.00	0.81	2.031	5,174.042	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.57
LAWB31	LAW	VSL-11R2270-1	SS	3030.00	0.81	2.031	6,152.805	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.75
LAWB31	LAW	VSL-11R2270-1	SS	3393.00	0.81	2.031	6,889.923	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.82
LAWB32	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.33
LAWB32	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.42
LAWB32	LAW	VSL-11R2270-1	SS	86.00	0.81	2.031	174.634	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.61
LAWB32	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.75
LAWB32	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.85
LAWB32	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.98
LAWB32	LAW	VSL-11R2270-1	SS	366.00	0.81	2.031	743.210	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.12
LAWB32	LAW	VSL-11R2270-1	SS	546.00	0.81	2.031	1,108.723	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.22
LAWB32	LAW	VSL-11R2270-1	SS	730.00	0.81	2.031	1,482.359	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.34
LAWB32	LAW	VSL-11R2270-1	SS	1091.00	0.81	2.031	2,215.416	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.45
LAWB32	LAW	VSL-11R2270-1	SS	1458.00	0.81	2.031	2,960.657	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.55
LAWB32	LAW	VSL-11R2270-1	SS	2186.00	0.81	2.031	4,438.954	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.64
LAWB32	LAW	VSL-11R2270-1	SS	2548.00	0.81	2.031	5,174.042	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.75
LAWB32	LAW	VSL-11R2270-1	SS	3030.00	0.81	2.031	6,152.805	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.84
LAWB32	LAW	VSL-11R2270-1	SS	3393.00	0.81	2.031	6,889.923	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.86
LAWB33	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.18
LAWB33	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.26
LAWB33	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.37
LAWB33	LAW	VSL-11R2270-1	SS	119.00	0.81	2.031	241.645	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.53
LAWB33	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.74
LAWB33	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.82
LAWB33	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.93
LAWB33	LAW	VSL-11R2270-1	SS	546.00	0.81	2.031	1,108.723	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.05
LAWB33	LAW	VSL-11R2270-1	SS	729.00	0.81	2.031	1,480.328	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.12
LAWB33	LAW	VSL-11R2270-1	SS	1096.00	0.81	2.031	2,225.569	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.25
LAWB33	LAW	VSL-11R2270-1	SS	1460.00	0.81	2.031	2,964.718	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.38
LAWB33	LAW	VSL-11R2270-1	SS	1827.00	0.81	2.031	3,709.959	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.43
LAWB33	LAW	VSL-11R2270-1	SS	2195.00	0.81	2.031	4,457.230	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.52
LAWB33	LAW	VSL-11R2270-1	SS	2666.00	0.81	2.031	5,413.656	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.56
LAWB34	LAW	VSL-11R2270-1	SS	7.00	0.81	2.046	14.322	**2.630**	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.51
LAWB34	LAW	VSL-11R2270-1	SS	28.00	0.81	2.046	57.290	**2.630**	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.58
LAWB34	LAW	VSL-11R2270-1	SS	86.00	0.81	2.046	175.962	**2.630**	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.72
LAWB34	LAW	VSL-11R2270-1	SS	120.00	0.81	2.046	245.528	**2.630**	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.85
LAWB34	LAW	VSL-11R2270-1	SS	180.00	0.81	2.046	368.293	**2.630**	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.93
LAWB34	LAW	VSL-11R2270-1	SS	271.00	0.81	2.046	554.485	**2.630**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.03
LAWB34	LAW	VSL-11R2270-1	SS	366.00	0.81	2.046	748.862	**2.630**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.17
LAWB34	LAW	VSL-11R2270-1	SS	546.00	0.81	2.046	1,117.155	**2.630**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.32
LAWB34	LAW	VSL-11R2270-1	SS	730.00	0.81	2.046	1,493.632	**2.630**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.45
LAWB34	LAW	VSL-11R2270-1	SS	1091.00	0.81	2.046	2,232.263	**2.630**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.56
LAWB34	LAW	VSL-11R2270-1	SS	1458.00	0.81	2.046	2,983.171	**2.630**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.64
LAWB34	LAW	VSL-11R2270-1	SS	2186.00	0.81	2.046	4,472.711	**2.630**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.75
LAWB34	LAW	VSL-11R2270-1	SS	2548.00	0.81	2.046	5,213.388	**2.630**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.85
LAWB34	LAW	VSL-11R2270-1	SS	3030.00	0.81	2.046	6,199.594	**2.630**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.94
LAWB34	LAW	VSL-11R2270-1	SS	3393.00	0.81	2.046	6,942.318	**2.630**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.96
LAWB35	LAW	VSL-11R2270-1	SS	7.00	0.81	2.038	14.268	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.56
LAWB35	LAW	VSL-11R2270-1	SS	28.00	0.81	2.038	57.073	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.64
LAWB35	LAW	VSL-11R2270-1	SS	86.00	0.81	2.038	175.296	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.84
LAWB35	LAW	VSL-11R2270-1	SS	120.00	0.81	2.038	244.598	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.94
LAWB35	LAW	VSL-11R2270-1	SS	180.00	0.81	2.038	366.898	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.97
LAWB35	LAW	VSL-11R2270-1	SS	271.00	0.81	2.038	552.385	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.07

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
LAWB30	74.24	2493.73	28.85		687.36	3033.03	92.37	1.83						
LAWB30	104.77	2766.83	35.29		694.86	3041.27	122.93	2.54						
LAWB31	44.22	15.65	0.35		7.01	12.32		1.45						
LAWB31	55.71	21.49	0.21		10.66	22.85		3.16						
LAWB31	67.82	24.62	0.37		11.83	22.90		3.27						
LAWB31	65.23	28.53	0.29		14.30	24.86		3.21						
LAWB31	72.19	31.79	0.54		16.48	26.38		3.46						
LAWB31	65.62	30.70			17.68	26.17		3.00						
LAWB31	73.83	34.51			19.01	27.45		2.94						
LAWB31	80.92	43.04	0.60		20.99	34.61		2.97						
LAWB31	105.98	53.65	0.17		28.93	44.63		3.78						
LAWB31	122.03	64.06	0.36		32.98	48.38		3.76						
LAWB31	122.02	67.61	0.15		34.82	49.55		3.38						
LAWB31	107.38	65.96	0.23		30.87	44.81		2.36						
LAWB31	127.75	76.88	0.23		34.16	48.13		3.31						
LAWB31	138.05	87.67	0.42		40.03	57.17		2.71						
LAWB31	132.52	88.36	0.40		40.83	58.06		2.36						
LAWB32	46.28	23.15	0.21		7.74	16.70		1.41						
LAWB32	57.11	35.69	0.20		12.40	31.75		2.97						
LAWB32	70.77	50.05	0.35		15.13	38.22		2.54						
LAWB32	76.67	75.03	0.26		23.34	59.45		1.75						
LAWB32	84.78	100.70	0.40		30.43	76.83		1.73						0.45
LAWB32	75.29	116.17			35.32	85.30		1.42						
LAWB32	87.06	147.50	0.70		41.76	102.67		1.54						
LAWB32	89.54	180.90	0.66		49.80	113.17		1.38						
LAWB32	117.66	255.46	0.46		75.26	167.96	2.90	2.12						
LAWB32	112.79	298.89	0.56		82.84	191.09	3.06	1.48						
LAWB32	113.61	325.74	0.86		92.18	207.91	3.20	1.56						
LAWB32	100.25	304.81	1.26		83.40	187.63	2.34	1.75						
LAWB32	116.33	328.62	1.51		85.44	194.06	3.16	2.53						
LAWB32	131.90	392.50	1.77		106.69	225.39	3.18	1.30						
LAWB32	133.05	389.28	2.31		110.80	230.24	3.32	1.37						
LAWB33	43.22	14.29	0.43		6.33	13.65		2.58						
LAWB33	51.26	19.01	0.21		8.51	15.30		2.61						
LAWB33	60.96	21.71			11.04	17.67		3.03						
LAWB33	66.02	27.26	0.18		13.92	20.35		3.44						
LAWB33	66.27	28.73	0.59		14.82	19.88		3.25						
LAWB33	69.03	30.32	0.21		16.85	21.66		3.26						
LAWB33	94.35	46.33	0.15		25.95	33.39		4.72						
LAWB33	80.18	45.86	0.16		24.32	30.59		3.74						
LAWB33	87.02	51.61	0.33		27.06	33.99		4.05						
LAWB33	100.96	67.29	0.23		33.48	41.36		3.74						
LAWB33	84.44	61.64	0.18		27.78	34.33		2.69						
LAWB33	94.52	71.64	0.34		32.51	42.13		3.02						
LAWB33	93.29	74.35	0.52		34.43	44.91		2.61						
LAWB33	90.90	78.67	4.71		33.54	60.20		2.46			1.02			
LAWB34	43.77	16.22	0.36		6.72	14.69		0.86						
LAWB34	53.03	21.49	0.29		9.86	25.67		2.43						
LAWB34	61.29	24.27	0.77		10.08	24.30		2.30						
LAWB34	61.76	27.55	0.48		12.67	28.04		2.53						
LAWB34	69.80	30.87	0.99		14.91	31.48		2.90						
LAWB34	62.93	30.95			15.44	29.88		2.52						
LAWB34	71.57	34.89	1.06		16.75	31.87		2.59						
LAWB34	77.05	40.32	1.16		18.14	33.92		2.64						
LAWB34	104.61	50.16	1.05		24.78	47.05		3.94						
LAWB34	103.63	55.71	1.54		26.45	48.05	1.72	3.17						
LAWB34	102.30	55.41	1.40		28.15	49.82	1.85	3.08						
LAWB34	96.29	58.29	1.69		25.79	46.91		2.29						
LAWB34	110.23	70.44	1.34		28.19	52.42		3.20						
LAWB34	122.52	84.19	2.07		33.39	64.14		2.82						0.82
LAWB34	131.63	95.51	2.12		39.30	72.87		2.72						
LAWB35	62.19	37.43	0.25		12.71	40.06								
LAWB35	80.15	57.71	0.18		20.55	64.91		1.50						
LAWB35	89.05	60.57	0.37		20.18	60.34		1.41						
LAWB35	87.66	62.74	0.32		22.31	62.47		1.66						
LAWB35	94.14	69.21	0.44		25.94	68.04		1.76						
LAWB35	79.08	63.22			24.79	60.29		1.52						

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
LAWB30		Not Studied		65.06	24.115	-29.606521	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB30		Not Studied		65.06	24.115	-29.606521	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB31		Not Studied		70.46	17.425	-0.478432	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB31		Not Studied		70.46	17.425	-0.478432	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB31		Not Studied		70.46	17.425	-0.478432	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB31		Not Studied		70.46	17.425	-0.478432	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB31		Not Studied		70.46	17.425	-0.478432	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB31		Not Studied		70.46	17.425	-0.478432	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB31		Not Studied		70.46	17.425	-0.478432	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB31		Not Studied		70.46	17.425	-0.478432	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB31		Not Studied		70.46	17.425	-0.478432	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB31		Not Studied		70.46	17.425	-0.478432	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB31		Not Studied		70.46	17.425	-0.478432	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB31		Not Studied		70.46	17.425	-0.478432	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB31		Not Studied		70.46	17.425	-0.478432	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB31		Not Studied		70.46	17.425	-0.478432	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB31		amorphous	XRD/SEM	70.46	17.425	-0.478432	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB32		Not Studied		73.44	14.405	11.8075115	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB32		Not Studied		73.44	14.405	11.8075115	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB32		Not Studied		73.44	14.405	11.8075115	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB32		Not Studied		73.44	14.405	11.8075115	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB32		Not Studied		73.44	14.405	11.8075115	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB32		Not Studied		73.44	14.405	11.8075115	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB32		Not Studied		73.44	14.405	11.8075115	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB32		Not Studied		73.44	14.405	11.8075115	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB32		Not Studied		73.44	14.405	11.8075115	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB32		Not Studied		73.44	14.405	11.8075115	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB32		Not Studied		73.44	14.405	11.8075115	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB32		Not Studied		73.44	14.405	11.8075115	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB32		Not Studied		73.44	14.405	11.8075115	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB32		Not Studied		73.44	14.405	11.8075115	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB32		amorphous	XRD/SEM	73.44	14.405	11.8075115	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB33		Not Studied		70.37	15.381	11.2147967	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB33		Not Studied		70.37	15.381	11.2147967	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB33		Not Studied		70.37	15.381	11.2147967	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB33		Not Studied		70.37	15.381	11.2147967	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB33		Not Studied		70.37	15.381	11.2147967	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB33		Not Studied		70.37	15.381	11.2147967	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB33		Not Studied		70.37	15.381	11.2147967	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB33		Not Studied		70.37	15.381	11.2147967	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB33		Not Studied		70.37	15.381	11.2147967	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB33		Not Studied		70.37	15.381	11.2147967	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB33		Not Studied		70.37	15.381	11.2147967	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB33		Not Studied		70.37	15.381	11.2147967	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB33		Not Studied		70.37	15.381	11.2147967	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB33		Not Studied		70.37	15.381	11.2147967	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB34		Not Studied		70.40	17.41	-0.300712	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB34		Not Studied		70.40	17.41	-0.300712	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB34		Not Studied		70.40	17.41	-0.300712	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB34		Not Studied		70.40	17.41	-0.300712	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB34		Not Studied		70.40	17.41	-0.300712	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB34		Not Studied		70.40	17.41	-0.300712	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB34		Not Studied		70.40	17.41	-0.300712	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB34		Not Studied		70.40	17.41	-0.300712	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB34		Not Studied		70.40	17.41	-0.300712	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB34		Not Studied		70.40	17.41	-0.300712	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB34		Not Studied		70.40	17.41	-0.300712	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB34		Not Studied		70.40	17.41	-0.300712	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB34		Not Studied		70.40	17.41	-0.300712	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB34		Not Studied		70.40	17.41	-0.300712	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB34		Not Studied		70.40	17.41	-0.300712	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB35		Not Studied		70.41	15.389	11.1022673	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB35		Not Studied		70.41	15.389	11.1022673	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB35		Not Studied		70.41	15.389	11.1022673	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB35		Not Studied		70.41	15.389	11.1022673	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB35		Not Studied		70.41	15.389	11.1022673	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB35		Not Studied		70.41	15.389	11.1022673	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
LAWB30	HOMOGENEOUS	8.60	10.04	0.00	7.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.28	0.32	0.00	0.00
LAWB30	HOMOGENEOUS	8.60	10.04	0.00	7.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.28	0.32	0.00	0.00
LAWB31	HOMOGENEOUS	6.18	12.14	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.20	0.32	0.00	0.00
LAWB31	HOMOGENEOUS	6.18	12.14	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.20	0.32	0.00	0.00
LAWB31	HOMOGENEOUS	6.18	12.14	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.20	0.32	0.00	0.00
LAWB31	HOMOGENEOUS	6.18	12.14	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.20	0.32	0.00	0.00
LAWB31	HOMOGENEOUS	6.18	12.14	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.20	0.32	0.00	0.00
LAWB31	HOMOGENEOUS	6.18	12.14	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.20	0.32	0.00	0.00
LAWB31	HOMOGENEOUS	6.18	12.14	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.20	0.32	0.00	0.00
LAWB31	HOMOGENEOUS	6.18	12.14	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.20	0.32	0.00	0.00
LAWB31	HOMOGENEOUS	6.18	12.14	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.20	0.32	0.00	0.00
LAWB31	HOMOGENEOUS	6.18	12.14	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.20	0.32	0.00	0.00
LAWB31	HOMOGENEOUS	6.18	12.14	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.20	0.32	0.00	0.00
LAWB31	HOMOGENEOUS	6.18	12.14	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.20	0.32	0.00	0.00
LAWB31	HOMOGENEOUS	6.18	12.14	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.20	0.32	0.00	0.00
LAWB31	HOMOGENEOUS	6.18	12.14	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.20	0.32	0.00	0.00
LAWB31	HOMOGENEOUS	6.18	12.14	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.20	0.32	0.00	0.00
LAWB32	HOMOGENEOUS	6.18	15.15	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.18	0.32	0.00	0.00
LAWB32	HOMOGENEOUS	6.18	15.15	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.18	0.32	0.00	0.00
LAWB32	HOMOGENEOUS	6.18	15.15	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.18	0.32	0.00	0.00
LAWB32	HOMOGENEOUS	6.18	15.15	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.18	0.32	0.00	0.00
LAWB32	HOMOGENEOUS	6.18	15.15	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.18	0.32	0.00	0.00
LAWB32	HOMOGENEOUS	6.18	15.15	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.18	0.32	0.00	0.00
LAWB32	HOMOGENEOUS	6.18	15.15	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.18	0.32	0.00	0.00
LAWB32	HOMOGENEOUS	6.18	15.15	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.18	0.32	0.00	0.00
LAWB32	HOMOGENEOUS	6.18	15.15	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.18	0.32	0.00	0.00
LAWB32	HOMOGENEOUS	6.18	15.15	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.18	0.32	0.00	0.00
LAWB32	HOMOGENEOUS	6.18	15.15	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.18	0.32	0.00	0.00
LAWB32	HOMOGENEOUS	6.18	15.15	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.18	0.32	0.00	0.00
LAWB32	HOMOGENEOUS	6.18	15.15	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.18	0.32	0.00	0.00
LAWB32	HOMOGENEOUS	6.18	15.15	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.18	0.32	0.00	0.00
LAWB32	HOMOGENEOUS	6.18	15.15	0.00	4.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.18	0.32	0.00	0.00
LAWB33	HOMOGENEOUS	6.18	12.13	0.00	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.32	0.00	0.00
LAWB33	HOMOGENEOUS	6.18	12.13	0.00	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.32	0.00	0.00
LAWB33	HOMOGENEOUS	6.18	12.13	0.00	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.32	0.00	0.00
LAWB33	HOMOGENEOUS	6.18	12.13	0.00	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.32	0.00	0.00
LAWB33	HOMOGENEOUS	6.18	12.13	0.00	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.32	0.00	0.00
LAWB33	HOMOGENEOUS	6.18	12.13	0.00	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.32	0.00	0.00
LAWB33	HOMOGENEOUS	6.18	12.13	0.00	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.32	0.00	0.00
LAWB33	HOMOGENEOUS	6.18	12.13	0.00	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.32	0.00	0.00
LAWB33	HOMOGENEOUS	6.18	12.13	0.00	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.32	0.00	0.00
LAWB33	HOMOGENEOUS	6.18	12.13	0.00	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.32	0.00	0.00
LAWB33	HOMOGENEOUS	6.18	12.13	0.00	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.32	0.00	0.00
LAWB33	HOMOGENEOUS	6.18	12.13	0.00	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.32	0.00	0.00
LAWB33	HOMOGENEOUS	6.18	12.13	0.00	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.32	0.00	0.00
LAWB33	HOMOGENEOUS	6.18	12.13	0.00	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.32	0.00	0.00
LAWB34	HOMOGENEOUS	6.18	12.13	0.00	6.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	0.32	0.00	0.00
LAWB34	HOMOGENEOUS	6.18	12.13	0.00	6.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	0.32	0.00	0.00
LAWB34	HOMOGENEOUS	6.18	12.13	0.00	6.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	0.32	0.00	0.00
LAWB34	HOMOGENEOUS	6.18	12.13	0.00	6.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	0.32	0.00	0.00
LAWB34	HOMOGENEOUS	6.18	12.13	0.00	6.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	0.32	0.00	0.00
LAWB34	HOMOGENEOUS	6.18	12.13	0.00	6.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	0.32	0.00	0.00
LAWB34	HOMOGENEOUS	6.18	12.13	0.00	6.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	0.32	0.00	0.00
LAWB34	HOMOGENEOUS	6.18	12.13	0.00	6.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	0.32	0.00	0.00
LAWB34	HOMOGENEOUS	6.18	12.13	0.00	6.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	0.32	0.00	0.00
LAWB34	HOMOGENEOUS	6.18	12.13	0.00	6.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	0.32	0.00	0.00
LAWB34	HOMOGENEOUS	6.18	12.13	0.00	6.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	0.32	0.00	0.00
LAWB34	HOMOGENEOUS	6.18	12.13	0.00	6.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	0.32	0.00	0.00
LAWB34	HOMOGENEOUS	6.18	12.13	0.00	6.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	0.32	0.00	0.00
LAWB34	HOMOGENEOUS	6.18	12.13	0.00	6.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	0.32	0.00	0.00
LAWB34	HOMOGENEOUS	6.18	12.13	0.00	6.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	0.32	0.00	0.00
LAWB35	HOMOGENEOUS	6.18	12.13	0.00	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	0.32	0.00	0.00
LAWB35	HOMOGENEOUS	6.18	12.13	0.00	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	0.32	0.00	0.00
LAWB35	HOMOGENEOUS	6.18	12.13	0.00	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	0.32	0.00	0.00
LAWB35	HOMOGENEOUS	6.18	12.13	0.00	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	0.32	0.00	0.00
LAWB35	HOMOGENEOUS	6.18	12.13	0.00	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	0.32	0.00	0.00
LAWB35	HOMOGENEOUS	6.18	12.13	0.00	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	0.32	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
LAWB30	4.07	3.08	0.00	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.73	0.00	0.00	0.00
LAWB30	4.07	3.08	0.00	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.73	0.00	0.00	0.00
LAWB31	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.10	0.00	0.00	0.00
LAWB31	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.10	0.00	0.00	0.00
LAWB31	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.10	0.00	0.00	0.00
LAWB31	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.10	0.00	0.00	0.00
LAWB31	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.10	0.00	0.00	0.00
LAWB31	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.10	0.00	0.00	0.00
LAWB31	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.10	0.00	0.00	0.00
LAWB31	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.10	0.00	0.00	0.00
LAWB31	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.10	0.00	0.00	0.00
LAWB31	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.10	0.00	0.00	0.00
LAWB31	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.10	0.00	0.00	0.00
LAWB31	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.10	0.00	0.00	0.00
LAWB31	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.10	0.00	0.00	0.00
LAWB31	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.10	0.00	0.00	0.00
LAWB31	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.10	0.00	0.00	0.00
LAWB32	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.08	0.00	0.00	0.00
LAWB32	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.08	0.00	0.00	0.00
LAWB32	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.08	0.00	0.00	0.00
LAWB32	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.08	0.00	0.00	0.00
LAWB32	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.08	0.00	0.00	0.00
LAWB32	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.08	0.00	0.00	0.00
LAWB32	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.08	0.00	0.00	0.00
LAWB32	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.08	0.00	0.00	0.00
LAWB32	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.08	0.00	0.00	0.00
LAWB32	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.08	0.00	0.00	0.00
LAWB32	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.08	0.00	0.00	0.00
LAWB32	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.08	0.00	0.00	0.00
LAWB32	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.08	0.00	0.00	0.00
LAWB32	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.08	0.00	0.00	0.00
LAWB32	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.08	0.00	0.00	0.00
LAWB33	2.96	2.25	0.00	0.00	7.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.04	0.00	0.00	0.00
LAWB33	2.96	2.25	0.00	0.00	7.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.04	0.00	0.00	0.00
LAWB33	2.96	2.25	0.00	0.00	7.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.04	0.00	0.00	0.00
LAWB33	2.96	2.25	0.00	0.00	7.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.04	0.00	0.00	0.00
LAWB33	2.96	2.25	0.00	0.00	7.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.04	0.00	0.00	0.00
LAWB33	2.96	2.25	0.00	0.00	7.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.04	0.00	0.00	0.00
LAWB33	2.96	2.25	0.00	0.00	7.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.04	0.00	0.00	0.00
LAWB33	2.96	2.25	0.00	0.00	7.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.04	0.00	0.00	0.00
LAWB33	2.96	2.25	0.00	0.00	7.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.04	0.00	0.00	0.00
LAWB33	2.96	2.25	0.00	0.00	7.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.04	0.00	0.00	0.00
LAWB33	2.96	2.25	0.00	0.00	7.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.04	0.00	0.00	0.00
LAWB33	2.96	2.25	0.00	0.00	7.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.04	0.00	0.00	0.00
LAWB33	2.96	2.25	0.00	0.00	7.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.04	0.00	0.00	0.00
LAWB33	2.96	2.25	0.00	0.00	7.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.04	0.00	0.00	0.00
LAWB34	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.06	0.00	0.00	0.00
LAWB34	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.06	0.00	0.00	0.00
LAWB34	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.06	0.00	0.00	0.00
LAWB34	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.06	0.00	0.00	0.00
LAWB34	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.06	0.00	0.00	0.00
LAWB34	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.06	0.00	0.00	0.00
LAWB34	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.06	0.00	0.00	0.00
LAWB34	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.06	0.00	0.00	0.00
LAWB34	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.06	0.00	0.00	0.00
LAWB34	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.06	0.00	0.00	0.00
LAWB34	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.06	0.00	0.00	0.00
LAWB34	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.06	0.00	0.00	0.00
LAWB34	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.06	0.00	0.00	0.00
LAWB34	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.06	0.00	0.00	0.00
LAWB34	2.97	2.25	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.06	0.00	0.00	0.00
LAWB35	2.97	4.27	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.07	0.00	0.00	0.00
LAWB35	2.97	4.27	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.07	0.00	0.00	0.00
LAWB35	2.97	4.27	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.07	0.00	0.00	0.00
LAWB35	2.97	4.27	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.07	0.00	0.00	0.00
LAWB35	2.97	4.27	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.07	0.00	0.00	0.00
LAWB35	2.97	4.27	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.07	0.00	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
LAWB30	0.00	0.00	0.00	0.00	0.00	4.12	3.12	0.51	100.00		
LAWB30	0.00	0.00	0.00	0.00	0.00	4.12	3.12	0.51	100.00		
LAWB31	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.66	100.00		
LAWB31	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.66	100.00		
LAWB31	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.66	100.00		
LAWB31	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.66	100.00		
LAWB31	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.66	100.00		
LAWB31	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.66	100.00		
LAWB31	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.66	100.00		
LAWB31	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.66	100.00		
LAWB31	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.66	100.00		
LAWB31	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.66	100.00		
LAWB31	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.66	100.00		
LAWB31	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.66	100.00		
LAWB31	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.66	100.00		
LAWB31	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.66	100.00		
LAWB31	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.66	100.00		
LAWB32	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.71	100.00		
LAWB32	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.71	100.00		
LAWB32	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.71	100.00		
LAWB32	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.71	100.00		
LAWB32	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.71	100.00		
LAWB32	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.71	100.00		
LAWB32	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.71	100.00		
LAWB32	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.71	100.00		
LAWB32	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.71	100.00		
LAWB32	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.71	100.00		
LAWB32	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.71	100.00		
LAWB32	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.71	100.00		
LAWB32	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.71	100.00		
LAWB32	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.71	100.00		
LAWB32	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.71	100.00		
LAWB33	0.00	0.00	0.00	0.00	0.00	3.10	3.10	5.81	100.00		
LAWB33	0.00	0.00	0.00	0.00	0.00	3.10	3.10	5.81	100.00		
LAWB33	0.00	0.00	0.00	0.00	0.00	3.10	3.10	5.81	100.00		
LAWB33	0.00	0.00	0.00	0.00	0.00	3.10	3.10	5.81	100.00		
LAWB33	0.00	0.00	0.00	0.00	0.00	3.10	3.10	5.81	100.00		
LAWB33	0.00	0.00	0.00	0.00	0.00	3.10	3.10	5.81	100.00		
LAWB33	0.00	0.00	0.00	0.00	0.00	3.10	3.10	5.81	100.00		
LAWB33	0.00	0.00	0.00	0.00	0.00	3.10	3.10	5.81	100.00		
LAWB33	0.00	0.00	0.00	0.00	0.00	3.10	3.10	5.81	100.00		
LAWB33	0.00	0.00	0.00	0.00	0.00	3.10	3.10	5.81	100.00		
LAWB33	0.00	0.00	0.00	0.00	0.00	3.10	3.10	5.81	100.00		
LAWB33	0.00	0.00	0.00	0.00	0.00	3.10	3.10	5.81	100.00		
LAWB33	0.00	0.00	0.00	0.00	0.00	3.10	3.10	5.81	100.00		
LAWB33	0.00	0.00	0.00	0.00	0.00	3.10	3.10	5.81	100.00		
LAWB34	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.74	100.00		
LAWB34	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.74	100.00		
LAWB34	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.74	100.00		
LAWB34	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.74	100.00		
LAWB34	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.74	100.00		
LAWB34	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.74	100.00		
LAWB34	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.74	100.00		
LAWB34	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.74	100.00		
LAWB34	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.74	100.00		
LAWB34	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.74	100.00		
LAWB34	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.74	100.00		
LAWB34	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.74	100.00		
LAWB34	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.74	100.00		
LAWB34	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.74	100.00		
LAWB34	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.74	100.00		
LAWB35	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.73	100.00		
LAWB35	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.73	100.00		
LAWB35	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.73	100.00		
LAWB35	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.73	100.00		
LAWB35	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.73	100.00		
LAWB35	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.73	100.00		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
LAWB35	LAW	VSL-11R2270-1	SS	366.00	0.81	2.038	746.025	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.22
LAWB35	LAW	VSL-11R2270-1	SS	546.00	0.81	2.038	1,112.923	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.37
LAWB35	LAW	VSL-11R2270-1	SS	730.00	0.81	2.038	1,487.974	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.48
LAWB35	LAW	VSL-11R2270-1	SS	1091.00	0.81	2.038	2,223.808	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.57
LAWB35	LAW	VSL-11R2270-1	SS	1458.00	0.81	2.038	2,971.871	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.67
LAWB35	LAW	VSL-11R2270-1	SS	2186.00	0.81	2.038	4,455.768	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.76
LAWB35	LAW	VSL-11R2270-1	SS	2548.00	0.81	2.038	5,193.640	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.83
LAWB35	LAW	VSL-11R2270-1	SS	3030.00	0.81	2.038	6,176.111	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.94
LAWB35	LAW	VSL-11R2270-1	SS	3393.00	0.81	2.038	6,916.021	**2.640**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.97
LAWB37	LAW	VSL-11R2270-1	SS	7.00	0.82	2.062	14.432	**2.610**	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.43
LAWB37	LAW	VSL-11R2270-1	SS	28.00	0.82	2.062	57.729	**2.610**	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.66
LAWB37	LAW	VSL-11R2270-1	SS	56.00	0.82	2.062	115.458	**2.610**	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.77
LAWB37	LAW	VSL-11R2270-1	SS	120.00	0.82	2.062	247.410	**2.610**	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.86
LAWB37	LAW	VSL-11R2270-1	SS	181.00	0.82	2.062	373.177	**2.610**	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.92
LAWB37	LAW	VSL-11R2270-1	SS	269.00	0.82	2.062	554.611	**2.610**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.06
LAWB37	LAW	VSL-11R2270-1	SS	365.00	0.82	2.062	752.539	**2.610**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.12
LAWB37	LAW	VSL-11R2270-1	SS	547.00	0.82	2.062	1,127.777	**2.610**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.25
LAWB37	LAW	VSL-11R2270-1	SS	730.00	0.82	2.062	1,505.077	**2.610**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.32
LAWB37	LAW	VSL-11R2270-1	SS	1087.00	0.82	2.062	2,241.122	**2.610**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.45
LAWB37	LAW	VSL-11R2270-1	SS	1455.00	0.82	2.062	2,999.845	**2.610**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.55
LAWB37	LAW	VSL-11R2270-1	SS	2191.00	0.82	2.062	4,517.293	**2.610**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.64
LAWB37	LAW	VSL-11R2270-1	SS	2551.00	0.82	2.062	5,259.523	**2.610**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.74
LAWB37	LAW	VSL-11R2270-1	SS	2830.00	0.82	2.062	5,834.751	**2.610**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.76
LAWB37	LAW	VSL-11R2270-1	SS	2990.00	0.82	2.062	6,164.631	**2.610**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.82
LAWB37	LAW	VSL-11R2270-1	SS	3356.00	0.82	2.062	6,919.231	**2.610**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.85
LAWB38	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.56
LAWB38	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.74
LAWB38	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.85
LAWB38	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.94
LAWB38	LAW	VSL-11R2270-1	SS	181.00	0.81	2.031	367.544	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.97
LAWB38	LAW	VSL-11R2270-1	SS	269.00	0.81	2.031	546.239	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.12
LAWB38	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.22
LAWB38	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.34
LAWB38	LAW	VSL-11R2270-1	SS	730.00	0.81	2.031	1,482.359	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.43
LAWB38	LAW	VSL-11R2270-1	SS	1087.00	0.81	2.031	2,207.293	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.55
LAWB38	LAW	VSL-11R2270-1	SS	1455.00	0.81	2.031	2,954.565	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.65
LAWB38	LAW	VSL-11R2270-1	SS	2191.00	0.81	2.031	4,449.107	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.76
LAWB38	LAW	VSL-11R2270-1	SS	2551.00	0.81	2.031	5,180.134	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.84
LAWB38	LAW	VSL-11R2270-1	SS	2830.00	0.81	2.031	5,746.679	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.87
LAWB38	LAW	VSL-11R2270-1	SS	2990.00	0.81	2.031	6,071.580	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.94
LAWB38	LAW	VSL-11R2270-1	SS	3356.00	0.81	2.031	6,814.790	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.96
LAWB40	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.41
LAWB40	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.52
LAWB40	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.64
LAWB40	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.82
LAWB40	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.97
LAWB40	LAW	VSL-11R2270-1	SS	267.00	0.81	2.031	542.178	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.96
LAWB40	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.04
LAWB40	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.12
LAWB40	LAW	VSL-11R2270-1	SS	729.00	0.81	2.031	1,480.328	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.37
LAWB40	LAW	VSL-11R2270-1	SS	1104.00	0.81	2.031	2,241.814	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.45
LAWB40	LAW	VSL-11R2270-1	SS	1462.00	0.81	2.031	2,968.779	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.54
LAWB40	LAW	VSL-11R2270-1	SS	1826.00	0.81	2.031	3,707.928	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.61
LAWB40	LAW	VSL-11R2270-1	SS	2206.00	0.81	2.031	4,479.567	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.74
LAWB41	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.17
LAWB41	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.27
LAWB41	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.34
LAWB41	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.54
LAWB41	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.75
LAWB41	LAW	VSL-11R2270-1	SS	267.00	0.81	2.031	542.178	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.85
LAWB41	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.96
LAWB41	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.04
LAWB41	LAW	VSL-11R2270-1	SS	729.00	0.81	2.031	1,480.328	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.24
LAWB41	LAW	VSL-11R2270-1	SS	1104.00	0.81	2.031	2,241.814	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.34
LAWB41	LAW	VSL-11R2270-1	SS	1462.00	0.81	2.031	2,968.779	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.45
LAWB41	LAW	VSL-11R2270-1	SS	1826.00	0.81	2.031	3,707.928	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.55
LAWB41	LAW	VSL-11R2270-1	SS	2206.00	0.81	2.031	4,479.567	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.56

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
LAWB35	88.55	69.31			26.39	62.60		1.60						
LAWB35	103.60	80.12	0.71		29.00	69.37		1.66						
LAWB35	124.66	98.74	0.12		37.20	87.43	1.93	2.16						
LAWB35	137.68	122.44	0.18		46.48	101.08	2.10	2.06						
LAWB35	130.55	113.43	0.10		44.15	96.46	2.13	2.15						
LAWB35	137.35	119.60	0.20		41.58	95.27	1.85	1.46						
LAWB35	162.81	133.03	1.09		44.61	103.29	2.34	2.88						
LAWB35	172.51	154.22	1.77		53.20	117.99	2.02	2.49			1.45			
LAWB35	160.26	156.90	0.88		55.23	115.86	1.99	1.33						
LAWB37	47.44	19.16	0.57		7.46	20.79		2.02						
LAWB37	54.33	23.69	0.66		9.87	23.05		2.26						
LAWB37	54.66	23.91	0.21		10.97	22.50		2.31						
LAWB37	63.24	28.79	0.22		14.34	26.36		2.61						
LAWB37	69.79	31.65			14.53	25.77		2.49						
LAWB37	74.84	36.13			16.94	27.99		2.57						
LAWB37	71.17	36.80	0.23		17.44	28.22		2.43						
LAWB37	103.31	58.62	0.25		28.70	44.90		3.91						
LAWB37	89.94	58.29	0.21		27.43	41.86		2.80						
LAWB37	116.05	73.69	0.43		33.84	54.75		3.37						
LAWB37	106.91	73.75	0.20		33.53	56.65		2.72						
LAWB37	102.26	83.42	0.30		39.02	64.46		1.97						
LAWB37	157.56	137.45	0.32		39.29	213.61	3.13	3.02						
LAWB37	121.56	105.65	7.14		42.26	96.91	2.59	2.38			1.63			
LAWB37	177.49	127.27	0.41		40.02	175.09	4.10	1.96						
LAWB37	197.75	155.43	0.34		45.74	252.48	4.98	1.91						
LAWB38	49.79	18.72	0.44		9.59	20.73		2.48						
LAWB38	55.85	23.48	0.84		12.10	22.70		2.58						
LAWB38	55.87	23.65	0.21		13.11	22.00		2.72						
LAWB38	66.30	29.50	0.30		17.95	26.96		3.05						
LAWB38	69.93	31.16			16.78	24.53		2.59						
LAWB38	80.87	38.57			21.02	29.48		3.05						
LAWB38	74.92	38.00	0.39		21.76	29.23		2.71						
LAWB38	109.19	60.23	0.22		34.42	46.63		4.23						
LAWB38	102.51	63.62	0.14		35.91	47.59		3.15						
LAWB38	144.14	87.34	0.30		48.57	67.29		4.43						
LAWB38	117.93	81.36	0.15		45.54	62.26		2.51						
LAWB38	113.21	85.92	0.26		49.94	66.70		2.23						
LAWB38	133.33	98.87	0.18		48.29	69.36		2.99						
LAWB38	129.08	107.25	9.46		50.91	98.69	3.45	2.45			2.22			
LAWB38	142.75	103.40	0.34		51.79	72.55		2.41						
LAWB38	146.69	111.45	0.10		54.19	75.53		1.93						
LAWB40	142.13	119.23	0.52		80.96	137.63	3.36	1.66						
LAWB40	266.60	461.87	2.17		231.90	456.60	10.74	0.98						
LAWB40	264.23	1155.60	4.36		505.67	1139.70	31.47	0.81						
LAWB40	243.07	1969.07	18.03		696.03	2134.40	73.60	1.34						
LAWB40	251.03	2519.70	24.63		872.80	2570.60	98.17	1.59						
LAWB40	233.27	2585.03	26.01		939.83	2852.37	107.83	0.98						
LAWB40	247.93	2782.50	25.30		960.20	2941.03	110.07	1.41						
LAWB40	253.71	3508.00	36.93		1259.23	3615.67	144.90	0.65						
LAWB40	256.87	3627.40	43.89		1327.77	3784.30	173.87	1.42						
LAWB40	256.19	3679.57	45.32		1279.03	3689.30	178.54	2.08						
LAWB40	165.82	2831.10	32.59		967.04	2984.50	114.27	0.84						
LAWB40	183.48	2810.23	30.65		943.55	2967.67	117.67	2.79						
LAWB40	186.55	3012.53	33.50		877.93	3100.07	135.01	0.75						
LAWB41	83.63	63.73	1.33		31.40	82.37	2.41	0.91						
LAWB41	141.87	165.00	2.92		77.95	197.10	5.28	0.79						
LAWB41	163.80	256.20	3.54		111.50	307.47	8.05							
LAWB41	177.23	459.50	6.14		178.03	507.57	12.66							
LAWB41	189.27	791.17	11.53		296.37	880.33	26.44							
LAWB41	147.23	1288.10	22.11		395.20	1551.47	43.35							
LAWB41	151.13	1661.20	32.05		464.53	1882.00	61.95	0.70						
LAWB41	158.74	2331.47	57.75		687.88	2742.90	104.92							
LAWB41	196.34	2760.57	76.10		756.19	3215.47	142.90							
LAWB41	202.46	3243.40	81.85		881.47	3563.87	161.15	1.04						
LAWB41	193.78	2561.90	67.07		707.53	3182.20	126.50				0.23			
LAWB41	143.07	2576.13	59.25		628.21	3113.43	115.37	2.17						
LAWB41	172.60	2773.10	73.89		675.20	3332.13	175.37							

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
LAWB35		Not Studied		70.41	15.389	11.1022673	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB35		Not Studied		70.41	15.389	11.1022673	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB35		Not Studied		70.41	15.389	11.1022673	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB35		Not Studied		70.41	15.389	11.1022673	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB35		Not Studied		70.41	15.389	11.1022673	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB35		Not Studied		70.41	15.389	11.1022673	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB35		Not Studied		70.41	15.389	11.1022673	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB35		Not Studied		70.41	15.389	11.1022673	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB35		amorphous	XRD/SEM	70.41	15.389	11.1022673	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB37		Not Studied		70.27	16.032	7.6968254	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB37		Not Studied		70.27	16.032	7.6968254	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB37		Not Studied		70.27	16.032	7.6968254	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB37		Not Studied		70.27	16.032	7.6968254	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB37		Not Studied		70.27	16.032	7.6968254	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB37		Not Studied		70.27	16.032	7.6968254	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB37		Not Studied		70.27	16.032	7.6968254	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB37		Not Studied		70.27	16.032	7.6968254	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB37		Not Studied		70.27	16.032	7.6968254	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB37		Not Studied		70.27	16.032	7.6968254	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB37		Not Studied		70.27	16.032	7.6968254	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB37		Not Studied		70.27	16.032	7.6968254	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB37		Not Studied		70.27	16.032	7.6968254	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB37		Not Studied		70.27	16.032	7.6968254	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB37		Not Studied		70.27	16.032	7.6968254	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB37		Not Studied		70.27	16.032	7.6968254	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB38		Not Studied		71.01	16.051	6.4077377	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB38		Not Studied		71.01	16.051	6.4077377	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB38		Not Studied		71.01	16.051	6.4077377	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB38		Not Studied		71.01	16.051	6.4077377	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB38		Not Studied		71.01	16.051	6.4077377	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB38		Not Studied		71.01	16.051	6.4077377	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB38		Not Studied		71.01	16.051	6.4077377	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB38		Not Studied		71.01	16.051	6.4077377	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB38		Not Studied		71.01	16.051	6.4077377	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB38		Not Studied		71.01	16.051	6.4077377	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB38		Not Studied		71.01	16.051	6.4077377	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB38		Not Studied		71.01	16.051	6.4077377	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB38		Not Studied		71.01	16.051	6.4077377	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB38		Not Studied		71.01	16.051	6.4077377	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB38		Not Studied		71.01	16.051	6.4077377	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB38		Not Studied		71.01	16.051	6.4077377	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB40		Not Studied		73.29	15.957	3.2746334	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB40		Not Studied		73.29	15.957	3.2746334	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB40		Not Studied		73.29	15.957	3.2746334	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB40		Not Studied		73.29	15.957	3.2746334	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB40		Not Studied		73.29	15.957	3.2746334	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB40		Not Studied		73.29	15.957	3.2746334	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB40		Not Studied		73.29	15.957	3.2746334	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB40		Not Studied		73.29	15.957	3.2746334	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB40		Not Studied		73.29	15.957	3.2746334	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB40		Not Studied		73.29	15.957	3.2746334	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB40		Not Studied		73.29	15.957	3.2746334	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB40		Not Studied		73.29	15.957	3.2746334	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB40		Not Studied		73.29	15.957	3.2746334	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB41		Not Studied		71.60	17.766	-4.2275113	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB41		Not Studied		71.60	17.766	-4.2275113	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB41		Not Studied		71.60	17.766	-4.2275113	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB41		Not Studied		71.60	17.766	-4.2275113	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB41		Not Studied		71.60	17.766	-4.2275113	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB41		Not Studied		71.60	17.766	-4.2275113	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB41		Not Studied		71.60	17.766	-4.2275113	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB41		Not Studied		71.60	17.766	-4.2275113	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB41		Not Studied		71.60	17.766	-4.2275113	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB41		Not Studied		71.60	17.766	-4.2275113	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB41		Not Studied		71.60	17.766	-4.2275113	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB41		Not Studied		71.60	17.766	-4.2275113	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB41		Not Studied		71.60	17.766	-4.2275113	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
LAWB35	HOMOGENEOUS	6.18	12.13	0.00	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	0.32	0.00	0.00
LAWB35	HOMOGENEOUS	6.18	12.13	0.00	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	0.32	0.00	0.00
LAWB35	HOMOGENEOUS	6.18	12.13	0.00	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	0.32	0.00	0.00
LAWB35	HOMOGENEOUS	6.18	12.13	0.00	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	0.32	0.00	0.00
LAWB35	HOMOGENEOUS	6.18	12.13	0.00	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	0.32	0.00	0.00
LAWB35	HOMOGENEOUS	6.18	12.13	0.00	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	0.32	0.00	0.00
LAWB35	HOMOGENEOUS	6.18	12.13	0.00	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	0.32	0.00	0.00
LAWB35	HOMOGENEOUS	6.18	12.13	0.00	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	0.32	0.00	0.00
LAWB35	HOMOGENEOUS	6.18	12.13	0.00	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	0.32	0.00	0.00
LAWB37	HOMOGENEOUS	6.17	12.11	0.00	4.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.32	0.00	0.00
LAWB37	HOMOGENEOUS	6.17	12.11	0.00	4.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.32	0.00	0.00
LAWB37	HOMOGENEOUS	6.17	12.11	0.00	4.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.32	0.00	0.00
LAWB37	HOMOGENEOUS	6.17	12.11	0.00	4.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.32	0.00	0.00
LAWB37	HOMOGENEOUS	6.17	12.11	0.00	4.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.32	0.00	0.00
LAWB37	HOMOGENEOUS	6.17	12.11	0.00	4.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.32	0.00	0.00
LAWB37	HOMOGENEOUS	6.17	12.11	0.00	4.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.32	0.00	0.00
LAWB37	HOMOGENEOUS	6.17	12.11	0.00	4.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.32	0.00	0.00
LAWB37	HOMOGENEOUS	6.17	12.11	0.00	4.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.32	0.00	0.00
LAWB37	HOMOGENEOUS	6.17	12.11	0.00	4.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.32	0.00	0.00
LAWB37	HOMOGENEOUS	6.17	12.11	0.00	4.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.32	0.00	0.00
LAWB37	HOMOGENEOUS	6.17	12.11	0.00	4.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.32	0.00	0.00
LAWB37	HOMOGENEOUS	6.17	12.11	0.00	4.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.32	0.00	0.00
LAWB37	HOMOGENEOUS	6.17	12.11	0.00	4.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.32	0.00	0.00
LAWB37	HOMOGENEOUS	6.17	12.11	0.00	4.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.32	0.00	0.00
LAWB37	HOMOGENEOUS	6.17	12.11	0.00	4.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	0.32	0.00	0.00
LAWB38	HOMOGENEOUS	6.16	12.09	0.00	4.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.15	0.32	0.00	0.00
LAWB38	HOMOGENEOUS	6.16	12.09	0.00	4.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.15	0.32	0.00	0.00
LAWB38	HOMOGENEOUS	6.16	12.09	0.00	4.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.15	0.32	0.00	0.00
LAWB38	HOMOGENEOUS	6.16	12.09	0.00	4.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.15	0.32	0.00	0.00
LAWB38	HOMOGENEOUS	6.16	12.09	0.00	4.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.15	0.32	0.00	0.00
LAWB38	HOMOGENEOUS	6.16	12.09	0.00	4.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.15	0.32	0.00	0.00
LAWB38	HOMOGENEOUS	6.16	12.09	0.00	4.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.15	0.32	0.00	0.00
LAWB38	HOMOGENEOUS	6.16	12.09	0.00	4.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.15	0.32	0.00	0.00
LAWB38	HOMOGENEOUS	6.16	12.09	0.00	4.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.15	0.32	0.00	0.00
LAWB38	HOMOGENEOUS	6.16	12.09	0.00	4.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.15	0.32	0.00	0.00
LAWB38	HOMOGENEOUS	6.16	12.09	0.00	4.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.15	0.32	0.00	0.00
LAWB38	HOMOGENEOUS	6.16	12.09	0.00	4.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.15	0.32	0.00	0.00
LAWB38	HOMOGENEOUS	6.16	12.09	0.00	4.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.15	0.32	0.00	0.00
LAWB38	HOMOGENEOUS	6.16	12.09	0.00	4.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.15	0.32	0.00	0.00
LAWB38	HOMOGENEOUS	6.16	12.09	0.00	4.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.15	0.32	0.00	0.00
LAWB38	HOMOGENEOUS	6.16	12.09	0.00	4.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.15	0.32	0.00	0.00
LAWB40	HOMOGENEOUS	6.14	12.05	0.00	4.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.13	0.32	0.00	0.00
LAWB40	HOMOGENEOUS	6.14	12.05	0.00	4.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.13	0.32	0.00	0.00
LAWB40	HOMOGENEOUS	6.14	12.05	0.00	4.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.13	0.32	0.00	0.00
LAWB40	HOMOGENEOUS	6.14	12.05	0.00	4.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.13	0.32	0.00	0.00
LAWB40	HOMOGENEOUS	6.14	12.05	0.00	4.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.13	0.32	0.00	0.00
LAWB40	HOMOGENEOUS	6.14	12.05	0.00	4.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.13	0.32	0.00	0.00
LAWB40	HOMOGENEOUS	6.14	12.05	0.00	4.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.13	0.32	0.00	0.00
LAWB40	HOMOGENEOUS	6.14	12.05	0.00	4.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.13	0.32	0.00	0.00
LAWB40	HOMOGENEOUS	6.14	12.05	0.00	4.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.13	0.32	0.00	0.00
LAWB40	HOMOGENEOUS	6.14	12.05	0.00	4.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.13	0.32	0.00	0.00
LAWB40	HOMOGENEOUS	6.14	12.05	0.00	4.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.13	0.32	0.00	0.00
LAWB40	HOMOGENEOUS	6.14	12.05	0.00	4.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.13	0.32	0.00	0.00
LAWB40	HOMOGENEOUS	6.14	12.05	0.00	4.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.13	0.32	0.00	0.00
LAWB41	HOMOGENEOUS	6.15	12.07	0.00	6.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.14	0.32	0.00	0.00
LAWB41	HOMOGENEOUS	6.15	12.07	0.00	6.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.14	0.32	0.00	0.00
LAWB41	HOMOGENEOUS	6.15	12.07	0.00	6.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.14	0.32	0.00	0.00
LAWB41	HOMOGENEOUS	6.15	12.07	0.00	6.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.14	0.32	0.00	0.00
LAWB41	HOMOGENEOUS	6.15	12.07	0.00	6.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.14	0.32	0.00	0.00
LAWB41	HOMOGENEOUS	6.15	12.07	0.00	6.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.14	0.32	0.00	0.00
LAWB41	HOMOGENEOUS	6.15	12.07	0.00	6.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.14	0.32	0.00	0.00
LAWB41	HOMOGENEOUS	6.15	12.07	0.00	6.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.14	0.32	0.00	0.00
LAWB41	HOMOGENEOUS	6.15	12.07	0.00	6.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.14	0.32	0.00	0.00
LAWB41	HOMOGENEOUS	6.15	12.07	0.00	6.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.14	0.32	0.00	0.00
LAWB41	HOMOGENEOUS	6.15	12.07	0.00	6.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.14	0.32	0.00	0.00
LAWB41	HOMOGENEOUS	6.15	12.07	0.00	6.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.14	0.32	0.00	0.00
LAWB41	HOMOGENEOUS	6.15	12.07	0.00	6.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.14	0.32	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
LAWB35	2.97	4.27	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.07	0.00	0.00	0.00
LAWB35	2.97	4.27	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.07	0.00	0.00	0.00
LAWB35	2.97	4.27	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.07	0.00	0.00	0.00
LAWB35	2.97	4.27	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.07	0.00	0.00	0.00
LAWB35	2.97	4.27	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.07	0.00	0.00	0.00
LAWB35	2.97	4.27	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.07	0.00	0.00	0.00
LAWB35	2.97	4.27	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.07	0.00	0.00	0.00
LAWB35	2.97	4.27	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.07	0.00	0.00	0.00
LAWB35	2.97	4.27	0.00	0.00	7.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.07	0.00	0.00	0.00
LAWB37	2.96	2.92	0.00	0.00	7.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.97	0.00	0.00	0.00
LAWB37	2.96	2.92	0.00	0.00	7.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.97	0.00	0.00	0.00
LAWB37	2.96	2.92	0.00	0.00	7.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.97	0.00	0.00	0.00
LAWB37	2.96	2.92	0.00	0.00	7.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.97	0.00	0.00	0.00
LAWB37	2.96	2.92	0.00	0.00	7.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.97	0.00	0.00	0.00
LAWB37	2.96	2.92	0.00	0.00	7.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.97	0.00	0.00	0.00
LAWB37	2.96	2.92	0.00	0.00	7.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.97	0.00	0.00	0.00
LAWB37	2.96	2.92	0.00	0.00	7.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.97	0.00	0.00	0.00
LAWB37	2.96	2.92	0.00	0.00	7.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.97	0.00	0.00	0.00
LAWB37	2.96	2.92	0.00	0.00	7.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.97	0.00	0.00	0.00
LAWB37	2.96	2.92	0.00	0.00	7.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.97	0.00	0.00	0.00
LAWB37	2.96	2.92	0.00	0.00	7.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.97	0.00	0.00	0.00
LAWB37	2.96	2.92	0.00	0.00	7.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.97	0.00	0.00	0.00
LAWB37	2.96	2.92	0.00	0.00	7.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.97	0.00	0.00	0.00
LAWB37	2.96	2.92	0.00	0.00	7.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.97	0.00	0.00	0.00
LAWB37	2.96	2.92	0.00	0.00	7.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.97	0.00	0.00	0.00
LAWB38	3.81	2.24	0.00	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.90	0.00	0.00	0.00
LAWB38	3.81	2.24	0.00	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.90	0.00	0.00	0.00
LAWB38	3.81	2.24	0.00	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.90	0.00	0.00	0.00
LAWB38	3.81	2.24	0.00	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.90	0.00	0.00	0.00
LAWB38	3.81	2.24	0.00	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.90	0.00	0.00	0.00
LAWB38	3.81	2.24	0.00	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.90	0.00	0.00	0.00
LAWB38	3.81	2.24	0.00	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.90	0.00	0.00	0.00
LAWB38	3.81	2.24	0.00	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.90	0.00	0.00	0.00
LAWB38	3.81	2.24	0.00	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.90	0.00	0.00	0.00
LAWB38	3.81	2.24	0.00	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.90	0.00	0.00	0.00
LAWB38	3.81	2.24	0.00	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.90	0.00	0.00	0.00
LAWB38	3.81	2.24	0.00	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.90	0.00	0.00	0.00
LAWB38	3.81	2.24	0.00	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.90	0.00	0.00	0.00
LAWB38	3.81	2.24	0.00	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.90	0.00	0.00	0.00
LAWB38	3.81	2.24	0.00	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.90	0.00	0.00	0.00
LAWB38	3.81	2.24	0.00	0.00	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.90	0.00	0.00	0.00
LAWB40	6.29	2.90	0.00	0.00	7.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.76	0.00	0.00	0.00
LAWB40	6.29	2.90	0.00	0.00	7.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.76	0.00	0.00	0.00
LAWB40	6.29	2.90	0.00	0.00	7.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.76	0.00	0.00	0.00
LAWB40	6.29	2.90	0.00	0.00	7.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.76	0.00	0.00	0.00
LAWB40	6.29	2.90	0.00	0.00	7.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.76	0.00	0.00	0.00
LAWB40	6.29	2.90	0.00	0.00	7.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.76	0.00	0.00	0.00
LAWB40	6.29	2.90	0.00	0.00	7.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.76	0.00	0.00	0.00
LAWB40	6.29	2.90	0.00	0.00	7.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.76	0.00	0.00	0.00
LAWB40	6.29	2.90	0.00	0.00	7.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.76	0.00	0.00	0.00
LAWB40	6.29	2.90	0.00	0.00	7.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.76	0.00	0.00	0.00
LAWB40	6.29	2.90	0.00	0.00	7.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.76	0.00	0.00	0.00
LAWB40	6.29	2.90	0.00	0.00	7.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.76	0.00	0.00	0.00
LAWB40	6.29	2.90	0.00	0.00	7.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.76	0.00	0.00	0.00
LAWB41	4.51	2.91	0.00	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.82	0.00	0.00	0.00
LAWB41	4.51	2.91	0.00	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.82	0.00	0.00	0.00
LAWB41	4.51	2.91	0.00	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.82	0.00	0.00	0.00
LAWB41	4.51	2.91	0.00	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.82	0.00	0.00	0.00
LAWB41	4.51	2.91	0.00	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.82	0.00	0.00	0.00
LAWB41	4.51	2.91	0.00	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.82	0.00	0.00	0.00
LAWB41	4.51	2.91	0.00	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.82	0.00	0.00	0.00
LAWB41	4.51	2.91	0.00	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.82	0.00	0.00	0.00
LAWB41	4.51	2.91	0.00	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.82	0.00	0.00	0.00
LAWB41	4.51	2.91	0.00	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.82	0.00	0.00	0.00
LAWB41	4.51	2.91	0.00	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.82	0.00	0.00	0.00
LAWB41	4.51	2.91	0.00	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.82	0.00	0.00	0.00
LAWB41	4.51	2.91	0.00	0.00	7.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.82	0.00	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
LAWB35	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.73	100.00		
LAWB35	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.73	100.00		
LAWB35	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.73	100.00		
LAWB35	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.73	100.00		
LAWB35	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.73	100.00		
LAWB35	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.73	100.00		
LAWB35	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.73	100.00		
LAWB35	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.73	100.00		
LAWB35	0.00	0.00	0.00	0.00	0.00	3.10	3.10	3.73	100.00		
LAWB37	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.60	100.00		
LAWB37	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.60	100.00		
LAWB37	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.60	100.00		
LAWB37	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.60	100.00		
LAWB37	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.60	100.00		
LAWB37	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.60	100.00		
LAWB37	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.60	100.00		
LAWB37	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.60	100.00		
LAWB37	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.60	100.00		
LAWB37	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.60	100.00		
LAWB37	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.60	100.00		
LAWB37	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.60	100.00		
LAWB37	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.60	100.00		
LAWB37	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.60	100.00		
LAWB37	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.60	100.00		
LAWB37	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.60	100.00		
LAWB38	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.53	100.00		
LAWB38	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.53	100.00		
LAWB38	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.53	100.00		
LAWB38	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.53	100.00		
LAWB38	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.53	100.00		
LAWB38	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.53	100.00		
LAWB38	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.53	100.00		
LAWB38	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.53	100.00		
LAWB38	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.53	100.00		
LAWB38	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.53	100.00		
LAWB38	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.53	100.00		
LAWB38	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.53	100.00		
LAWB38	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.53	100.00		
LAWB38	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.53	100.00		
LAWB38	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.53	100.00		
LAWB38	0.00	0.00	0.00	0.00	0.00	3.09	3.09	4.53	100.00		
LAWB40	0.00	0.00	0.00	0.00	0.00	3.08	3.08	1.69	100.00		
LAWB40	0.00	0.00	0.00	0.00	0.00	3.08	3.08	1.69	100.00		
LAWB40	0.00	0.00	0.00	0.00	0.00	3.08	3.08	1.69	100.00		
LAWB40	0.00	0.00	0.00	0.00	0.00	3.08	3.08	1.69	100.00		
LAWB40	0.00	0.00	0.00	0.00	0.00	3.08	3.08	1.69	100.00		
LAWB40	0.00	0.00	0.00	0.00	0.00	3.08	3.08	1.69	100.00		
LAWB40	0.00	0.00	0.00	0.00	0.00	3.08	3.08	1.69	100.00		
LAWB40	0.00	0.00	0.00	0.00	0.00	3.08	3.08	1.69	100.00		
LAWB40	0.00	0.00	0.00	0.00	0.00	3.08	3.08	1.69	100.00		
LAWB40	0.00	0.00	0.00	0.00	0.00	3.08	3.08	1.69	100.00		
LAWB40	0.00	0.00	0.00	0.00	0.00	3.08	3.08	1.69	100.00		
LAWB40	0.00	0.00	0.00	0.00	0.00	3.08	3.08	1.69	100.00		
LAWB40	0.00	0.00	0.00	0.00	0.00	3.08	3.08	1.69	100.00		
LAWB41	0.00	0.00	0.00	0.00	0.00	3.08	3.08	1.56	100.00		
LAWB41	0.00	0.00	0.00	0.00	0.00	3.08	3.08	1.56	100.00		
LAWB41	0.00	0.00	0.00	0.00	0.00	3.08	3.08	1.56	100.00		
LAWB41	0.00	0.00	0.00	0.00	0.00	3.08	3.08	1.56	100.00		
LAWB41	0.00	0.00	0.00	0.00	0.00	3.08	3.08	1.56	100.00		
LAWB41	0.00	0.00	0.00	0.00	0.00	3.08	3.08	1.56	100.00		
LAWB41	0.00	0.00	0.00	0.00	0.00	3.08	3.08	1.56	100.00		
LAWB41	0.00	0.00	0.00	0.00	0.00	3.08	3.08	1.56	100.00		
LAWB41	0.00	0.00	0.00	0.00	0.00	3.08	3.08	1.56	100.00		
LAWB41	0.00	0.00	0.00	0.00	0.00	3.08	3.08	1.56	100.00		
LAWB41	0.00	0.00	0.00	0.00	0.00	3.08	3.08	1.56	100.00		
LAWB41	0.00	0.00	0.00	0.00	0.00	3.08	3.08	1.56	100.00		
LAWB41	0.00	0.00	0.00	0.00	0.00	3.08	3.08	1.56	100.00		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
LAWB60	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.36
LAWB60	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.57
LAWB60	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.65
LAWB60	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.77
LAWB60	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.84
LAWB60	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.92
LAWB60	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.23
LAWB60	LAW	VSL-11R2270-1	SS	733.00	0.81	2.031	1,488.451	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.34
LAWB60	LAW	VSL-11R2270-1	SS	1094.00	0.81	2.031	2,221.508	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.42
LAWB60	LAW	VSL-11R2270-1	SS	1457.00	0.81	2.031	2,958.626	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.52
LAWB60	LAW	VSL-11R2270-1	SS	1820.00	0.81	2.031	3,695.744	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.57
LAWB61	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.45
LAWB61	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.64
LAWB61	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.85
LAWB61	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.15
LAWB61	LAW	VSL-11R2270-1	SS	181.00	0.81	2.031	367.544	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.27
LAWB61	LAW	VSL-11R2270-1	SS	269.00	0.81	2.031	546.239	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.34
LAWB61	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.86
LAWB61	LAW	VSL-11R2270-1	SS	545.00	0.81	2.031	1,106.693	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.95
LAWB61	LAW	VSL-11R2270-1	SS	729.00	0.81	2.031	1,480.328	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.05
LAWB61	LAW	VSL-11R2270-1	SS	1094.00	0.81	2.031	2,221.508	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.15
LAWB61	LAW	VSL-11R2270-1	SS	1462.00	0.81	2.031	2,968.779	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.24
LAWB61	LAW	VSL-11R2270-1	SS	1830.00	0.81	2.031	3,716.050	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.35
LAWB62	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.35
LAWB62	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.55
LAWB62	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.74
LAWB62	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.97
LAWB62	LAW	VSL-11R2270-1	SS	181.00	0.81	2.031	367.544	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.16
LAWB62	LAW	VSL-11R2270-1	SS	269.00	0.81	2.031	546.239	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.25
LAWB62	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.15
LAWB62	LAW	VSL-11R2270-1	SS	545.00	0.81	2.031	1,106.693	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.23
LAWB62	LAW	VSL-11R2270-1	SS	729.00	0.81	2.031	1,480.328	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.34
LAWB62	LAW	VSL-11R2270-1	SS	1094.00	0.81	2.031	2,221.508	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.45
LAWB62	LAW	VSL-11R2270-1	SS	1462.00	0.81	2.031	2,968.779	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.53
LAWB62	LAW	VSL-11R2270-1	SS	1830.00	0.81	2.031	3,716.050	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.62
LAWB63	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.35
LAWB63	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.55
LAWB63	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.76
LAWB63	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.96
LAWB63	LAW	VSL-11R2270-1	SS	181.00	0.81	2.031	367.544	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.17
LAWB63	LAW	VSL-11R2270-1	SS	269.00	0.81	2.031	546.239	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.24
LAWB63	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.64
LAWB63	LAW	VSL-11R2270-1	SS	545.00	0.81	2.031	1,106.693	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.76
LAWB63	LAW	VSL-11R2270-1	SS	729.00	0.81	2.031	1,480.328	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.84
LAWB63	LAW	VSL-11R2270-1	SS	1094.00	0.81	2.031	2,221.508	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.95
LAWB63	LAW	VSL-11R2270-1	SS	1462.00	0.81	2.031	2,968.779	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.03
LAWB63	LAW	VSL-11R2270-1	SS	1830.00	0.81	2.031	3,716.050	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.15
LAWB64	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.27
LAWB64	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.45
LAWB64	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.55
LAWB64	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.77
LAWB64	LAW	VSL-11R2270-1	SS	181.00	0.81	2.031	367.544	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.94
LAWB64	LAW	VSL-11R2270-1	SS	269.00	0.81	2.031	546.239	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.15
LAWB64	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.14
LAWB64	LAW	VSL-11R2270-1	SS	545.00	0.81	2.031	1,106.693	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.24
LAWB64	LAW	VSL-11R2270-1	SS	729.00	0.81	2.031	1,480.328	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.34
LAWB64	LAW	VSL-11R2270-1	SS	1094.00	0.81	2.031	2,221.508	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.45
LAWB64	LAW	VSL-11R2270-1	SS	1462.00	0.81	2.031	2,968.779	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.54
LAWB64	LAW	VSL-11R2270-1	SS	1830.00	0.81	2.031	3,716.050	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.65
LAWB65	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.24
LAWB65	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.45
LAWB65	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.57
LAWB65	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.76
LAWB65	LAW	VSL-11R2270-1	SS	181.00	0.81	2.031	367.544	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.94
LAWB65	LAW	VSL-11R2270-1	SS	269.00	0.81	2.031	546.239	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.15
LAWB65	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.43

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
LAWB60	42.83	16.95	11.44		10.81	21.83		0.84						
LAWB60	48.92	19.77	13.50		14.34	26.49		1.23						
LAWB60	52.51	21.43	12.82		14.98	28.25		1.25						
LAWB60	61.83	23.66	15.18		20.06	36.16		1.41						
LAWB60	63.18	23.16	16.23		20.44	36.53		1.60						
LAWB60	84.77	33.51	16.34		27.88	51.75	1.90	1.80						
LAWB60	78.10	32.85	9.40		25.96	48.15		2.58						
LAWB60	82.36	38.93	7.63		29.44	53.38	2.36	1.56						
LAWB60	110.65	55.37	7.09		42.46	78.86	2.45	1.47						
LAWB60	120.90	70.33	6.80		47.26	92.28	2.88	1.09						
LAWB60	153.47	97.27	6.82		65.80	131.50	3.51	1.18			0.30			
LAWB61	63.49	24.13			20.98	27.36		1.51						
LAWB61	114.93	67.47	0.88		53.07	72.90	2.38	1.10						
LAWB61	165.63	126.20	1.44		95.62	138.57	3.86	1.07						
LAWB61	233.97	403.23	3.86		224.97	383.20	10.59	1.27						
LAWB61	219.43	1145.03	10.69		504.80	1009.33	38.70	2.32						
LAWB61	230.93	2675.10	26.81		1141.43	2366.60	108.71	2.57						0.62
LAWB61	234.73	2825.23	27.19		1165.73	2553.90	117.47	2.17						
LAWB61	192.84	2813.27	30.59		1014.77	2434.53	112.98	13.52						
LAWB61	183.04	2424.30	26.79		875.16	2294.03	107.99	1.62						
LAWB61	170.04	2506.40	23.63		902.86	2143.70	104.36	1.03						
LAWB61	158.33	2488.80	29.49		910.03	2255.53	90.28	0.84						
LAWB61	156.87	2282.87	28.50		865.06	2176.83	93.84	1.14						
LAWB62	37.81	10.02	7.93		11.53	14.47		1.24						
LAWB62	45.02	13.47	9.52		16.55	19.34		1.18						
LAWB62	56.44	16.18	11.72		21.17	23.28		1.68						
LAWB62	68.55	24.03	12.63		25.12	28.01		1.77						
LAWB62	71.64	33.96	9.53		29.76	32.72		1.92						
LAWB62	101.70	45.90	8.33		45.54	51.38	2.34	3.00						
LAWB62	101.15	41.79	6.14		47.17	52.41	1.71	2.88						
LAWB62	126.01	48.85	4.16		65.19	74.49	3.28	5.08						
LAWB62	242.18	300.56	2.73		211.27	349.55	11.75	1.97						
LAWB62	158.32	3007.27	10.83		1214.87	2417.80	79.75	1.35						
LAWB62	157.10	3303.13	12.01		1288.90	2547.37	71.02	1.05						
LAWB62	172.77	2797.53	11.78		1158.57	2498.27	68.86	1.32						
LAWB63	37.70	11.15	4.28		9.87	14.12		1.21						
LAWB63	50.04	16.55	5.97		15.52	20.35		1.23						
LAWB63	58.34	18.64	6.61		19.44	23.59		1.63						
LAWB63	73.32	25.47	7.26		23.63	28.67	1.86	1.71						
LAWB63	79.36	27.04	6.98		28.43	32.51	1.80	1.97						
LAWB63	97.24	39.15	7.95		36.11	41.89	3.11	2.48						
LAWB63	107.13	39.47	7.43		40.31	44.81	2.10	2.35						
LAWB63	104.79	33.52	6.35		41.56	47.16	3.02	3.69						
LAWB63	112.98	37.81	5.30		43.01	46.76	3.29	2.00						
LAWB63	125.91	46.70	4.42		56.81	60.57	2.90	2.10						
LAWB63	166.49	72.65	3.80		75.29	91.55	4.40	1.80						
LAWB63	194.13	1133.00	14.62		479.14	1129.97	41.95	1.23						
LAWB64	47.79	17.25			15.41	19.89		0.97						
LAWB64	104.67	52.42	0.94		43.17	57.99	2.02	1.15						
LAWB64	146.30	87.74	1.28		72.92	102.63	2.84	1.25						
LAWB64	246.57	320.73	3.65		187.07	314.80	8.83	1.26						
LAWB64	240.80	1060.47	9.15		479.03	968.30	37.28	1.98						
LAWB64	242.76	3076.50	22.11		1319.93	2897.03	130.46	2.92						
LAWB64	205.22	3262.23	23.18		1275.47	3182.13	135.77	1.64						
LAWB64	138.71	2970.00	23.14		1016.97	3066.63	116.90	12.60						
LAWB64	140.37	2527.30	22.25		890.35	2368.23	109.11	1.02						
LAWB64	118.60	2668.33	23.02		967.18	2307.00	94.93	0.75						
LAWB64	150.57	2743.37	23.77		973.54	2434.87	104.69							
LAWB64	148.61	2341.10	21.01		853.60	2106.77	84.37	0.73						
LAWB65	46.73	17.14			11.60	19.39		0.94						
LAWB65	80.07	44.92	1.09		27.42	47.63		0.82						
LAWB65	102.27	71.11	1.27		43.53	78.41	2.08	0.75						
LAWB65	139.60	145.40	3.12		76.69	145.93	4.00	0.96						
LAWB65	159.83	227.90	3.99		101.37	204.47	5.94	0.97						
LAWB65	186.80	649.04	8.87		283.52	624.72	16.28	1.05						
LAWB65	170.45	1073.80	15.24		374.01	971.26	28.31	0.72						

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
LAWB60		Not Studied		71.73	18.048	-6.0334564	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB60		Not Studied		71.73	18.048	-6.0334564	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB60		Not Studied		71.73	18.048	-6.0334564	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB60		Not Studied		71.73	18.048	-6.0334564	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB60		Not Studied		71.73	18.048	-6.0334564	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB60		Not Studied		71.73	18.048	-6.0334564	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB60		Not Studied		71.73	18.048	-6.0334564	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB60		Not Studied		71.73	18.048	-6.0334564	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB60		Not Studied		71.73	18.048	-6.0334564	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB60		Not Studied		71.73	18.048	-6.0334564	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB60		Stevensonite and Saponite 15A	XRD/SEM	71.73	18.048	-6.0334564	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB61		Not Studied		70.18	18.223	-4.5251719	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB61		Not Studied		70.18	18.223	-4.5251719	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB61		Not Studied		70.18	18.223	-4.5251719	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB61		Not Studied		70.18	18.223	-4.5251719	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB61		Not Studied		70.18	18.223	-4.5251719	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB61		Not Studied		70.18	18.223	-4.5251719	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB61		Not Studied		70.18	18.223	-4.5251719	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB61		Not Studied		70.18	18.223	-4.5251719	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB61		Not Studied		70.18	18.223	-4.5251719	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB61		Not Studied		70.18	18.223	-4.5251719	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB61		Not Studied		70.18	18.223	-4.5251719	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB61		Not Studied		70.18	18.223	-4.5251719	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB62		Not Studied		70.05	18.19	-4.13515	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB62		Not Studied		70.05	18.19	-4.13515	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB62		Not Studied		70.05	18.19	-4.13515	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB62		Not Studied		70.05	18.19	-4.13515	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB62		Not Studied		70.05	18.19	-4.13515	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB62		Not Studied		70.05	18.19	-4.13515	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB62		Not Studied		70.05	18.19	-4.13515	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB62		Not Studied		70.05	18.19	-4.13515	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB62		Not Studied		70.05	18.19	-4.13515	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB62		Not Studied		70.05	18.19	-4.13515	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB62		Not Studied		70.05	18.19	-4.13515	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB62		Not Studied		70.05	18.19	-4.13515	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB63		Not Studied		69.70	15.93	9.183689	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB63		Not Studied		69.70	15.93	9.183689	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB63		Not Studied		69.70	15.93	9.183689	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB63		Not Studied		69.70	15.93	9.183689	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB63		Not Studied		69.70	15.93	9.183689	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB63		Not Studied		69.70	15.93	9.183689	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB63		Not Studied		69.70	15.93	9.183689	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB63		Not Studied		69.70	15.93	9.183689	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB63		Not Studied		69.70	15.93	9.183689	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB63		Not Studied		69.70	15.93	9.183689	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB63		Not Studied		69.70	15.93	9.183689	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB63		Not Studied		69.70	15.93	9.183689	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB64		Not Studied		70.20	16.217	6.7674344	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB64		Not Studied		70.20	16.217	6.7674344	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB64		Not Studied		70.20	16.217	6.7674344	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB64		Not Studied		70.20	16.217	6.7674344	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB64		Not Studied		70.20	16.217	6.7674344	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB64		Not Studied		70.20	16.217	6.7674344	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB64		Not Studied		70.20	16.217	6.7674344	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB64		Not Studied		70.20	16.217	6.7674344	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB64		Not Studied		70.20	16.217	6.7674344	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB64		Not Studied		70.20	16.217	6.7674344	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB64		Not Studied		70.20	16.217	6.7674344	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB64		Not Studied		70.20	16.217	6.7674344	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB65		Not Studied		68.47	18.173	-1.5104179	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB65		Not Studied		68.47	18.173	-1.5104179	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB65		Not Studied		68.47	18.173	-1.5104179	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB65		Not Studied		68.47	18.173	-1.5104179	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB65		Not Studied		68.47	18.173	-1.5104179	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB65		Not Studied		68.47	18.173	-1.5104179	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB65		Not Studied		68.47	18.173	-1.5104179	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
LAWB60	HOMOGENEOUS	6.14	12.37	0.00	11.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB60	HOMOGENEOUS	6.14	12.37	0.00	11.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB60	HOMOGENEOUS	6.14	12.37	0.00	11.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB60	HOMOGENEOUS	6.14	12.37	0.00	11.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB60	HOMOGENEOUS	6.14	12.37	0.00	11.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB60	HOMOGENEOUS	6.14	12.37	0.00	11.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB60	HOMOGENEOUS	6.14	12.37	0.00	11.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB60	HOMOGENEOUS	6.14	12.37	0.00	11.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB60	HOMOGENEOUS	6.14	12.37	0.00	11.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB60	HOMOGENEOUS	6.14	12.37	0.00	11.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB60	HOMOGENEOUS	6.14	12.37	0.00	11.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB61	HOMOGENEOUS	6.21	9.97	0.00	6.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.31	0.26	0.00	0.00
LAWB61	HOMOGENEOUS	6.21	9.97	0.00	6.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.31	0.26	0.00	0.00
LAWB61	HOMOGENEOUS	6.21	9.97	0.00	6.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.31	0.26	0.00	0.00
LAWB61	HOMOGENEOUS	6.21	9.97	0.00	6.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.31	0.26	0.00	0.00
LAWB61	HOMOGENEOUS	6.21	9.97	0.00	6.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.31	0.26	0.00	0.00
LAWB61	HOMOGENEOUS	6.21	9.97	0.00	6.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.31	0.26	0.00	0.00
LAWB61	HOMOGENEOUS	6.21	9.97	0.00	6.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.31	0.26	0.00	0.00
LAWB61	HOMOGENEOUS	6.21	9.97	0.00	6.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.31	0.26	0.00	0.00
LAWB61	HOMOGENEOUS	6.21	9.97	0.00	6.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.31	0.26	0.00	0.00
LAWB61	HOMOGENEOUS	6.21	9.97	0.00	6.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.31	0.26	0.00	0.00
LAWB61	HOMOGENEOUS	6.21	9.97	0.00	6.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.31	0.26	0.00	0.00
LAWB61	HOMOGENEOUS	6.21	9.97	0.00	6.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.31	0.26	0.00	0.00
LAWB62	HOMOGENEOUS	6.19	9.95	0.00	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB62	HOMOGENEOUS	6.19	9.95	0.00	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB62	HOMOGENEOUS	6.19	9.95	0.00	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB62	HOMOGENEOUS	6.19	9.95	0.00	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB62	HOMOGENEOUS	6.19	9.95	0.00	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB62	HOMOGENEOUS	6.19	9.95	0.00	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB62	HOMOGENEOUS	6.19	9.95	0.00	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB62	HOMOGENEOUS	6.19	9.95	0.00	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB62	HOMOGENEOUS	6.19	9.95	0.00	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB62	HOMOGENEOUS	6.19	9.95	0.00	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB62	HOMOGENEOUS	6.19	9.95	0.00	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB62	HOMOGENEOUS	6.19	9.95	0.00	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB63	HOMOGENEOUS	6.58	9.95	0.00	9.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB63	HOMOGENEOUS	6.58	9.95	0.00	9.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB63	HOMOGENEOUS	6.58	9.95	0.00	9.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB63	HOMOGENEOUS	6.58	9.95	0.00	9.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB63	HOMOGENEOUS	6.58	9.95	0.00	9.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB63	HOMOGENEOUS	6.58	9.95	0.00	9.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB63	HOMOGENEOUS	6.58	9.95	0.00	9.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB63	HOMOGENEOUS	6.58	9.95	0.00	9.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB63	HOMOGENEOUS	6.58	9.95	0.00	9.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB63	HOMOGENEOUS	6.58	9.95	0.00	9.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB63	HOMOGENEOUS	6.58	9.95	0.00	9.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB63	HOMOGENEOUS	6.58	9.95	0.00	9.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00
LAWB64	HOMOGENEOUS	6.21	9.97	0.00	6.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.30	0.26	0.00	0.00
LAWB64	HOMOGENEOUS	6.21	9.97	0.00	6.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.30	0.26	0.00	0.00
LAWB64	HOMOGENEOUS	6.21	9.97	0.00	6.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.30	0.26	0.00	0.00
LAWB64	HOMOGENEOUS	6.21	9.97	0.00	6.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.30	0.26	0.00	0.00
LAWB64	HOMOGENEOUS	6.21	9.97	0.00	6.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.30	0.26	0.00	0.00
LAWB64	HOMOGENEOUS	6.21	9.97	0.00	6.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.30	0.26	0.00	0.00
LAWB64	HOMOGENEOUS	6.21	9.97	0.00	6.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.30	0.26	0.00	0.00
LAWB64	HOMOGENEOUS	6.21	9.97	0.00	6.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.30	0.26	0.00	0.00
LAWB64	HOMOGENEOUS	6.21	9.97	0.00	6.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.30	0.26	0.00	0.00
LAWB64	HOMOGENEOUS	6.21	9.97	0.00	6.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.30	0.26	0.00	0.00
LAWB64	HOMOGENEOUS	6.21	9.97	0.00	6.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.30	0.26	0.00	0.00
LAWB64	HOMOGENEOUS	6.21	9.97	0.00	6.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.30	0.26	0.00	0.00
LAWB65	HOMOGENEOUS	6.19	9.94	0.00	6.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB65	HOMOGENEOUS	6.19	9.94	0.00	6.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB65	HOMOGENEOUS	6.19	9.94	0.00	6.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB65	HOMOGENEOUS	6.19	9.94	0.00	6.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB65	HOMOGENEOUS	6.19	9.94	0.00	6.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB65	HOMOGENEOUS	6.19	9.94	0.00	6.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB65	HOMOGENEOUS	6.19	9.94	0.00	6.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
LAWB60	4.63	2.98	0.00	0.00	6.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.96	0.00	0.00	0.00
LAWB60	4.63	2.98	0.00	0.00	6.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.96	0.00	0.00	0.00
LAWB60	4.63	2.98	0.00	0.00	6.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.96	0.00	0.00	0.00
LAWB60	4.63	2.98	0.00	0.00	6.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.96	0.00	0.00	0.00
LAWB60	4.63	2.98	0.00	0.00	6.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.96	0.00	0.00	0.00
LAWB60	4.63	2.98	0.00	0.00	6.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.96	0.00	0.00	0.00
LAWB60	4.63	2.98	0.00	0.00	6.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.96	0.00	0.00	0.00
LAWB60	4.63	2.98	0.00	0.00	6.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.96	0.00	0.00	0.00
LAWB60	4.63	2.98	0.00	0.00	6.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.96	0.00	0.00	0.00
LAWB60	4.63	2.98	0.00	0.00	6.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.96	0.00	0.00	0.00
LAWB60	4.63	2.98	0.00	0.00	6.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.96	0.00	0.00	0.00
LAWB61	5.82	2.98	0.00	0.00	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.62	0.00	0.00	0.00
LAWB61	5.82	2.98	0.00	0.00	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.62	0.00	0.00	0.00
LAWB61	5.82	2.98	0.00	0.00	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.62	0.00	0.00	0.00
LAWB61	5.82	2.98	0.00	0.00	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.62	0.00	0.00	0.00
LAWB61	5.82	2.98	0.00	0.00	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.62	0.00	0.00	0.00
LAWB61	5.82	2.98	0.00	0.00	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.62	0.00	0.00	0.00
LAWB61	5.82	2.98	0.00	0.00	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.62	0.00	0.00	0.00
LAWB61	5.82	2.98	0.00	0.00	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.62	0.00	0.00	0.00
LAWB61	5.82	2.98	0.00	0.00	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.62	0.00	0.00	0.00
LAWB61	5.82	2.98	0.00	0.00	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.62	0.00	0.00	0.00
LAWB61	5.82	2.98	0.00	0.00	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.62	0.00	0.00	0.00
LAWB61	5.82	2.98	0.00	0.00	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.62	0.00	0.00	0.00
LAWB62	5.81	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.54	0.00	0.00	0.00
LAWB62	5.81	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.54	0.00	0.00	0.00
LAWB62	5.81	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.54	0.00	0.00	0.00
LAWB62	5.81	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.54	0.00	0.00	0.00
LAWB62	5.81	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.54	0.00	0.00	0.00
LAWB62	5.81	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.54	0.00	0.00	0.00
LAWB62	5.81	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.54	0.00	0.00	0.00
LAWB62	5.81	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.54	0.00	0.00	0.00
LAWB62	5.81	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.54	0.00	0.00	0.00
LAWB62	5.81	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.54	0.00	0.00	0.00
LAWB62	5.81	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.54	0.00	0.00	0.00
LAWB62	5.81	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.54	0.00	0.00	0.00
LAWB63	5.05	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.94	0.00	0.00	0.00
LAWB63	5.05	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.94	0.00	0.00	0.00
LAWB63	5.05	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.94	0.00	0.00	0.00
LAWB63	5.05	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.94	0.00	0.00	0.00
LAWB63	5.05	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.94	0.00	0.00	0.00
LAWB63	5.05	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.94	0.00	0.00	0.00
LAWB63	5.05	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.94	0.00	0.00	0.00
LAWB63	5.05	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.94	0.00	0.00	0.00
LAWB63	5.05	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.94	0.00	0.00	0.00
LAWB63	5.05	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.94	0.00	0.00	0.00
LAWB63	5.05	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.94	0.00	0.00	0.00
LAWB63	5.05	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.94	0.00	0.00	0.00
LAWB64	5.83	2.98	0.00	0.00	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.64	0.00	0.00	0.00
LAWB64	5.83	2.98	0.00	0.00	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.64	0.00	0.00	0.00
LAWB64	5.83	2.98	0.00	0.00	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.64	0.00	0.00	0.00
LAWB64	5.83	2.98	0.00	0.00	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.64	0.00	0.00	0.00
LAWB64	5.83	2.98	0.00	0.00	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.64	0.00	0.00	0.00
LAWB64	5.83	2.98	0.00	0.00	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.64	0.00	0.00	0.00
LAWB64	5.83	2.98	0.00	0.00	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.64	0.00	0.00	0.00
LAWB64	5.83	2.98	0.00	0.00	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.64	0.00	0.00	0.00
LAWB64	5.83	2.98	0.00	0.00	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.64	0.00	0.00	0.00
LAWB64	5.83	2.98	0.00	0.00	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.64	0.00	0.00	0.00
LAWB64	5.83	2.98	0.00	0.00	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.64	0.00	0.00	0.00
LAWB64	5.83	2.98	0.00	0.00	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.64	0.00	0.00	0.00
LAWB65	4.30	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.49	0.00	0.00	0.00
LAWB65	4.30	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.49	0.00	0.00	0.00
LAWB65	4.30	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.49	0.00	0.00	0.00
LAWB65	4.30	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.49	0.00	0.00	0.00
LAWB65	4.30	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.49	0.00	0.00	0.00
LAWB65	4.30	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.49	0.00	0.00	0.00
LAWB65	4.30	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.49	0.00	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
LAWB60	0.00	0.00	0.00	0.00	0.00	3.16	3.16	0.93	100.00		
LAWB60	0.00	0.00	0.00	0.00	0.00	3.16	3.16	0.93	100.00		
LAWB60	0.00	0.00	0.00	0.00	0.00	3.16	3.16	0.93	100.00		
LAWB60	0.00	0.00	0.00	0.00	0.00	3.16	3.16	0.93	100.00		
LAWB60	0.00	0.00	0.00	0.00	0.00	3.16	3.16	0.93	100.00		
LAWB60	0.00	0.00	0.00	0.00	0.00	3.16	3.16	0.93	100.00		
LAWB60	0.00	0.00	0.00	0.00	0.00	3.16	3.16	0.93	100.00		
LAWB60	0.00	0.00	0.00	0.00	0.00	3.16	3.16	0.93	100.00		
LAWB60	0.00	0.00	0.00	0.00	0.00	3.16	3.16	0.93	100.00		
LAWB60	0.00	0.00	0.00	0.00	0.00	3.16	3.16	0.93	100.00		
LAWB60	0.00	0.00	0.00	0.00	0.00	3.16	3.16	0.93	100.00		
LAWB61	0.00	0.00	1.40	0.00	0.00	3.17	3.17	0.89	100.00		
LAWB61	0.00	0.00	1.40	0.00	0.00	3.17	3.17	0.89	100.00		
LAWB61	0.00	0.00	1.40	0.00	0.00	3.17	3.17	0.89	100.00		
LAWB61	0.00	0.00	1.40	0.00	0.00	3.17	3.17	0.89	100.00		
LAWB61	0.00	0.00	1.40	0.00	0.00	3.17	3.17	0.89	100.00		
LAWB61	0.00	0.00	1.40	0.00	0.00	3.17	3.17	0.89	100.00		
LAWB61	0.00	0.00	1.40	0.00	0.00	3.17	3.17	0.89	100.00		
LAWB61	0.00	0.00	1.40	0.00	0.00	3.17	3.17	0.89	100.00		
LAWB61	0.00	0.00	1.40	0.00	0.00	3.17	3.17	0.89	100.00		
LAWB61	0.00	0.00	1.40	0.00	0.00	3.17	3.17	0.89	100.00		
LAWB61	0.00	0.00	1.40	0.00	0.00	3.17	3.17	0.89	100.00		
LAWB61	0.00	0.00	1.40	0.00	0.00	3.17	3.17	0.89	100.00		
LAWB62	0.00	0.00	1.40	0.00	0.00	3.16	3.16	1.07	100.00		
LAWB62	0.00	0.00	1.40	0.00	0.00	3.16	3.16	1.07	100.00		
LAWB62	0.00	0.00	1.40	0.00	0.00	3.16	3.16	1.07	100.00		
LAWB62	0.00	0.00	1.40	0.00	0.00	3.16	3.16	1.07	100.00		
LAWB62	0.00	0.00	1.40	0.00	0.00	3.16	3.16	1.07	100.00		
LAWB62	0.00	0.00	1.40	0.00	0.00	3.16	3.16	1.07	100.00		
LAWB62	0.00	0.00	1.40	0.00	0.00	3.16	3.16	1.07	100.00		
LAWB62	0.00	0.00	1.40	0.00	0.00	3.16	3.16	1.07	100.00		
LAWB62	0.00	0.00	1.40	0.00	0.00	3.16	3.16	1.07	100.00		
LAWB62	0.00	0.00	1.40	0.00	0.00	3.16	3.16	1.07	100.00		
LAWB62	0.00	0.00	1.40	0.00	0.00	3.16	3.16	1.07	100.00		
LAWB62	0.00	0.00	1.40	0.00	0.00	3.16	3.16	1.07	100.00		
LAWB63	0.00	0.00	1.40	0.00	0.00	5.82	3.16	1.02	100.00		
LAWB63	0.00	0.00	1.40	0.00	0.00	5.82	3.16	1.02	100.00		
LAWB63	0.00	0.00	1.40	0.00	0.00	5.82	3.16	1.02	100.00		
LAWB63	0.00	0.00	1.40	0.00	0.00	5.82	3.16	1.02	100.00		
LAWB63	0.00	0.00	1.40	0.00	0.00	5.82	3.16	1.02	100.00		
LAWB63	0.00	0.00	1.40	0.00	0.00	5.82	3.16	1.02	100.00		
LAWB63	0.00	0.00	1.40	0.00	0.00	5.82	3.16	1.02	100.00		
LAWB63	0.00	0.00	1.40	0.00	0.00	5.82	3.16	1.02	100.00		
LAWB63	0.00	0.00	1.40	0.00	0.00	5.82	3.16	1.02	100.00		
LAWB63	0.00	0.00	1.40	0.00	0.00	5.82	3.16	1.02	100.00		
LAWB63	0.00	0.00	1.40	0.00	0.00	5.82	3.16	1.02	100.00		
LAWB63	0.00	0.00	1.40	0.00	0.00	5.82	3.16	1.02	100.00		
LAWB64	0.00	0.00	1.40	0.00	0.00	5.18	3.17	0.86	100.00		
LAWB64	0.00	0.00	1.40	0.00	0.00	5.18	3.17	0.86	100.00		
LAWB64	0.00	0.00	1.40	0.00	0.00	5.18	3.17	0.86	100.00		
LAWB64	0.00	0.00	1.40	0.00	0.00	5.18	3.17	0.86	100.00		
LAWB64	0.00	0.00	1.40	0.00	0.00	5.18	3.17	0.86	100.00		
LAWB64	0.00	0.00	1.40	0.00	0.00	5.18	3.17	0.86	100.00		
LAWB64	0.00	0.00	1.40	0.00	0.00	5.18	3.17	0.86	100.00		
LAWB64	0.00	0.00	1.40	0.00	0.00	5.18	3.17	0.86	100.00		
LAWB64	0.00	0.00	1.40	0.00	0.00	5.18	3.17	0.86	100.00		
LAWB64	0.00	0.00	1.40	0.00	0.00	5.18	3.17	0.86	100.00		
LAWB64	0.00	0.00	1.40	0.00	0.00	5.18	3.17	0.86	100.00		
LAWB64	0.00	0.00	1.40	0.00	0.00	5.18	3.17	0.86	100.00		
LAWB65	0.00	0.00	1.39	0.00	0.00	4.66	3.16	1.17	100.00		
LAWB65	0.00	0.00	1.39	0.00	0.00	4.66	3.16	1.17	100.00		
LAWB65	0.00	0.00	1.39	0.00	0.00	4.66	3.16	1.17	100.00		
LAWB65	0.00	0.00	1.39	0.00	0.00	4.66	3.16	1.17	100.00		
LAWB65	0.00	0.00	1.39	0.00	0.00	4.66	3.16	1.17	100.00		
LAWB65	0.00	0.00	1.39	0.00	0.00	4.66	3.16	1.17	100.00		
LAWB65	0.00	0.00	1.39	0.00	0.00	4.66	3.16	1.17	100.00		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
LAWB65	LAW	VSL-11R2270-1	SS	545.00	0.81	2.031	1,106.693	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.54
LAWB65	LAW	VSL-11R2270-1	SS	729.00	0.81	2.031	1,480.328	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.65
LAWB65	LAW	VSL-11R2270-1	SS	1094.00	0.81	2.031	2,221.508	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.74
LAWB65	LAW	VSL-11R2270-1	SS	1462.00	0.81	2.031	2,968.779	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.84
LAWB65	LAW	VSL-11R2270-1	SS	1830.00	0.81	2.031	3,716.050	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.94
LAWB66	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.17
LAWB66	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.35
LAWB66	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.45
LAWB66	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.57
LAWB66	LAW	VSL-11R2270-1	SS	181.00	0.81	2.031	367.544	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.67
LAWB66	LAW	VSL-11R2270-1	SS	269.00	0.81	2.031	546.239	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.76
LAWB66	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.84
LAWB66	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.94
LAWB66	LAW	VSL-11R2270-1	SS	735.00	0.81	2.031	1,492.512	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.04
LAWB66	LAW	VSL-11R2270-1	SS	1093.00	0.81	2.031	2,219.477	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.14
LAWB66	LAW	VSL-11R2270-1	SS	1456.00	0.81	2.031	2,956.595	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.22
LAWB66	LAW	VSL-11R2270-1	SS	1827.00	0.81	2.031	3,709.959	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.34
LAWB67	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.24
LAWB67	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.43
LAWB67	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.54
LAWB67	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.64
LAWB67	LAW	VSL-11R2270-1	SS	181.00	0.81	2.031	367.544	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.75
LAWB67	LAW	VSL-11R2270-1	SS	269.00	0.81	2.031	546.239	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.87
LAWB67	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.95
LAWB67	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.04
LAWB67	LAW	VSL-11R2270-1	SS	735.00	0.81	2.031	1,492.512	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.15
LAWB67	LAW	VSL-11R2270-1	SS	1093.00	0.81	2.031	2,219.477	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.25
LAWB67	LAW	VSL-11R2270-1	SS	1456.00	0.81	2.031	2,956.595	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.35
LAWB67	LAW	VSL-11R2270-1	SS	1827.00	0.81	2.031	3,709.959	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.42
LAWB68	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.34
LAWB68	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.54
LAWB68	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.65
LAWB68	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.76
LAWB68	LAW	VSL-11R2270-1	SS	181.00	0.81	2.031	367.544	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.87
LAWB68	LAW	VSL-11R2270-1	SS	269.00	0.81	2.031	546.239	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.95
LAWB68	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.04
LAWB68	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.16
LAWB68	LAW	VSL-11R2270-1	SS	735.00	0.81	2.031	1,492.512	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.24
LAWB68	LAW	VSL-11R2270-1	SS	1093.00	0.81	2.031	2,219.477	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.35
LAWB68	LAW	VSL-11R2270-1	SS	1456.00	0.81	2.031	2,956.595	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.43
LAWB68	LAW	VSL-11R2270-1	SS	1827.00	0.81	2.031	3,709.959	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.55
LAWB69	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.36
LAWB69	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.56
LAWB69	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.64
LAWB69	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.76
LAWB69	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.85
LAWB69	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.94
LAWB69	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.26
LAWB69	LAW	VSL-11R2270-1	SS	733.00	0.81	2.031	1,488.451	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.35
LAWB69	LAW	VSL-11R2270-1	SS	1094.00	0.81	2.031	2,221.508	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.41
LAWB69	LAW	VSL-11R2270-1	SS	1457.00	0.81	2.031	2,958.626	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.52
LAWB69	LAW	VSL-11R2270-1	SS	1820.00	0.81	2.031	3,695.744	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.62
LAWB70	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.32
LAWB70	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.55
LAWB70	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.65
LAWB70	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.76
LAWB70	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.87
LAWB70	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.95
LAWB70	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.26
LAWB70	LAW	VSL-11R2270-1	SS	733.00	0.81	2.031	1,488.451	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.33
LAWB70	LAW	VSL-11R2270-1	SS	1094.00	0.81	2.031	2,221.508	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.38
LAWB70	LAW	VSL-11R2270-1	SS	1457.00	0.81	2.031	2,958.626	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.43
LAWB70	LAW	VSL-11R2270-1	SS	1820.00	0.81	2.031	3,695.744	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.52
LAWB71	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.28
LAWB71	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.51
LAWB71	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.64
LAWB71	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.77

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
LAWB65	130.21	1725.83	37.19		496.64	1484.03	60.98	10.91						
LAWB65	136.29	1934.70	45.73		576.23	1845.83	75.98	0.69						
LAWB65	121.87	2173.87	49.10		622.69	1975.97	83.90							
LAWB65	133.67	2377.73	50.22		613.96	2100.87	96.08							
LAWB65	144.06	2070.40	52.97		582.75	2040.93	85.81							
LAWB66	48.55	18.11	2.47		13.35	22.20		0.81						
LAWB66	77.53	39.60	2.41		26.52	46.52		1.02						
LAWB66	93.43	53.23	2.28		35.19	61.41	1.83	1.08						
LAWB66	111.43	65.12	2.86		44.70	75.84	3.02	1.44						
LAWB66	116.80	71.65	3.09		46.51	76.48	2.68	1.04						
LAWB66	149.66	87.26	3.87		60.50	100.01	4.41	1.08						
LAWB66	153.46	94.14	3.86		63.69	100.30	5.39	1.08						
LAWB66	158.10	98.66	1.81		68.64	102.63	5.09	1.06						
LAWB66	175.06	101.60	2.07		71.57	105.30	5.63	0.92						
LAWB66	165.97	103.07	3.77		73.24	105.29	5.39	1.17						
LAWB66	183.87	154.20	3.63		94.32	164.75	6.04	0.84						
LAWB66	184.76	764.28	13.46		325.24	799.27	25.03	0.97						
LAWB67	50.91	14.97	0.11		11.76	11.51		1.94						
LAWB67	59.86	18.84	0.12		15.24	11.21		2.34						
LAWB67	65.61	21.34			17.92	10.98		2.45						
LAWB67	85.27	27.90	0.14		24.79	12.85		4.08						
LAWB67	92.70	30.88	0.37		27.61	13.51		3.54						
LAWB67	113.32	36.13	0.51		33.10	15.77	1.75	4.06					0.52	
LAWB67	117.23	42.20	0.28		37.54	15.41	2.49	3.87						
LAWB67	125.12	47.36			42.64	15.90	2.48	4.02						
LAWB67	137.07	46.39			42.14	15.24	3.77	3.97			0.24			
LAWB67	142.11	51.11	0.32		46.24	16.10	2.60	3.97						
LAWB67	149.88	62.33	0.32		48.87	18.34		3.18						
LAWB67	166.98	64.66	0.44		54.00	23.72	2.13	3.10						
LAWB68	44.78	13.19	2.81		11.66	19.28		1.03						
LAWB68	69.04	26.16	2.19		21.40	36.38		0.95						
LAWB68	84.80	37.33	2.02		29.14	49.98	1.99	1.14						
LAWB68	121.13	59.82	2.82		48.42	82.52	3.30	1.64						
LAWB68	129.10	66.69	2.88		53.31	90.40	3.53	1.23						
LAWB68	164.47	88.09	3.34		68.47	121.86	4.95	1.37						
LAWB68	154.60	91.31	3.00		71.19	127.44	6.42	0.95						
LAWB68	201.90	144.68	1.40		103.55	182.92	8.29	1.22						
LAWB68	206.63	292.19	1.93		149.06	332.11	12.88	1.15						
LAWB68	159.19	1615.77	21.84		552.06	1862.53	71.04	2.12						
LAWB68	146.31	2061.50	36.74		616.74	2399.10	98.08	0.95				0.45		
LAWB68	156.02	1926.07	42.57		679.89	2208.70	99.97	1.06						
LAWB69	44.25	18.82	8.96		11.65	23.44		0.77						
LAWB69	50.94	22.90	10.24		16.10	29.38		1.32						
LAWB69	56.52	25.63	10.16		17.58	33.01		1.24						
LAWB69	70.31	27.37	12.64		24.22	43.48		1.47						
LAWB69	68.60	27.89	12.45		23.89	41.89		1.53						
LAWB69	94.39	40.25	14.93		32.08	58.27	2.14	1.74						
LAWB69	79.60	35.31	8.52		27.84	49.03	1.84	2.57						
LAWB69	90.00	43.66	7.69		31.60	55.24	2.78	1.63						
LAWB69	117.00	59.24	6.21		45.80	81.97	3.05	1.39						
LAWB69	132.06	73.59	6.11		50.60	93.12	3.06	1.11						
LAWB69	167.25	94.97	5.91		65.18	125.67	3.38	1.30			0.70			
LAWB70	69.01	42.81	1.65		21.95	46.00		0.74						
LAWB70	115.00	110.87	2.21		57.02	116.40	2.26	1.19						
LAWB70	149.63	180.80	2.93		87.42	178.60	3.52	0.99						
LAWB70	194.63	361.40	6.14		166.33	414.10	6.85							
LAWB70	173.40	559.97	9.28		223.77	544.50	10.45							
LAWB70	238.89	1254.30	24.57		414.50	1165.27	32.13	0.85						
LAWB70	174.09	1942.00	51.73		619.03	1773.30	62.88	9.26			0.51			
LAWB70	167.94	2143.00	52.93		647.71	2137.57	71.85	0.67			0.27			
LAWB70	136.33	2583.17	58.26		716.15	2647.23	80.74							
LAWB70	146.97	3017.00	62.33		857.98	3479.63	100.23							
LAWB70	169.72	2902.67	72.61		845.32	3547.13	96.38	0.76			0.88			
LAWB71	52.44	21.50	1.29		13.35	27.19		0.93						
LAWB71	93.76	57.66	1.17		33.63	69.81		1.36						
LAWB71	127.83	92.42	1.44		50.41	106.23	2.32	1.18						
LAWB71	174.97	159.87	2.57		90.14	209.13	3.47	0.82						

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
LAWB65		Not Studied		68.47	18.173	-1.5104179	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB65		Not Studied		68.47	18.173	-1.5104179	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB65		Not Studied		68.47	18.173	-1.5104179	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB65		Not Studied		68.47	18.173	-1.5104179	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB65		Not Studied		68.47	18.173	-1.5104179	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB66		Not Studied		68.64	19.725	-10.5387775	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB66		Not Studied		68.64	19.725	-10.5387775	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB66		Not Studied		68.64	19.725	-10.5387775	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB66		Not Studied		68.64	19.725	-10.5387775	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB66		Not Studied		68.64	19.725	-10.5387775	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB66		Not Studied		68.64	19.725	-10.5387775	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB66		Not Studied		68.64	19.725	-10.5387775	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB66		Not Studied		68.64	19.725	-10.5387775	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB66		Not Studied		68.64	19.725	-10.5387775	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB66		Not Studied		68.64	19.725	-10.5387775	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB66		Not Studied		68.64	19.725	-10.5387775	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB66		Not Studied		68.64	19.725	-10.5387775	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB67		Not Studied		68.49	16.671	6.9453182	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB67		Not Studied		68.49	16.671	6.9453182	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB67		Not Studied		68.49	16.671	6.9453182	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB67		Not Studied		68.49	16.671	6.9453182	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB67		Not Studied		68.49	16.671	6.9453182	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB67		Not Studied		68.49	16.671	6.9453182	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB67		Not Studied		68.49	16.671	6.9453182	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB67		Not Studied		68.49	16.671	6.9453182	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB67		Not Studied		68.49	16.671	6.9453182	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB67		Not Studied		68.49	16.671	6.9453182	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB67		Not Studied		68.49	16.671	6.9453182	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB67		Not Studied		68.49	16.671	6.9453182	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB68		Not Studied		67.01	19.69	-7.729003	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB68		Not Studied		67.01	19.69	-7.729003	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB68		Not Studied		67.01	19.69	-7.729003	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB68		Not Studied		67.01	19.69	-7.729003	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB68		Not Studied		67.01	19.69	-7.729003	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB68		Not Studied		67.01	19.69	-7.729003	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB68		Not Studied		67.01	19.69	-7.729003	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB68		Not Studied		67.01	19.69	-7.729003	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB68		Not Studied		67.01	19.69	-7.729003	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB68		Not Studied		67.01	19.69	-7.729003	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB68		Not Studied		67.01	19.69	-7.729003	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB68		Not Studied		67.01	19.69	-7.729003	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB69		Not Studied		71.75	16.613	2.0358596	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB69		Not Studied		71.75	16.613	2.0358596	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB69		Not Studied		71.75	16.613	2.0358596	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB69		Not Studied		71.75	16.613	2.0358596	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB69		Not Studied		71.75	16.613	2.0358596	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB69		Not Studied		71.75	16.613	2.0358596	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB69		Not Studied		71.75	16.613	2.0358596	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB69		Not Studied		71.75	16.613	2.0358596	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB69		Not Studied		71.75	16.613	2.0358596	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB69		Not Studied		71.75	16.613	2.0358596	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB69		Not Studied		71.75	16.613	2.0358596	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB70		Not Studied		71.84	16.043	5.1172046	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB70		Not Studied		71.84	16.043	5.1172046	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB70		Not Studied		71.84	16.043	5.1172046	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB70		Not Studied		71.84	16.043	5.1172046	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB70		Not Studied		71.84	16.043	5.1172046	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB70		Not Studied		71.84	16.043	5.1172046	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB70		Not Studied		71.84	16.043	5.1172046	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB70		Not Studied		71.84	16.043	5.1172046	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB70		Not Studied		71.84	16.043	5.1172046	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB70		Not Studied		71.84	16.043	5.1172046	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB70		Not Studied		71.84	16.043	5.1172046	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB71		Not Studied		70.33	16.052	7.4860559	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB71		Not Studied		70.33	16.052	7.4860559	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB71		Not Studied		70.33	16.052	7.4860559	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB71		Not Studied		70.33	16.052	7.4860559	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
LAWB65	HOMOGENEOUS	6.19	9.94	0.00	6.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB65	HOMOGENEOUS	6.19	9.94	0.00	6.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB65	HOMOGENEOUS	6.19	9.94	0.00	6.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB65	HOMOGENEOUS	6.19	9.94	0.00	6.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB65	HOMOGENEOUS	6.19	9.94	0.00	6.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB66	HOMOGENEOUS	6.20	9.96	0.00	8.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.31	0.26	0.00	0.00
LAWB66	HOMOGENEOUS	6.20	9.96	0.00	8.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.31	0.26	0.00	0.00
LAWB66	HOMOGENEOUS	6.20	9.96	0.00	8.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.31	0.26	0.00	0.00
LAWB66	HOMOGENEOUS	6.20	9.96	0.00	8.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.31	0.26	0.00	0.00
LAWB66	HOMOGENEOUS	6.20	9.96	0.00	8.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.31	0.26	0.00	0.00
LAWB66	HOMOGENEOUS	6.20	9.96	0.00	8.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.31	0.26	0.00	0.00
LAWB66	HOMOGENEOUS	6.20	9.96	0.00	8.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.31	0.26	0.00	0.00
LAWB66	HOMOGENEOUS	6.20	9.96	0.00	8.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.31	0.26	0.00	0.00
LAWB66	HOMOGENEOUS	6.20	9.96	0.00	8.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.31	0.26	0.00	0.00
LAWB66	HOMOGENEOUS	6.20	9.96	0.00	8.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.31	0.26	0.00	0.00
LAWB66	HOMOGENEOUS	6.20	9.96	0.00	8.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.31	0.26	0.00	0.00
LAWB66	HOMOGENEOUS	6.20	9.96	0.00	8.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.31	0.26	0.00	0.00
LAWB67	HOMOGENEOUS	6.19	9.94	0.00	5.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB67	HOMOGENEOUS	6.19	9.94	0.00	5.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB67	HOMOGENEOUS	6.19	9.94	0.00	5.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB67	HOMOGENEOUS	6.19	9.94	0.00	5.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB67	HOMOGENEOUS	6.19	9.94	0.00	5.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB67	HOMOGENEOUS	6.19	9.94	0.00	5.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB67	HOMOGENEOUS	6.19	9.94	0.00	5.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB67	HOMOGENEOUS	6.19	9.94	0.00	5.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB67	HOMOGENEOUS	6.19	9.94	0.00	5.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB67	HOMOGENEOUS	6.19	9.94	0.00	5.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB67	HOMOGENEOUS	6.19	9.94	0.00	5.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB67	HOMOGENEOUS	6.19	9.94	0.00	5.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB68	HOMOGENEOUS	6.19	8.44	0.00	8.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB68	HOMOGENEOUS	6.19	8.44	0.00	8.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB68	HOMOGENEOUS	6.19	8.44	0.00	8.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB68	HOMOGENEOUS	6.19	8.44	0.00	8.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB68	HOMOGENEOUS	6.19	8.44	0.00	8.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB68	HOMOGENEOUS	6.19	8.44	0.00	8.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB68	HOMOGENEOUS	6.19	8.44	0.00	8.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB68	HOMOGENEOUS	6.19	8.44	0.00	8.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB68	HOMOGENEOUS	6.19	8.44	0.00	8.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB68	HOMOGENEOUS	6.19	8.44	0.00	8.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB68	HOMOGENEOUS	6.19	8.44	0.00	8.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB68	HOMOGENEOUS	6.19	8.44	0.00	8.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.26	0.00	0.00
LAWB69	HOMOGENEOUS	6.15	12.33	0.00	10.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00
LAWB69	HOMOGENEOUS	6.15	12.33	0.00	10.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00
LAWB69	HOMOGENEOUS	6.15	12.33	0.00	10.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00
LAWB69	HOMOGENEOUS	6.15	12.33	0.00	10.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00
LAWB69	HOMOGENEOUS	6.15	12.33	0.00	10.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00
LAWB69	HOMOGENEOUS	6.15	12.33	0.00	10.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00
LAWB69	HOMOGENEOUS	6.15	12.33	0.00	10.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00
LAWB69	HOMOGENEOUS	6.15	12.33	0.00	10.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00
LAWB69	HOMOGENEOUS	6.15	12.33	0.00	10.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00
LAWB69	HOMOGENEOUS	6.15	12.33	0.00	10.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00
LAWB69	HOMOGENEOUS	6.15	12.33	0.00	10.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00
LAWB70	HOMOGENEOUS	6.16	12.35	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	0.23	0.00	0.00
LAWB70	HOMOGENEOUS	6.16	12.35	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	0.23	0.00	0.00
LAWB70	HOMOGENEOUS	6.16	12.35	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	0.23	0.00	0.00
LAWB70	HOMOGENEOUS	6.16	12.35	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	0.23	0.00	0.00
LAWB70	HOMOGENEOUS	6.16	12.35	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	0.23	0.00	0.00
LAWB70	HOMOGENEOUS	6.16	12.35	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	0.23	0.00	0.00
LAWB70	HOMOGENEOUS	6.16	12.35	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	0.23	0.00	0.00
LAWB70	HOMOGENEOUS	6.16	12.35	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	0.23	0.00	0.00
LAWB70	HOMOGENEOUS	6.16	12.35	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	0.23	0.00	0.00
LAWB70	HOMOGENEOUS	6.16	12.35	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	0.23	0.00	0.00
LAWB70	HOMOGENEOUS	6.16	12.35	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	0.23	0.00	0.00
LAWB71	HOMOGENEOUS	6.16	10.80	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	0.23	0.00	0.00
LAWB71	HOMOGENEOUS	6.16	10.80	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	0.23	0.00	0.00
LAWB71	HOMOGENEOUS	6.16	10.80	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	0.23	0.00	0.00
LAWB71	HOMOGENEOUS	6.16	10.80	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	0.23	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
LAWB65	4.30	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.49	0.00	0.00	0.00
LAWB65	4.30	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.49	0.00	0.00	0.00
LAWB65	4.30	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.49	0.00	0.00	0.00
LAWB65	4.30	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.49	0.00	0.00	0.00
LAWB65	4.30	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.49	0.00	0.00	0.00
LAWB66	4.31	2.98	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.61	0.00	0.00	0.00
LAWB66	4.31	2.98	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.61	0.00	0.00	0.00
LAWB66	4.31	2.98	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.61	0.00	0.00	0.00
LAWB66	4.31	2.98	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.61	0.00	0.00	0.00
LAWB66	4.31	2.98	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.61	0.00	0.00	0.00
LAWB66	4.31	2.98	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.61	0.00	0.00	0.00
LAWB66	4.31	2.98	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.61	0.00	0.00	0.00
LAWB66	4.31	2.98	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.61	0.00	0.00	0.00
LAWB66	4.31	2.98	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.61	0.00	0.00	0.00
LAWB66	4.31	2.98	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.61	0.00	0.00	0.00
LAWB66	4.31	2.98	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.61	0.00	0.00	0.00
LAWB66	4.31	2.98	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.61	0.00	0.00	0.00
LAWB67	4.30	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.50	0.00	0.00	0.00
LAWB67	4.30	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.50	0.00	0.00	0.00
LAWB67	4.30	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.50	0.00	0.00	0.00
LAWB67	4.30	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.50	0.00	0.00	0.00
LAWB67	4.30	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.50	0.00	0.00	0.00
LAWB67	4.30	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.50	0.00	0.00	0.00
LAWB67	4.30	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.50	0.00	0.00	0.00
LAWB67	4.30	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.50	0.00	0.00	0.00
LAWB67	4.30	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.50	0.00	0.00	0.00
LAWB67	4.30	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.50	0.00	0.00	0.00
LAWB67	4.30	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.50	0.00	0.00	0.00
LAWB67	4.30	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.50	0.00	0.00	0.00
LAWB68	4.31	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.52	0.00	0.00	0.00
LAWB68	4.31	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.52	0.00	0.00	0.00
LAWB68	4.31	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.52	0.00	0.00	0.00
LAWB68	4.31	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.52	0.00	0.00	0.00
LAWB68	4.31	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.52	0.00	0.00	0.00
LAWB68	4.31	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.52	0.00	0.00	0.00
LAWB68	4.31	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.52	0.00	0.00	0.00
LAWB68	4.31	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.52	0.00	0.00	0.00
LAWB68	4.31	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.52	0.00	0.00	0.00
LAWB68	4.31	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.52	0.00	0.00	0.00
LAWB68	4.31	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.52	0.00	0.00	0.00
LAWB68	4.31	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.52	0.00	0.00	0.00
LAWB69	4.61	2.97	0.00	0.00	6.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.96	0.00	0.00	0.00
LAWB69	4.61	2.97	0.00	0.00	6.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.96	0.00	0.00	0.00
LAWB69	4.61	2.97	0.00	0.00	6.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.96	0.00	0.00	0.00
LAWB69	4.61	2.97	0.00	0.00	6.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.96	0.00	0.00	0.00
LAWB69	4.61	2.97	0.00	0.00	6.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.96	0.00	0.00	0.00
LAWB69	4.61	2.97	0.00	0.00	6.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.96	0.00	0.00	0.00
LAWB69	4.61	2.97	0.00	0.00	6.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.96	0.00	0.00	0.00
LAWB69	4.61	2.97	0.00	0.00	6.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.96	0.00	0.00	0.00
LAWB69	4.61	2.97	0.00	0.00	6.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.96	0.00	0.00	0.00
LAWB69	4.61	2.97	0.00	0.00	6.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.96	0.00	0.00	0.00
LAWB69	4.61	2.97	0.00	0.00	6.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.96	0.00	0.00	0.00
LAWB70	4.62	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.02	0.00	0.00	0.00
LAWB70	4.62	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.02	0.00	0.00	0.00
LAWB70	4.62	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.02	0.00	0.00	0.00
LAWB70	4.62	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.02	0.00	0.00	0.00
LAWB70	4.62	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.02	0.00	0.00	0.00
LAWB70	4.62	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.02	0.00	0.00	0.00
LAWB70	4.62	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.02	0.00	0.00	0.00
LAWB70	4.62	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.02	0.00	0.00	0.00
LAWB70	4.62	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.02	0.00	0.00	0.00
LAWB70	4.62	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.02	0.00	0.00	0.00
LAWB70	4.62	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.02	0.00	0.00	0.00
LAWB71	4.62	2.98	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.05	0.00	0.00	0.00
LAWB71	4.62	2.98	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.05	0.00	0.00	0.00
LAWB71	4.62	2.98	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.05	0.00	0.00	0.00
LAWB71	4.62	2.98	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.05	0.00	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
LAWB65	0.00	0.00	1.39	0.00	0.00	4.66	3.16	1.17	100.00		
LAWB65	0.00	0.00	1.39	0.00	0.00	4.66	3.16	1.17	100.00		
LAWB65	0.00	0.00	1.39	0.00	0.00	4.66	3.16	1.17	100.00		
LAWB65	0.00	0.00	1.39	0.00	0.00	4.66	3.16	1.17	100.00		
LAWB65	0.00	0.00	1.39	0.00	0.00	4.66	3.16	1.17	100.00		
LAWB66	0.00	0.00	1.40	0.00	0.00	3.17	3.17	0.93	100.00		
LAWB66	0.00	0.00	1.40	0.00	0.00	3.17	3.17	0.93	100.00		
LAWB66	0.00	0.00	1.40	0.00	0.00	3.17	3.17	0.93	100.00		
LAWB66	0.00	0.00	1.40	0.00	0.00	3.17	3.17	0.93	100.00		
LAWB66	0.00	0.00	1.40	0.00	0.00	3.17	3.17	0.93	100.00		
LAWB66	0.00	0.00	1.40	0.00	0.00	3.17	3.17	0.93	100.00		
LAWB66	0.00	0.00	1.40	0.00	0.00	3.17	3.17	0.93	100.00		
LAWB66	0.00	0.00	1.40	0.00	0.00	3.17	3.17	0.93	100.00		
LAWB66	0.00	0.00	1.40	0.00	0.00	3.17	3.17	0.93	100.00		
LAWB66	0.00	0.00	1.40	0.00	0.00	3.17	3.17	0.93	100.00		
LAWB66	0.00	0.00	1.40	0.00	0.00	3.17	3.17	0.93	100.00		
LAWB66	0.00	0.00	1.40	0.00	0.00	3.17	3.17	0.93	100.00		
LAWB67	0.00	0.00	1.39	0.00	0.00	3.16	3.16	4.16	100.00		
LAWB67	0.00	0.00	1.39	0.00	0.00	3.16	3.16	4.16	100.00		
LAWB67	0.00	0.00	1.39	0.00	0.00	3.16	3.16	4.16	100.00		
LAWB67	0.00	0.00	1.39	0.00	0.00	3.16	3.16	4.16	100.00		
LAWB67	0.00	0.00	1.39	0.00	0.00	3.16	3.16	4.16	100.00		
LAWB67	0.00	0.00	1.39	0.00	0.00	3.16	3.16	4.16	100.00		
LAWB67	0.00	0.00	1.39	0.00	0.00	3.16	3.16	4.16	100.00		
LAWB67	0.00	0.00	1.39	0.00	0.00	3.16	3.16	4.16	100.00		
LAWB67	0.00	0.00	1.39	0.00	0.00	3.16	3.16	4.16	100.00		
LAWB67	0.00	0.00	1.39	0.00	0.00	3.16	3.16	4.16	100.00		
LAWB67	0.00	0.00	1.39	0.00	0.00	3.16	3.16	4.16	100.00		
LAWB67	0.00	0.00	1.39	0.00	0.00	3.16	3.16	4.16	100.00		
LAWB68	0.00	0.00	1.40	0.00	0.00	4.67	3.16	1.11	100.00		
LAWB68	0.00	0.00	1.40	0.00	0.00	4.67	3.16	1.11	100.00		
LAWB68	0.00	0.00	1.40	0.00	0.00	4.67	3.16	1.11	100.00		
LAWB68	0.00	0.00	1.40	0.00	0.00	4.67	3.16	1.11	100.00		
LAWB68	0.00	0.00	1.40	0.00	0.00	4.67	3.16	1.11	100.00		
LAWB68	0.00	0.00	1.40	0.00	0.00	4.67	3.16	1.11	100.00		
LAWB68	0.00	0.00	1.40	0.00	0.00	4.67	3.16	1.11	100.00		
LAWB68	0.00	0.00	1.40	0.00	0.00	4.67	3.16	1.11	100.00		
LAWB68	0.00	0.00	1.40	0.00	0.00	4.67	3.16	1.11	100.00		
LAWB68	0.00	0.00	1.40	0.00	0.00	4.67	3.16	1.11	100.00		
LAWB68	0.00	0.00	1.40	0.00	0.00	4.67	3.16	1.11	100.00		
LAWB68	0.00	0.00	1.40	0.00	0.00	4.67	3.16	1.11	100.00		
LAWB69	0.00	0.00	0.00	0.00	0.00	4.57	3.15	0.94	100.00		
LAWB69	0.00	0.00	0.00	0.00	0.00	4.57	3.15	0.94	100.00		
LAWB69	0.00	0.00	0.00	0.00	0.00	4.57	3.15	0.94	100.00		
LAWB69	0.00	0.00	0.00	0.00	0.00	4.57	3.15	0.94	100.00		
LAWB69	0.00	0.00	0.00	0.00	0.00	4.57	3.15	0.94	100.00		
LAWB69	0.00	0.00	0.00	0.00	0.00	4.57	3.15	0.94	100.00		
LAWB69	0.00	0.00	0.00	0.00	0.00	4.57	3.15	0.94	100.00		
LAWB69	0.00	0.00	0.00	0.00	0.00	4.57	3.15	0.94	100.00		
LAWB69	0.00	0.00	0.00	0.00	0.00	4.57	3.15	0.94	100.00		
LAWB69	0.00	0.00	0.00	0.00	0.00	4.57	3.15	0.94	100.00		
LAWB69	0.00	0.00	0.00	0.00	0.00	4.57	3.15	0.94	100.00		
LAWB70	0.00	0.00	0.00	0.00	0.00	5.16	3.15	0.83	100.00		
LAWB70	0.00	0.00	0.00	0.00	0.00	5.16	3.15	0.83	100.00		
LAWB70	0.00	0.00	0.00	0.00	0.00	5.16	3.15	0.83	100.00		
LAWB70	0.00	0.00	0.00	0.00	0.00	5.16	3.15	0.83	100.00		
LAWB70	0.00	0.00	0.00	0.00	0.00	5.16	3.15	0.83	100.00		
LAWB70	0.00	0.00	0.00	0.00	0.00	5.16	3.15	0.83	100.00		
LAWB70	0.00	0.00	0.00	0.00	0.00	5.16	3.15	0.83	100.00		
LAWB70	0.00	0.00	0.00	0.00	0.00	5.16	3.15	0.83	100.00		
LAWB70	0.00	0.00	0.00	0.00	0.00	5.16	3.15	0.83	100.00		
LAWB70	0.00	0.00	0.00	0.00	0.00	5.16	3.15	0.83	100.00		
LAWB70	0.00	0.00	0.00	0.00	0.00	5.16	3.15	0.83	100.00		
LAWB71	0.00	0.00	1.55	0.00	0.00	5.16	3.16	0.77	100.00		
LAWB71	0.00	0.00	1.55	0.00	0.00	5.16	3.16	0.77	100.00		
LAWB71	0.00	0.00	1.55	0.00	0.00	5.16	3.16	0.77	100.00		
LAWB71	0.00	0.00	1.55	0.00	0.00	5.16	3.16	0.77	100.00		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
LAWB71	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.84
LAWB71	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.94
LAWB71	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.26
LAWB71	LAW	VSL-11R2270-1	SS	733.00	0.81	2.031	1,488.451	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.34
LAWB71	LAW	VSL-11R2270-1	SS	1094.00	0.81	2.031	2,221.508	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.42
LAWB71	LAW	VSL-11R2270-1	SS	1457.00	0.81	2.031	2,958.626	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.53
LAWB71	LAW	VSL-11R2270-1	SS	1820.00	0.81	2.031	3,695.744	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.57
LAWB72	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.24
LAWB72	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.42
LAWB72	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.54
LAWB72	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.68
LAWB72	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.76
LAWB72	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.84
LAWB72	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.05
LAWB72	LAW	VSL-11R2270-1	SS	733.00	0.81	2.031	1,488.451	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.14
LAWB72	LAW	VSL-11R2270-1	SS	1094.00	0.81	2.031	2,221.508	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.26
LAWB72	LAW	VSL-11R2270-1	SS	1457.00	0.81	2.031	2,958.626	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.37
LAWB72	LAW	VSL-11R2270-1	SS	1820.00	0.81	2.031	3,695.744	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.45
LAWB73	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.25
LAWB73	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.43
LAWB73	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.58
LAWB73	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.67
LAWB73	LAW	VSL-11R2270-1	SS	182.00	0.81	2.031	369.574	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.74
LAWB73	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.05
LAWB73	LAW	VSL-11R2270-1	SS	1097.00	0.81	2.031	2,227.600	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.24
LAWB73	LAW	VSL-11R2270-1	SS	1454.00	0.81	2.031	2,952.534	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.35
LAWB73	LAW	VSL-11R2270-1	SS	1833.00	0.81	2.031	3,722.142	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.42
LAWB74	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.23
LAWB74	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.45
LAWB74	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.57
LAWB74	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.66
LAWB74	LAW	VSL-11R2270-1	SS	182.00	0.81	2.031	369.574	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.77
LAWB74	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.05
LAWB74	LAW	VSL-11R2270-1	SS	1097.00	0.81	2.031	2,227.600	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.22
LAWB74	LAW	VSL-11R2270-1	SS	1454.00	0.81	2.031	2,952.534	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.34
LAWB74	LAW	VSL-11R2270-1	SS	1833.00	0.81	2.031	3,722.142	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.41
LAWB75	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.16
LAWB75	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.34
LAWB75	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.52
LAWB75	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.66
LAWB75	LAW	VSL-11R2270-1	SS	182.00	0.81	2.031	369.574	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.76
LAWB75	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.07
LAWB75	LAW	VSL-11R2270-1	SS	1097.00	0.81	2.031	2,227.600	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.25
LAWB75	LAW	VSL-11R2270-1	SS	1454.00	0.81	2.031	2,952.534	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.35
LAWB75	LAW	VSL-11R2270-1	SS	1833.00	0.81	2.031	3,722.142	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.44
LAWB76	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.24
LAWB76	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.43
LAWB76	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.58
LAWB76	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.67
LAWB76	LAW	VSL-11R2270-1	SS	182.00	0.81	2.031	369.574	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.77
LAWB76	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.06
LAWB76	LAW	VSL-11R2270-1	SS	1097.00	0.81	2.031	2,227.600	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.27
LAWB76	LAW	VSL-11R2270-1	SS	1454.00	0.81	2.031	2,952.534	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.37
LAWB76	LAW	VSL-11R2270-1	SS	1833.00	0.81	2.031	3,722.142	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.46
LAWB77	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.04
LAWB77	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.24
LAWB77	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.37
LAWB77	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.47
LAWB77	LAW	VSL-11R2270-1	SS	182.00	0.81	2.031	369.574	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.55
LAWB77	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.84
LAWB77	LAW	VSL-11R2270-1	SS	1097.00	0.81	2.031	2,227.600	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.07
LAWB77	LAW	VSL-11R2270-1	SS	1454.00	0.81	2.031	2,952.534	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.14
LAWB77	LAW	VSL-11R2270-1	SS	1833.00	0.81	2.031	3,722.142	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.24
LAWB78	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.58
LAWB78	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.74
LAWB78	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.84
LAWB78	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.93

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
LAWB71	178.50	283.50	3.35		140.57	322.27	5.80							
LAWB71	269.75	979.85	9.76		347.41	971.23	24.10	1.19						
LAWB71	169.49	2226.37	38.38		705.15	2345.87	84.23	10.23			0.49	0.43		
LAWB71	164.64	2478.83	41.64		735.18	2730.60	95.72	1.12			0.27			
LAWB71	135.17	2641.80	41.19		770.52	3033.87	90.07							
LAWB71	146.18	2704.13	44.11		824.82	3516.63	102.57							
LAWB71	161.98	2738.30	47.67		747.65	3334.47	89.27	0.99			0.81			
LAWB72	58.14	33.65	2.71		15.88	37.78								
LAWB72	90.23	76.16	2.74		35.12	83.36		0.92						
LAWB72	106.63	95.80	2.99		42.44	100.97	2.41	0.87						
LAWB72	125.77	116.20	4.08		54.48	123.13	2.79							
LAWB72	118.03	110.87	4.18		53.20	127.43	2.58	0.78						
LAWB72	167.93	157.77	5.94		72.90	163.47	4.73	0.74						
LAWB72	151.36	153.84	5.26		67.54	158.38	4.25	1.92						
LAWB72	164.09	155.05	6.58		67.32	158.60	4.91							
LAWB72	192.64	168.40	7.25		84.18	186.62	4.87							
LAWB72	201.49	193.95	5.93		89.80	244.32	5.31							
LAWB72	234.66	272.49	6.68		111.84	268.02	5.92				0.68			
LAWB73	39.51	12.74	5.89		10.76	15.47		0.90						
LAWB73	53.02	19.14	5.43		16.38	24.20		1.16						
LAWB73	61.95	22.91	5.11		20.39	28.95		1.07						
LAWB73	74.47	28.00	5.59		24.72	33.67		1.08						
LAWB73	83.02	31.29	5.99		28.83	38.25		1.26						
LAWB73	101.19	38.34	5.24		39.31	50.45	2.48	1.51						
LAWB73	131.79	48.26	5.32		52.60	66.62	2.68	1.93						
LAWB73	153.91	64.24	4.88		63.08	82.30	3.30	1.26						
LAWB73	168.97	75.68	4.20		70.94	92.49	3.50	1.15						
LAWB74	42.20	14.72	4.89		12.26	16.50		0.98						
LAWB74	61.45	24.56	4.00		20.71	29.03		1.20						
LAWB74	70.48	29.88	3.51		25.42	34.21		1.13						
LAWB74	84.54	36.16	4.07		30.92	40.18	1.77	1.00						
LAWB74	95.53	42.04	4.31		36.03	46.12		1.36						
LAWB74	128.50	54.59	4.95		51.80	65.25	3.12	1.31						
LAWB74	149.39	64.52	4.72		64.61	78.99	3.19	1.80						
LAWB74	182.92	81.23	4.52		80.76	102.09	4.19	1.10						
LAWB74	217.50	136.90	4.15		101.58	146.96	5.49	0.92						
LAWB75	36.10	12.57	3.97		9.70	11.73		1.10						
LAWB75	51.43	20.40	3.40		16.17	19.70		1.16						
LAWB75	60.40	25.29	3.09		20.90	23.72		1.18						
LAWB75	75.57	32.71	3.60		25.78	27.33		1.20						
LAWB75	79.99	35.50	3.67		28.38	29.08		1.42						
LAWB75	103.95	46.25	3.39		42.15	40.31	2.09	1.71						
LAWB75	113.88	45.47	3.59		50.65	44.36	2.23	2.40						
LAWB75	149.68	58.46	4.30		67.82	59.82	3.06	1.76						
LAWB75	151.92	63.14	4.26		63.39	54.68	3.22	1.49						
LAWB76	42.69	15.37	5.27		12.57	14.64		1.00						
LAWB76	56.97	22.21	4.81		19.08	22.41		1.08						
LAWB76	63.40	24.80	4.44		21.59	24.11		1.16						
LAWB76	76.05	30.75	5.31		24.88	26.48		1.14						
LAWB76	78.04	30.79	5.26		27.40	27.59		1.20						
LAWB76	100.81	38.73	5.64		38.66	37.19	2.11	1.56						
LAWB76	112.98	42.56	6.27		44.47	39.57	1.98	2.03			0.33			
LAWB76	129.34	41.86	6.12		53.43	47.32	2.64	1.60						
LAWB76	131.86	45.49	6.24		52.89	44.32	2.24	1.43						
LAWB77	52.03	27.73	1.79		13.68	29.53		0.89						
LAWB77	97.25	87.78	1.36		40.27	93.38	1.81	0.78						
LAWB77	116.43	120.37	1.64		52.00	126.50	2.23							
LAWB77	140.80	149.87	2.87		64.00	136.20	3.28							
LAWB77	143.27	151.93	3.09		65.52	139.17	2.79							
LAWB77	161.66	208.55	4.04		91.45	212.44	4.59							
LAWB77	154.40	603.99	11.04		197.37	560.43	12.29	2.21						
LAWB77	163.76	1043.43	21.54		313.38	1079.03	24.54							
LAWB77	197.41	1061.63	23.06		304.31	1109.00	26.01							
LAWB78	70.59	46.94	2.25		16.24	80.68		0.88						
LAWB78	100.80	82.23	2.54		28.71	133.87	2.08	0.79						
LAWB78	97.18	87.37	2.91		30.02	130.97								
LAWB78	120.93	95.80	3.43		31.79	161.07	2.44	0.97						

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
LAWB71		Not Studied		70.33	16.052	7.4860559	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB71		Not Studied		70.33	16.052	7.4860559	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB71		Not Studied		70.33	16.052	7.4860559	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB71		Not Studied		70.33	16.052	7.4860559	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB71		Not Studied		70.33	16.052	7.4860559	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB71		Not Studied		70.33	16.052	7.4860559	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB71		Not Studied		70.33	16.052	7.4860559	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB72		Not Studied		71.29	16.531	3.2413997	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB72		Not Studied		71.29	16.531	3.2413997	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB72		Not Studied		71.29	16.531	3.2413997	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB72		Not Studied		71.29	16.531	3.2413997	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB72		Not Studied		71.29	16.531	3.2413997	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB72		Not Studied		71.29	16.531	3.2413997	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB72		Not Studied		71.29	16.531	3.2413997	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB72		Not Studied		71.29	16.531	3.2413997	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB72		Not Studied		71.29	16.531	3.2413997	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB72		Not Studied		71.29	16.531	3.2413997	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB72		Not Studied		71.29	16.531	3.2413997	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB73		Not Studied		69.28	17.445	1.307156	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB73		Not Studied		69.28	17.445	1.307156	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB73		Not Studied		69.28	17.445	1.307156	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB73		Not Studied		69.28	17.445	1.307156	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB73		Not Studied		69.28	17.445	1.307156	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB73		Not Studied		69.28	17.445	1.307156	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB73		Not Studied		69.28	17.445	1.307156	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB73		Not Studied		69.28	17.445	1.307156	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB73		Not Studied		69.28	17.445	1.307156	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB74		Not Studied		69.94	16.861	3.5407472	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB74		Not Studied		69.94	16.861	3.5407472	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB74		Not Studied		69.94	16.861	3.5407472	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB74		Not Studied		69.94	16.861	3.5407472	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB74		Not Studied		69.94	16.861	3.5407472	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB74		Not Studied		69.94	16.861	3.5407472	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB74		Not Studied		69.94	16.861	3.5407472	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB74		Not Studied		69.94	16.861	3.5407472	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB74		Not Studied		69.94	16.861	3.5407472	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB75		Not Studied		71.32	16.776	1.8047732	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB75		Not Studied		71.32	16.776	1.8047732	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB75		Not Studied		71.32	16.776	1.8047732	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB75		Not Studied		71.32	16.776	1.8047732	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB75		Not Studied		71.32	16.776	1.8047732	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB75		Not Studied		71.32	16.776	1.8047732	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB75		Not Studied		71.32	16.776	1.8047732	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB75		Not Studied		71.32	16.776	1.8047732	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB75		Not Studied		71.32	16.776	1.8047732	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB76		Not Studied		72.71	16.773	-0.3927169	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB76		Not Studied		72.71	16.773	-0.3927169	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB76		Not Studied		72.71	16.773	-0.3927169	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB76		Not Studied		72.71	16.773	-0.3927169	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB76		Not Studied		72.71	16.773	-0.3927169	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB76		Not Studied		72.71	16.773	-0.3927169	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB76		Not Studied		72.71	16.773	-0.3927169	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB76		Not Studied		72.71	16.773	-0.3927169	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB76		Not Studied		72.71	16.773	-0.3927169	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB77		Not Studied		71.36	14.995	11.8137965	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB77		Not Studied		71.36	14.995	11.8137965	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB77		Not Studied		71.36	14.995	11.8137965	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB77		Not Studied		71.36	14.995	11.8137965	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB77		Not Studied		71.36	14.995	11.8137965	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB77		Not Studied		71.36	14.995	11.8137965	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB77		Not Studied		71.36	14.995	11.8137965	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB77		Not Studied		71.36	14.995	11.8137965	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB77		Not Studied		71.36	14.995	11.8137965	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB78		Not Studied		72.51	16.549	1.1802623	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB78		Not Studied		72.51	16.549	1.1802623	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB78		Not Studied		72.51	16.549	1.1802623	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB78		Not Studied		72.51	16.549	1.1802623	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
LAWB71	HOMOGENEOUS	6.16	10.80	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	0.23	0.00	0.00
LAWB71	HOMOGENEOUS	6.16	10.80	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	0.23	0.00	0.00
LAWB71	HOMOGENEOUS	6.16	10.80	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	0.23	0.00	0.00
LAWB71	HOMOGENEOUS	6.16	10.80	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	0.23	0.00	0.00
LAWB71	HOMOGENEOUS	6.16	10.80	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	0.23	0.00	0.00
LAWB71	HOMOGENEOUS	6.16	10.80	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	0.23	0.00	0.00
LAWB71	HOMOGENEOUS	6.16	10.80	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	0.23	0.00	0.00
LAWB72	HOMOGENEOUS	6.15	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.23	0.00	0.00
LAWB72	HOMOGENEOUS	6.15	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.23	0.00	0.00
LAWB72	HOMOGENEOUS	6.15	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.23	0.00	0.00
LAWB72	HOMOGENEOUS	6.15	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.23	0.00	0.00
LAWB72	HOMOGENEOUS	6.15	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.23	0.00	0.00
LAWB72	HOMOGENEOUS	6.15	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.23	0.00	0.00
LAWB72	HOMOGENEOUS	6.15	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.23	0.00	0.00
LAWB72	HOMOGENEOUS	6.15	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.23	0.00	0.00
LAWB72	HOMOGENEOUS	6.15	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.23	0.00	0.00
LAWB72	HOMOGENEOUS	6.15	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.23	0.00	0.00
LAWB72	HOMOGENEOUS	6.15	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.23	0.00	0.00
LAWB73	HOMOGENEOUS	6.19	9.95	0.00	9.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.26	0.00	0.00
LAWB73	HOMOGENEOUS	6.19	9.95	0.00	9.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.26	0.00	0.00
LAWB73	HOMOGENEOUS	6.19	9.95	0.00	9.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.26	0.00	0.00
LAWB73	HOMOGENEOUS	6.19	9.95	0.00	9.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.26	0.00	0.00
LAWB73	HOMOGENEOUS	6.19	9.95	0.00	9.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.26	0.00	0.00
LAWB73	HOMOGENEOUS	6.19	9.95	0.00	9.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.26	0.00	0.00
LAWB73	HOMOGENEOUS	6.19	9.95	0.00	9.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.26	0.00	0.00
LAWB73	HOMOGENEOUS	6.19	9.95	0.00	9.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.26	0.00	0.00
LAWB73	HOMOGENEOUS	6.19	9.95	0.00	9.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.26	0.00	0.00
LAWB74	HOMOGENEOUS	6.22	10.11	0.00	8.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.92	0.26	0.00	0.00
LAWB74	HOMOGENEOUS	6.22	10.11	0.00	8.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.92	0.26	0.00	0.00
LAWB74	HOMOGENEOUS	6.22	10.11	0.00	8.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.92	0.26	0.00	0.00
LAWB74	HOMOGENEOUS	6.22	10.11	0.00	8.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.92	0.26	0.00	0.00
LAWB74	HOMOGENEOUS	6.22	10.11	0.00	8.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.92	0.26	0.00	0.00
LAWB74	HOMOGENEOUS	6.22	10.11	0.00	8.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.92	0.26	0.00	0.00
LAWB74	HOMOGENEOUS	6.22	10.11	0.00	8.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.92	0.26	0.00	0.00
LAWB74	HOMOGENEOUS	6.22	10.11	0.00	8.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.92	0.26	0.00	0.00
LAWB74	HOMOGENEOUS	6.22	10.11	0.00	8.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.92	0.26	0.00	0.00
LAWB75	HOMOGENEOUS	6.19	11.79	0.00	8.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.26	0.00	0.00
LAWB75	HOMOGENEOUS	6.19	11.79	0.00	8.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.26	0.00	0.00
LAWB75	HOMOGENEOUS	6.19	11.79	0.00	8.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.26	0.00	0.00
LAWB75	HOMOGENEOUS	6.19	11.79	0.00	8.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.26	0.00	0.00
LAWB75	HOMOGENEOUS	6.19	11.79	0.00	8.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.26	0.00	0.00
LAWB75	HOMOGENEOUS	6.19	11.79	0.00	8.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.26	0.00	0.00
LAWB75	HOMOGENEOUS	6.19	11.79	0.00	8.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.26	0.00	0.00
LAWB75	HOMOGENEOUS	6.19	11.79	0.00	8.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.26	0.00	0.00
LAWB75	HOMOGENEOUS	6.19	11.79	0.00	8.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.26	0.00	0.00
LAWB76	HOMOGENEOUS	6.19	11.79	0.00	8.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.26	0.00	0.00
LAWB76	HOMOGENEOUS	6.19	11.79	0.00	8.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.26	0.00	0.00
LAWB76	HOMOGENEOUS	6.19	11.79	0.00	8.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.26	0.00	0.00
LAWB76	HOMOGENEOUS	6.19	11.79	0.00	8.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.26	0.00	0.00
LAWB76	HOMOGENEOUS	6.19	11.79	0.00	8.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.26	0.00	0.00
LAWB76	HOMOGENEOUS	6.19	11.79	0.00	8.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.26	0.00	0.00
LAWB76	HOMOGENEOUS	6.19	11.79	0.00	8.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.26	0.00	0.00
LAWB76	HOMOGENEOUS	6.19	11.79	0.00	8.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.26	0.00	0.00
LAWB76	HOMOGENEOUS	6.19	11.79	0.00	8.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.26	0.00	0.00
LAWB77	HOMOGENEOUS	6.16	12.35	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20	0.23	0.00	0.00
LAWB77	HOMOGENEOUS	6.16	12.35	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20	0.23	0.00	0.00
LAWB77	HOMOGENEOUS	6.16	12.35	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20	0.23	0.00	0.00
LAWB77	HOMOGENEOUS	6.16	12.35	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20	0.23	0.00	0.00
LAWB77	HOMOGENEOUS	6.16	12.35	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20	0.23	0.00	0.00
LAWB77	HOMOGENEOUS	6.16	12.35	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20	0.23	0.00	0.00
LAWB77	HOMOGENEOUS	6.16	12.35	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20	0.23	0.00	0.00
LAWB77	HOMOGENEOUS	6.16	12.35	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20	0.23	0.00	0.00
LAWB77	HOMOGENEOUS	6.16	12.35	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20	0.23	0.00	0.00
LAWB78	HOMOGENEOUS	6.16	12.35	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	0.23	0.00	0.00
LAWB78	HOMOGENEOUS	6.16	12.35	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	0.23	0.00	0.00
LAWB78	HOMOGENEOUS	6.16	12.35	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	0.23	0.00	0.00
LAWB78	HOMOGENEOUS	6.16	12.35	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	0.23	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
LAWB71	4.62	2.98	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.05	0.00	0.00	0.00
LAWB71	4.62	2.98	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.05	0.00	0.00	0.00
LAWB71	4.62	2.98	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.05	0.00	0.00	0.00
LAWB71	4.62	2.98	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.05	0.00	0.00	0.00
LAWB71	4.62	2.98	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.05	0.00	0.00	0.00
LAWB71	4.62	2.98	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.05	0.00	0.00	0.00
LAWB71	4.62	2.98	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.05	0.00	0.00	0.00
LAWB72	4.11	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.98	0.00	0.00	0.00
LAWB72	4.11	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.98	0.00	0.00	0.00
LAWB72	4.11	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.98	0.00	0.00	0.00
LAWB72	4.11	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.98	0.00	0.00	0.00
LAWB72	4.11	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.98	0.00	0.00	0.00
LAWB72	4.11	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.98	0.00	0.00	0.00
LAWB72	4.11	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.98	0.00	0.00	0.00
LAWB72	4.11	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.98	0.00	0.00	0.00
LAWB72	4.11	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.98	0.00	0.00	0.00
LAWB72	4.11	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.98	0.00	0.00	0.00
LAWB72	4.11	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.98	0.00	0.00	0.00
LAWB73	5.05	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.53	0.00	0.00	0.00
LAWB73	5.05	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.53	0.00	0.00	0.00
LAWB73	5.05	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.53	0.00	0.00	0.00
LAWB73	5.05	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.53	0.00	0.00	0.00
LAWB73	5.05	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.53	0.00	0.00	0.00
LAWB73	5.05	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.53	0.00	0.00	0.00
LAWB73	5.05	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.53	0.00	0.00	0.00
LAWB73	5.05	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.53	0.00	0.00	0.00
LAWB73	5.05	2.97	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.53	0.00	0.00	0.00
LAWB74	5.33	2.98	0.00	0.00	5.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.73	0.00	0.00	0.00
LAWB74	5.33	2.98	0.00	0.00	5.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.73	0.00	0.00	0.00
LAWB74	5.33	2.98	0.00	0.00	5.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.73	0.00	0.00	0.00
LAWB74	5.33	2.98	0.00	0.00	5.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.73	0.00	0.00	0.00
LAWB74	5.33	2.98	0.00	0.00	5.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.73	0.00	0.00	0.00
LAWB74	5.33	2.98	0.00	0.00	5.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.73	0.00	0.00	0.00
LAWB74	5.33	2.98	0.00	0.00	5.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.73	0.00	0.00	0.00
LAWB74	5.33	2.98	0.00	0.00	5.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.73	0.00	0.00	0.00
LAWB74	5.33	2.98	0.00	0.00	5.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.73	0.00	0.00	0.00
LAWB75	5.30	1.50	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.48	0.00	0.00	0.00
LAWB75	5.30	1.50	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.48	0.00	0.00	0.00
LAWB75	5.30	1.50	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.48	0.00	0.00	0.00
LAWB75	5.30	1.50	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.48	0.00	0.00	0.00
LAWB75	5.30	1.50	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.48	0.00	0.00	0.00
LAWB75	5.30	1.50	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.48	0.00	0.00	0.00
LAWB75	5.30	1.50	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.48	0.00	0.00	0.00
LAWB75	5.30	1.50	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.48	0.00	0.00	0.00
LAWB75	5.30	1.50	0.00	0.00	5.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.48	0.00	0.00	0.00
LAWB76	5.81	1.50	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.37	0.00	0.00	0.00
LAWB76	5.81	1.50	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.37	0.00	0.00	0.00
LAWB76	5.81	1.50	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.37	0.00	0.00	0.00
LAWB76	5.81	1.50	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.37	0.00	0.00	0.00
LAWB76	5.81	1.50	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.37	0.00	0.00	0.00
LAWB76	5.81	1.50	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.37	0.00	0.00	0.00
LAWB76	5.81	1.50	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.37	0.00	0.00	0.00
LAWB76	5.81	1.50	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.37	0.00	0.00	0.00
LAWB76	5.81	1.50	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.37	0.00	0.00	0.00
LAWB77	4.12	2.98	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.03	0.00	0.00	0.00
LAWB77	4.12	2.98	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.03	0.00	0.00	0.00
LAWB77	4.12	2.98	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.03	0.00	0.00	0.00
LAWB77	4.12	2.98	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.03	0.00	0.00	0.00
LAWB77	4.12	2.98	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.03	0.00	0.00	0.00
LAWB77	4.12	2.98	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.03	0.00	0.00	0.00
LAWB77	4.12	2.98	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.03	0.00	0.00	0.00
LAWB77	4.12	2.98	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.03	0.00	0.00	0.00
LAWB77	4.12	2.98	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.03	0.00	0.00	0.00
LAWB78	3.06	2.98	0.00	0.00	9.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.08	0.00	0.00	0.00
LAWB78	3.06	2.98	0.00	0.00	9.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.08	0.00	0.00	0.00
LAWB78	3.06	2.98	0.00	0.00	9.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.08	0.00	0.00	0.00
LAWB78	3.06	2.98	0.00	0.00	9.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.08	0.00	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
LAWB71	0.00	0.00	1.55	0.00	0.00	5.16	3.16	0.77	100.00		
LAWB71	0.00	0.00	1.55	0.00	0.00	5.16	3.16	0.77	100.00		
LAWB71	0.00	0.00	1.55	0.00	0.00	5.16	3.16	0.77	100.00		
LAWB71	0.00	0.00	1.55	0.00	0.00	5.16	3.16	0.77	100.00		
LAWB71	0.00	0.00	1.55	0.00	0.00	5.16	3.16	0.77	100.00		
LAWB71	0.00	0.00	1.55	0.00	0.00	5.16	3.16	0.77	100.00		
LAWB71	0.00	0.00	1.55	0.00	0.00	5.16	3.16	0.77	100.00		
LAWB72	0.00	0.00	0.00	0.00	0.00	5.15	3.15	0.90	100.00		
LAWB72	0.00	0.00	0.00	0.00	0.00	5.15	3.15	0.90	100.00		
LAWB72	0.00	0.00	0.00	0.00	0.00	5.15	3.15	0.90	100.00		
LAWB72	0.00	0.00	0.00	0.00	0.00	5.15	3.15	0.90	100.00		
LAWB72	0.00	0.00	0.00	0.00	0.00	5.15	3.15	0.90	100.00		
LAWB72	0.00	0.00	0.00	0.00	0.00	5.15	3.15	0.90	100.00		
LAWB72	0.00	0.00	0.00	0.00	0.00	5.15	3.15	0.90	100.00		
LAWB72	0.00	0.00	0.00	0.00	0.00	5.15	3.15	0.90	100.00		
LAWB72	0.00	0.00	0.00	0.00	0.00	5.15	3.15	0.90	100.00		
LAWB72	0.00	0.00	0.00	0.00	0.00	5.15	3.15	0.90	100.00		
LAWB72	0.00	0.00	0.00	0.00	0.00	5.15	3.15	0.90	100.00		
LAWB73	0.00	0.00	1.40	0.00	0.00	4.67	3.16	1.08	100.00		
LAWB73	0.00	0.00	1.40	0.00	0.00	4.67	3.16	1.08	100.00		
LAWB73	0.00	0.00	1.40	0.00	0.00	4.67	3.16	1.08	100.00		
LAWB73	0.00	0.00	1.40	0.00	0.00	4.67	3.16	1.08	100.00		
LAWB73	0.00	0.00	1.40	0.00	0.00	4.67	3.16	1.08	100.00		
LAWB73	0.00	0.00	1.40	0.00	0.00	4.67	3.16	1.08	100.00		
LAWB73	0.00	0.00	1.40	0.00	0.00	4.67	3.16	1.08	100.00		
LAWB73	0.00	0.00	1.40	0.00	0.00	4.67	3.16	1.08	100.00		
LAWB73	0.00	0.00	1.40	0.00	0.00	4.67	3.16	1.08	100.00		
LAWB74	0.00	0.00	1.40	0.00	0.00	4.69	3.18	0.95	100.00		
LAWB74	0.00	0.00	1.40	0.00	0.00	4.69	3.18	0.95	100.00		
LAWB74	0.00	0.00	1.40	0.00	0.00	4.69	3.18	0.95	100.00		
LAWB74	0.00	0.00	1.40	0.00	0.00	4.69	3.18	0.95	100.00		
LAWB74	0.00	0.00	1.40	0.00	0.00	4.69	3.18	0.95	100.00		
LAWB74	0.00	0.00	1.40	0.00	0.00	4.69	3.18	0.95	100.00		
LAWB74	0.00	0.00	1.40	0.00	0.00	4.69	3.18	0.95	100.00		
LAWB74	0.00	0.00	1.40	0.00	0.00	4.69	3.18	0.95	100.00		
LAWB74	0.00	0.00	1.40	0.00	0.00	4.69	3.18	0.95	100.00		
LAWB75	0.00	0.00	1.39	0.00	0.00	4.66	3.16	1.18	100.00		
LAWB75	0.00	0.00	1.39	0.00	0.00	4.66	3.16	1.18	100.00		
LAWB75	0.00	0.00	1.39	0.00	0.00	4.66	3.16	1.18	100.00		
LAWB75	0.00	0.00	1.39	0.00	0.00	4.66	3.16	1.18	100.00		
LAWB75	0.00	0.00	1.39	0.00	0.00	4.66	3.16	1.18	100.00		
LAWB75	0.00	0.00	1.39	0.00	0.00	4.66	3.16	1.18	100.00		
LAWB75	0.00	0.00	1.39	0.00	0.00	4.66	3.16	1.18	100.00		
LAWB75	0.00	0.00	1.39	0.00	0.00	4.66	3.16	1.18	100.00		
LAWB75	0.00	0.00	1.39	0.00	0.00	4.66	3.16	1.18	100.00		
LAWB76	0.00	0.00	0.00	0.00	0.00	4.66	3.16	1.20	100.00		
LAWB76	0.00	0.00	0.00	0.00	0.00	4.66	3.16	1.20	100.00		
LAWB76	0.00	0.00	0.00	0.00	0.00	4.66	3.16	1.20	100.00		
LAWB76	0.00	0.00	0.00	0.00	0.00	4.66	3.16	1.20	100.00		
LAWB76	0.00	0.00	0.00	0.00	0.00	4.66	3.16	1.20	100.00		
LAWB76	0.00	0.00	0.00	0.00	0.00	4.66	3.16	1.20	100.00		
LAWB76	0.00	0.00	0.00	0.00	0.00	4.66	3.16	1.20	100.00		
LAWB76	0.00	0.00	0.00	0.00	0.00	4.66	3.16	1.20	100.00		
LAWB76	0.00	0.00	0.00	0.00	0.00	4.66	3.16	1.20	100.00		
LAWB77	0.00	0.00	1.55	0.00	0.00	5.16	3.16	0.81	100.00		
LAWB77	0.00	0.00	1.55	0.00	0.00	5.16	3.16	0.81	100.00		
LAWB77	0.00	0.00	1.55	0.00	0.00	5.16	3.16	0.81	100.00		
LAWB77	0.00	0.00	1.55	0.00	0.00	5.16	3.16	0.81	100.00		
LAWB77	0.00	0.00	1.55	0.00	0.00	5.16	3.16	0.81	100.00		
LAWB77	0.00	0.00	1.55	0.00	0.00	5.16	3.16	0.81	100.00		
LAWB77	0.00	0.00	1.55	0.00	0.00	5.16	3.16	0.81	100.00		
LAWB77	0.00	0.00	1.55	0.00	0.00	5.16	3.16	0.81	100.00		
LAWB77	0.00	0.00	1.55	0.00	0.00	5.16	3.16	0.81	100.00		
LAWB78	0.00	0.00	0.00	0.00	0.00	4.01	3.16	0.80	100.00		
LAWB78	0.00	0.00	0.00	0.00	0.00	4.01	3.16	0.80	100.00		
LAWB78	0.00	0.00	0.00	0.00	0.00	4.01	3.16	0.80	100.00		
LAWB78	0.00	0.00	0.00	0.00	0.00	4.01	3.16	0.80	100.00		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
LAWB78	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.14
LAWB78	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.26
LAWB78	LAW	VSL-11R2270-1	SS	1095.00	0.81	2.031	2,223.538	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.43
LAWB78	LAW	VSL-11R2270-1	SS	1477.00	0.81	2.031	2,999.239	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.54
LAWB78	LAW	VSL-11R2270-1	SS	1842.00	0.81	2.031	3,740.418	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.54
LAWB79	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.35
LAWB79	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.56
LAWB79	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.66
LAWB79	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.77
LAWB79	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.05
LAWB79	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.15
LAWB79	LAW	VSL-11R2270-1	SS	1095.00	0.81	2.031	2,223.538	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.34
LAWB79	LAW	VSL-11R2270-1	SS	1477.00	0.81	2.031	2,999.239	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.42
LAWB79	LAW	VSL-11R2270-1	SS	1842.00	0.81	2.031	3,740.418	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.45
LAWB80	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.25
LAWB80	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.43
LAWB80	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.57
LAWB80	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.65
LAWB80	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.94
LAWB80	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.05
LAWB80	LAW	VSL-11R2270-1	SS	1095.00	0.81	2.031	2,223.538	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.25
LAWB80	LAW	VSL-11R2270-1	SS	1477.00	0.81	2.031	2,999.239	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.34
LAWB80	LAW	VSL-11R2270-1	SS	1842.00	0.81	2.031	3,740.418	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.36
LAWB81	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.24
LAWB81	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.45
LAWB81	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.56
LAWB81	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.66
LAWB81	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.95
LAWB81	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.05
LAWB81	LAW	VSL-11R2270-1	SS	1095.00	0.81	2.031	2,223.538	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.27
LAWB81	LAW	VSL-11R2270-1	SS	1477.00	0.81	2.031	2,999.239	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.27
LAWB81	LAW	VSL-11R2270-1	SS	1842.00	0.81	2.031	3,740.418	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.32
LAWB82	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.22
LAWB82	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.48
LAWB82	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.57
LAWB82	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.64
LAWB82	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.97
LAWB82	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.07
LAWB82	LAW	VSL-11R2270-1	SS	1095.00	0.81	2.031	2,223.538	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.24
LAWB82	LAW	VSL-11R2270-1	SS	1477.00	0.81	2.031	2,999.239	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.34
LAWB82	LAW	VSL-11R2270-1	SS	1842.00	0.81	2.031	3,740.418	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.36
LAWB83	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.16
LAWB83	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.33
LAWB83	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.53
LAWB83	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.67
LAWB83	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.75
LAWB83	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.84
LAWB83	LAW	VSL-11R2270-1	SS	363.00	0.81	2.031	737.118	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.93
LAWB83	LAW	VSL-11R2270-1	SS	544.00	0.81	2.031	1,104.662	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.07
LAWB83	LAW	VSL-11R2270-1	SS	729.00	0.81	2.031	1,480.328	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.15
LAWB83	LAW	VSL-11R2270-1	SS	1455.00	0.81	2.031	2,954.565	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.26
LAWB83	LAW	VSL-11R2270-1	SS	1821.00	0.81	2.031	3,697.775	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.32
LAWB84	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.16
LAWB84	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.34
LAWB84	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.57
LAWB84	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.66
LAWB84	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.76
LAWB84	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.85
LAWB84	LAW	VSL-11R2270-1	SS	363.00	0.81	2.031	737.118	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.96
LAWB84	LAW	VSL-11R2270-1	SS	544.00	0.81	2.031	1,104.662	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.06
LAWB84	LAW	VSL-11R2270-1	SS	729.00	0.81	2.031	1,480.328	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.18
LAWB84	LAW	VSL-11R2270-1	SS	1455.00	0.81	2.031	2,954.565	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.32
LAWB84	LAW	VSL-11R2270-1	SS	1821.00	0.81	2.031	3,697.775	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.35
LAWB85	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.11
LAWB85	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.27
LAWB85	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.42
LAWB85	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.57

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
LAWB78	129.42	104.62	4.24		37.30	191.18	3.42							
LAWB78	138.72	101.72	3.91		34.35	180.42	3.01	0.75						
LAWB78	141.24	114.06	4.56		40.28	180.77	3.19	1.39						
LAWB78	152.47	132.96	4.65		48.51	225.08	3.99	0.73						
LAWB78	215.40	171.98	7.77		68.35	327.20	6.32							
LAWB79	67.28	41.78	2.39		16.58	62.59		0.70						
LAWB79	98.16	75.37	2.30		30.90	108.80	2.09	0.83						
LAWB79	98.84	77.37	2.86		31.42	102.83								
LAWB79	111.33	84.58	3.40		34.03	125.47	2.23	0.84						
LAWB79	135.25	106.84	4.37		45.84	171.50	3.84							
LAWB79	144.03	106.22	4.38		42.43	154.21	3.33							
LAWB79	150.65	116.01	5.77		47.66	158.61	3.60	1.37						
LAWB79	169.44	126.04	6.69		55.54	189.25	4.65	0.73						
LAWB79	183.49	122.64	7.69		60.52	214.54	5.61							
LAWB80	56.41	33.76	3.16		13.33	35.79	9.45							
LAWB80	76.67	56.28	3.00		23.40	60.81	14.33							
LAWB80	77.37	57.75	3.46		23.45	60.58	13.44							
LAWB80	81.59	62.66	4.26		24.76	63.36	14.22							
LAWB80	95.15	71.01	4.57		29.28	75.34	18.78							
LAWB80	109.47	73.45	5.10		29.71	74.98	19.02							
LAWB80	112.31	79.43	6.17		33.48	80.59	20.51	1.20						
LAWB80	114.97	80.91	5.92		35.75	86.39	23.28	0.69						
LAWB80	136.34	80.39	7.70		41.72	99.97	24.54							
LAWB81	59.15	34.46	2.77		16.70	38.59		0.76						
LAWB81	93.90	73.19	2.56		36.28	81.52	1.81	0.76						
LAWB81	100.90	87.12	3.06		42.24	94.58	3.49							
LAWB81	122.53	112.77	3.85		50.74	112.87	2.60	0.82						
LAWB81	133.67	128.10	4.60		60.35	142.49	3.80							
LAWB81	168.80	146.88	5.89		70.05	161.52	3.85	0.68						
LAWB81	150.05	150.24	6.16		72.35	152.84	3.54	1.23						
LAWB81	163.10	189.37	6.33		87.81	187.49	4.96	0.72						0.75
LAWB81	187.65	407.15	12.66		151.49	463.82	12.68							
LAWB82	39.85	15.58	1.09		10.36	22.43		1.57						
LAWB82	84.39	53.06	1.13		31.60	73.71		1.32						
LAWB82	102.77	85.43	1.60		45.80	105.23	2.79	1.03						
LAWB82	141.43	156.57	3.15		76.40	201.57	4.24	1.33						
LAWB82	176.48	320.33	5.83		159.50	424.94	8.76	0.72						
LAWB82	193.93	428.68	6.89		190.17	548.39	11.40	1.72						
LAWB82	144.01	1296.20	18.41		470.01	1391.30	33.05	4.42						
LAWB82	150.80	2065.77	31.61		644.14	1991.43	60.58	1.99						
LAWB82	146.63	2209.33	41.49		715.48	2795.03	66.04	1.02						
LAWB83	52.35	19.06	1.66		13.03	21.38		1.06						
LAWB83	84.45	44.99	0.98		27.93	48.61		0.93						
LAWB83	103.37	70.56	1.26		40.85	74.59		2.11						
LAWB83	133.53	136.10	2.50		72.52	151.27	2.40	0.70						
LAWB83	171.99	290.16	3.54		121.34	266.84	6.01							
LAWB83	172.52	484.63	7.27		198.36	477.16	8.63							
LAWB83	161.41	690.16	9.12		266.87	605.87	14.16	0.71						
LAWB83	138.59	1278.57	24.25		397.05	1047.13	27.60	1.17						
LAWB83	111.76	1604.40	32.21		484.87	1517.97	33.67							
LAWB83	109.47	1893.27	51.62		543.51	1998.20	43.95							
LAWB83	110.87	1959.33	47.28		539.06	1876.70	50.40							
LAWB84	55.73	21.02	1.53		14.16	22.72		1.10						
LAWB84	88.87	48.99	0.92		30.91	52.92		0.87						
LAWB84	108.33	78.49	1.67		45.13	81.25		2.27						
LAWB84	140.70	155.13	2.66		83.42	166.13	2.64	0.65						
LAWB84	172.48	343.54	4.04		144.60	297.51	6.81							
LAWB84	186.85	655.48	9.31		257.23	633.07	11.27	0.71						
LAWB84	147.55	860.37	10.85		290.61	712.75	15.36							
LAWB84	136.29	1491.00	28.46		432.14	1162.67	31.76	1.19						
LAWB84	116.35	1810.67	34.80		543.62	1698.17	38.96							
LAWB84	110.88	1872.80	54.60		560.72	2038.80	43.23							
LAWB84	109.81	1990.80	47.27		533.91	1991.73	51.74							
LAWB85	55.69	23.29	0.69		12.37	20.30		1.28						
LAWB85	88.47	61.62	0.34		30.84	53.38		0.86						
LAWB85	114.33	163.30	1.38		72.10	127.77	1.92	2.50						
LAWB85	129.67	386.07	3.58		150.27	291.70	3.99							

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
LAWB78		Not Studied		72.51	16.549	1.1802623	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB78		Not Studied		72.51	16.549	1.1802623	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB78		Not Studied		72.51	16.549	1.1802623	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB78		Not Studied		72.51	16.549	1.1802623	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB78		Not Studied		72.51	16.549	1.1802623	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB79		Not Studied		72.46	16.536	1.3338587	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB79		Not Studied		72.46	16.536	1.3338587	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB79		Not Studied		72.46	16.536	1.3338587	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB79		Not Studied		72.46	16.536	1.3338587	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB79		Not Studied		72.46	16.536	1.3338587	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB79		Not Studied		72.46	16.536	1.3338587	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB79		Not Studied		72.46	16.536	1.3338587	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB79		Not Studied		72.46	16.536	1.3338587	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB79		Not Studied		72.46	16.536	1.3338587	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB80		Not Studied		72.47	16.535	1.3362995	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB80		Not Studied		72.47	16.535	1.3362995	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB80		Not Studied		72.47	16.535	1.3362995	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB80		Not Studied		72.47	16.535	1.3362995	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB80		Not Studied		72.47	16.535	1.3362995	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB80		Not Studied		72.47	16.535	1.3362995	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB80		Not Studied		72.47	16.535	1.3362995	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB80		Not Studied		72.47	16.535	1.3362995	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB80		Not Studied		72.47	16.535	1.3362995	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB81		Not Studied		71.45	16.534	2.9743103	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB81		Not Studied		71.45	16.534	2.9743103	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB81		Not Studied		71.45	16.534	2.9743103	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB81		Not Studied		71.45	16.534	2.9743103	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB81		Not Studied		71.45	16.534	2.9743103	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB81		Not Studied		71.45	16.534	2.9743103	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB81		Not Studied		71.45	16.534	2.9743103	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB81		Not Studied		71.45	16.534	2.9743103	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB81		Not Studied		71.45	16.534	2.9743103	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB82		Not Studied		66.76	22.815	-24.990331	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB82		Not Studied		66.76	22.815	-24.990331	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB82		Not Studied		66.76	22.815	-24.990331	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB82		Not Studied		66.76	22.815	-24.990331	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB82		Not Studied		66.76	22.815	-24.990331	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB82		Not Studied		66.76	22.815	-24.990331	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB82		Not Studied		66.76	22.815	-24.990331	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB82		Not Studied		66.76	22.815	-24.990331	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB82		Not Studied		66.76	22.815	-24.990331	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB83		Not Studied		68.63	18.259	-2.2574992	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB83		Not Studied		68.63	18.259	-2.2574992	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB83		Not Studied		68.63	18.259	-2.2574992	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB83		Not Studied		68.63	18.259	-2.2574992	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB83		Not Studied		68.63	18.259	-2.2574992	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB83		Not Studied		68.63	18.259	-2.2574992	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB83		Not Studied		68.63	18.259	-2.2574992	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB83		Not Studied		68.63	18.259	-2.2574992	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB83		Not Studied		68.63	18.259	-2.2574992	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB83		Not Studied		68.63	18.259	-2.2574992	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB83		Not Studied		68.63	18.259	-2.2574992	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB84		Not Studied		68.77	18.17	-1.966507	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB84		Not Studied		68.77	18.17	-1.966507	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB84		Not Studied		68.77	18.17	-1.966507	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB84		Not Studied		68.77	18.17	-1.966507	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB84		Not Studied		68.77	18.17	-1.966507	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB84		Not Studied		68.77	18.17	-1.966507	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB84		Not Studied		68.77	18.17	-1.966507	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB84		Not Studied		68.77	18.17	-1.966507	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB84		Not Studied		68.77	18.17	-1.966507	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB84		Not Studied		68.77	18.17	-1.966507	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB84		Not Studied		68.77	18.17	-1.966507	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB85		Not Studied		70.13	16.76	3.80651	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB85		Not Studied		70.13	16.76	3.80651	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB85		Not Studied		70.13	16.76	3.80651	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB85		Not Studied		70.13	16.76	3.80651	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
LAWB78	HOMOGENEOUS	6.16	12.35	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	0.23	0.00	0.00
LAWB78	HOMOGENEOUS	6.16	12.35	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	0.23	0.00	0.00
LAWB78	HOMOGENEOUS	6.16	12.35	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	0.23	0.00	0.00
LAWB78	HOMOGENEOUS	6.16	12.35	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	0.23	0.00	0.00
LAWB78	HOMOGENEOUS	6.16	12.35	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.26	0.23	0.00	0.00
LAWB79	HOMOGENEOUS	6.16	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.23	0.00	0.00
LAWB79	HOMOGENEOUS	6.16	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.23	0.00	0.00
LAWB79	HOMOGENEOUS	6.16	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.23	0.00	0.00
LAWB79	HOMOGENEOUS	6.16	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.23	0.00	0.00
LAWB79	HOMOGENEOUS	6.16	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.23	0.00	0.00
LAWB79	HOMOGENEOUS	6.16	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.23	0.00	0.00
LAWB79	HOMOGENEOUS	6.16	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.23	0.00	0.00
LAWB79	HOMOGENEOUS	6.16	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.23	0.00	0.00
LAWB79	HOMOGENEOUS	6.16	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.23	0.00	0.00
LAWB80	HOMOGENEOUS	6.16	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	1.99	0.00	0.00
LAWB80	HOMOGENEOUS	6.16	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	1.99	0.00	0.00
LAWB80	HOMOGENEOUS	6.16	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	1.99	0.00	0.00
LAWB80	HOMOGENEOUS	6.16	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	1.99	0.00	0.00
LAWB80	HOMOGENEOUS	6.16	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	1.99	0.00	0.00
LAWB80	HOMOGENEOUS	6.16	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	1.99	0.00	0.00
LAWB80	HOMOGENEOUS	6.16	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	1.99	0.00	0.00
LAWB80	HOMOGENEOUS	6.16	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	1.99	0.00	0.00
LAWB80	HOMOGENEOUS	6.16	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	1.99	0.00	0.00
LAWB81	HOMOGENEOUS	6.16	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.23	0.00	0.00
LAWB81	HOMOGENEOUS	6.16	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.23	0.00	0.00
LAWB81	HOMOGENEOUS	6.16	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.23	0.00	0.00
LAWB81	HOMOGENEOUS	6.16	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.23	0.00	0.00
LAWB81	HOMOGENEOUS	6.16	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.23	0.00	0.00
LAWB81	HOMOGENEOUS	6.16	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.23	0.00	0.00
LAWB81	HOMOGENEOUS	6.16	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.23	0.00	0.00
LAWB81	HOMOGENEOUS	6.16	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.23	0.00	0.00
LAWB81	HOMOGENEOUS	6.16	12.34	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.23	0.00	0.00
LAWB82	HOMOGENEOUS	6.16	10.10	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.52	0.23	0.00	0.00
LAWB82	HOMOGENEOUS	6.16	10.10	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.52	0.23	0.00	0.00
LAWB82	HOMOGENEOUS	6.16	10.10	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.52	0.23	0.00	0.00
LAWB82	HOMOGENEOUS	6.16	10.10	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.52	0.23	0.00	0.00
LAWB82	HOMOGENEOUS	6.16	10.10	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.52	0.23	0.00	0.00
LAWB82	HOMOGENEOUS	6.16	10.10	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.52	0.23	0.00	0.00
LAWB82	HOMOGENEOUS	6.16	10.10	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.52	0.23	0.00	0.00
LAWB82	HOMOGENEOUS	6.16	10.10	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.52	0.23	0.00	0.00
LAWB82	HOMOGENEOUS	6.16	10.10	0.00	7.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.52	0.23	0.00	0.00
LAWB83	HOMOGENEOUS	6.18	10.04	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.29	0.19	0.00	0.00
LAWB83	HOMOGENEOUS	6.18	10.04	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.29	0.19	0.00	0.00
LAWB83	HOMOGENEOUS	6.18	10.04	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.29	0.19	0.00	0.00
LAWB83	HOMOGENEOUS	6.18	10.04	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.29	0.19	0.00	0.00
LAWB83	HOMOGENEOUS	6.18	10.04	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.29	0.19	0.00	0.00
LAWB83	HOMOGENEOUS	6.18	10.04	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.29	0.19	0.00	0.00
LAWB83	HOMOGENEOUS	6.18	10.04	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.29	0.19	0.00	0.00
LAWB83	HOMOGENEOUS	6.18	10.04	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.29	0.19	0.00	0.00
LAWB83	HOMOGENEOUS	6.18	10.04	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.29	0.19	0.00	0.00
LAWB83	HOMOGENEOUS	6.18	10.04	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.29	0.19	0.00	0.00
LAWB83	HOMOGENEOUS	6.18	10.04	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.29	0.19	0.00	0.00
LAWB84	HOMOGENEOUS	6.19	10.04	0.00	6.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB84	HOMOGENEOUS	6.19	10.04	0.00	6.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB84	HOMOGENEOUS	6.19	10.04	0.00	6.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB84	HOMOGENEOUS	6.19	10.04	0.00	6.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB84	HOMOGENEOUS	6.19	10.04	0.00	6.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB84	HOMOGENEOUS	6.19	10.04	0.00	6.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB84	HOMOGENEOUS	6.19	10.04	0.00	6.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB84	HOMOGENEOUS	6.19	10.04	0.00	6.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB84	HOMOGENEOUS	6.19	10.04	0.00	6.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB84	HOMOGENEOUS	6.19	10.04	0.00	6.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB84	HOMOGENEOUS	6.19	10.04	0.00	6.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB85	HOMOGENEOUS	6.18	11.53	0.00	5.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.29	0.19	0.00	0.00
LAWB85	HOMOGENEOUS	6.18	11.53	0.00	5.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.29	0.19	0.00	0.00
LAWB85	HOMOGENEOUS	6.18	11.53	0.00	5.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.29	0.19	0.00	0.00
LAWB85	HOMOGENEOUS	6.18	11.53	0.00	5.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.29	0.19	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
LAWB78	3.06	2.98	0.00	0.00	9.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.08	0.00	0.00	0.00
LAWB78	3.06	2.98	0.00	0.00	9.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.08	0.00	0.00	0.00
LAWB78	3.06	2.98	0.00	0.00	9.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.08	0.00	0.00	0.00
LAWB78	3.06	2.98	0.00	0.00	9.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.08	0.00	0.00	0.00
LAWB78	3.06	2.98	0.00	0.00	9.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.08	0.00	0.00	0.00
LAWB79	3.51	2.97	0.00	0.00	8.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.75	0.00	0.00	0.00
LAWB79	3.51	2.97	0.00	0.00	8.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.75	0.00	0.00	0.00
LAWB79	3.51	2.97	0.00	0.00	8.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.75	0.00	0.00	0.00
LAWB79	3.51	2.97	0.00	0.00	8.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.75	0.00	0.00	0.00
LAWB79	3.51	2.97	0.00	0.00	8.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.75	0.00	0.00	0.00
LAWB79	3.51	2.97	0.00	0.00	8.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.75	0.00	0.00	0.00
LAWB79	3.51	2.97	0.00	0.00	8.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.75	0.00	0.00	0.00
LAWB79	3.51	2.97	0.00	0.00	8.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.75	0.00	0.00	0.00
LAWB79	3.51	2.97	0.00	0.00	8.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.75	0.00	0.00	0.00
LAWB80	3.51	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.99	0.00	0.00	0.00
LAWB80	3.51	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.99	0.00	0.00	0.00
LAWB80	3.51	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.99	0.00	0.00	0.00
LAWB80	3.51	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.99	0.00	0.00	0.00
LAWB80	3.51	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.99	0.00	0.00	0.00
LAWB80	3.51	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.99	0.00	0.00	0.00
LAWB80	3.51	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.99	0.00	0.00	0.00
LAWB80	3.51	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.99	0.00	0.00	0.00
LAWB80	3.51	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.99	0.00	0.00	0.00
LAWB81	4.26	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.99	0.00	0.00	0.00
LAWB81	4.26	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.99	0.00	0.00	0.00
LAWB81	4.26	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.99	0.00	0.00	0.00
LAWB81	4.26	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.99	0.00	0.00	0.00
LAWB81	4.26	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.99	0.00	0.00	0.00
LAWB81	4.26	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.99	0.00	0.00	0.00
LAWB81	4.26	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.99	0.00	0.00	0.00
LAWB81	4.26	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.99	0.00	0.00	0.00
LAWB81	4.26	2.97	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.99	0.00	0.00	0.00
LAWB82	4.27	1.48	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.53	0.00	0.00	0.00
LAWB82	4.27	1.48	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.53	0.00	0.00	0.00
LAWB82	4.27	1.48	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.53	0.00	0.00	0.00
LAWB82	4.27	1.48	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.53	0.00	0.00	0.00
LAWB82	4.27	1.48	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.53	0.00	0.00	0.00
LAWB82	4.27	1.48	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.53	0.00	0.00	0.00
LAWB82	4.27	1.48	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.53	0.00	0.00	0.00
LAWB82	4.27	1.48	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.53	0.00	0.00	0.00
LAWB82	4.27	1.48	0.00	0.00	6.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.53	0.00	0.00	0.00
LAWB83	4.31	2.97	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.62	0.00	0.00	0.00
LAWB83	4.31	2.97	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.62	0.00	0.00	0.00
LAWB83	4.31	2.97	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.62	0.00	0.00	0.00
LAWB83	4.31	2.97	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.62	0.00	0.00	0.00
LAWB83	4.31	2.97	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.62	0.00	0.00	0.00
LAWB83	4.31	2.97	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.62	0.00	0.00	0.00
LAWB83	4.31	2.97	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.62	0.00	0.00	0.00
LAWB83	4.31	2.97	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.62	0.00	0.00	0.00
LAWB83	4.31	2.97	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.62	0.00	0.00	0.00
LAWB83	4.31	2.97	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.62	0.00	0.00	0.00
LAWB83	4.31	2.97	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.62	0.00	0.00	0.00
LAWB84	4.41	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.65	0.00	0.00	0.00
LAWB84	4.41	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.65	0.00	0.00	0.00
LAWB84	4.41	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.65	0.00	0.00	0.00
LAWB84	4.41	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.65	0.00	0.00	0.00
LAWB84	4.41	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.65	0.00	0.00	0.00
LAWB84	4.41	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.65	0.00	0.00	0.00
LAWB84	4.41	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.65	0.00	0.00	0.00
LAWB84	4.41	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.65	0.00	0.00	0.00
LAWB84	4.41	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.65	0.00	0.00	0.00
LAWB84	4.41	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.65	0.00	0.00	0.00
LAWB84	4.41	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.65	0.00	0.00	0.00
LAWB85	4.31	2.97	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.63	0.00	0.00	0.00
LAWB85	4.31	2.97	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.63	0.00	0.00	0.00
LAWB85	4.31	2.97	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.63	0.00	0.00	0.00
LAWB85	4.31	2.97	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.63	0.00	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
LAWB78	0.00	0.00	0.00	0.00	0.00	4.01	3.16	0.80	100.00		
LAWB78	0.00	0.00	0.00	0.00	0.00	4.01	3.16	0.80	100.00		
LAWB78	0.00	0.00	0.00	0.00	0.00	4.01	3.16	0.80	100.00		
LAWB78	0.00	0.00	0.00	0.00	0.00	4.01	3.16	0.80	100.00		
LAWB78	0.00	0.00	0.00	0.00	0.00	4.01	3.16	0.80	100.00		
LAWB79	0.00	0.00	0.00	0.00	0.00	4.00	3.15	0.87	100.00		
LAWB79	0.00	0.00	0.00	0.00	0.00	4.00	3.15	0.87	100.00		
LAWB79	0.00	0.00	0.00	0.00	0.00	4.00	3.15	0.87	100.00		
LAWB79	0.00	0.00	0.00	0.00	0.00	4.00	3.15	0.87	100.00		
LAWB79	0.00	0.00	0.00	0.00	0.00	4.00	3.15	0.87	100.00		
LAWB79	0.00	0.00	0.00	0.00	0.00	4.00	3.15	0.87	100.00		
LAWB79	0.00	0.00	0.00	0.00	0.00	4.00	3.15	0.87	100.00		
LAWB79	0.00	0.00	0.00	0.00	0.00	4.00	3.15	0.87	100.00		
LAWB79	0.00	0.00	0.00	0.00	0.00	4.00	3.15	0.87	100.00		
LAWB80	0.00	0.00	0.00	0.00	0.00	4.00	3.15	0.87	100.00		
LAWB80	0.00	0.00	0.00	0.00	0.00	4.00	3.15	0.87	100.00		
LAWB80	0.00	0.00	0.00	0.00	0.00	4.00	3.15	0.87	100.00		
LAWB80	0.00	0.00	0.00	0.00	0.00	4.00	3.15	0.87	100.00		
LAWB80	0.00	0.00	0.00	0.00	0.00	4.00	3.15	0.87	100.00		
LAWB80	0.00	0.00	0.00	0.00	0.00	4.00	3.15	0.87	100.00		
LAWB80	0.00	0.00	0.00	0.00	0.00	4.00	3.15	0.87	100.00		
LAWB80	0.00	0.00	0.00	0.00	0.00	4.00	3.15	0.87	100.00		
LAWB80	0.00	0.00	0.00	0.00	0.00	4.00	3.15	0.87	100.00		
LAWB81	0.00	0.00	0.00	0.00	0.00	5.00	3.15	0.89	100.00		
LAWB81	0.00	0.00	0.00	0.00	0.00	5.00	3.15	0.89	100.00		
LAWB81	0.00	0.00	0.00	0.00	0.00	5.00	3.15	0.89	100.00		
LAWB81	0.00	0.00	0.00	0.00	0.00	5.00	3.15	0.89	100.00		
LAWB81	0.00	0.00	0.00	0.00	0.00	5.00	3.15	0.89	100.00		
LAWB81	0.00	0.00	0.00	0.00	0.00	5.00	3.15	0.89	100.00		
LAWB81	0.00	0.00	0.00	0.00	0.00	5.00	3.15	0.89	100.00		
LAWB81	0.00	0.00	0.00	0.00	0.00	5.00	3.15	0.89	100.00		
LAWB81	0.00	0.00	0.00	0.00	0.00	5.00	3.15	0.89	100.00		
LAWB82	0.00	0.00	0.00	0.00	0.00	5.01	3.16	0.77	100.00		
LAWB82	0.00	0.00	0.00	0.00	0.00	5.01	3.16	0.77	100.00		
LAWB82	0.00	0.00	0.00	0.00	0.00	5.01	3.16	0.77	100.00		
LAWB82	0.00	0.00	0.00	0.00	0.00	5.01	3.16	0.77	100.00		
LAWB82	0.00	0.00	0.00	0.00	0.00	5.01	3.16	0.77	100.00		
LAWB82	0.00	0.00	0.00	0.00	0.00	5.01	3.16	0.77	100.00		
LAWB82	0.00	0.00	0.00	0.00	0.00	5.01	3.16	0.77	100.00		
LAWB82	0.00	0.00	0.00	0.00	0.00	5.01	3.16	0.77	100.00		
LAWB82	0.00	0.00	0.00	0.00	0.00	5.01	3.16	0.77	100.00		
LAWB83	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.74	100.00		
LAWB83	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.74	100.00		
LAWB83	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.74	100.00		
LAWB83	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.74	100.00		
LAWB83	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.74	100.00		
LAWB83	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.74	100.00		
LAWB83	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.74	100.00		
LAWB83	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.74	100.00		
LAWB83	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.74	100.00		
LAWB83	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.74	100.00		
LAWB83	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.74	100.00		
LAWB84	0.00	0.00	1.39	0.00	0.00	4.85	3.16	0.69	100.00		
LAWB84	0.00	0.00	1.39	0.00	0.00	4.85	3.16	0.69	100.00		
LAWB84	0.00	0.00	1.39	0.00	0.00	4.85	3.16	0.69	100.00		
LAWB84	0.00	0.00	1.39	0.00	0.00	4.85	3.16	0.69	100.00		
LAWB84	0.00	0.00	1.39	0.00	0.00	4.85	3.16	0.69	100.00		
LAWB84	0.00	0.00	1.39	0.00	0.00	4.85	3.16	0.69	100.00		
LAWB84	0.00	0.00	1.39	0.00	0.00	4.85	3.16	0.69	100.00		
LAWB84	0.00	0.00	1.39	0.00	0.00	4.85	3.16	0.69	100.00		
LAWB84	0.00	0.00	1.39	0.00	0.00	4.85	3.16	0.69	100.00		
LAWB84	0.00	0.00	1.39	0.00	0.00	4.85	3.16	0.69	100.00		
LAWB84	0.00	0.00	1.39	0.00	0.00	4.85	3.16	0.69	100.00		
LAWB85	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.74	100.00		
LAWB85	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.74	100.00		
LAWB85	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.74	100.00		
LAWB85	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.74	100.00		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
LAWB85	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.65
LAWB85	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.76
LAWB85	LAW	VSL-11R2270-1	SS	363.00	0.81	2.031	737.118	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.85
LAWB85	LAW	VSL-11R2270-1	SS	544.00	0.81	2.031	1,104.662	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.95
LAWB85	LAW	VSL-11R2270-1	SS	729.00	0.81	2.031	1,480.328	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.14
LAWB85	LAW	VSL-11R2270-1	SS	1455.00	0.81	2.031	2,954.565	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.27
LAWB85	LAW	VSL-11R2270-1	SS	1821.00	0.81	2.031	3,697.775	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.37
LAWB86	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.14
LAWB86	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.26
LAWB86	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.43
LAWB86	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.56
LAWB86	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.65
LAWB86	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.75
LAWB86	LAW	VSL-11R2270-1	SS	363.00	0.81	2.031	737.118	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.85
LAWB86	LAW	VSL-11R2270-1	SS	544.00	0.81	2.031	1,104.662	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.97
LAWB86	LAW	VSL-11R2270-1	SS	729.00	0.81	2.031	1,480.328	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.14
LAWB86	LAW	VSL-11R2270-1	SS	1455.00	0.81	2.031	2,954.565	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.35
LAWB86	LAW	VSL-11R2270-1	SS	1821.00	0.81	2.031	3,697.775	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.37
LAWB87	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.03
LAWB87	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.22
LAWB87	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.34
LAWB87	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.46
LAWB87	LAW	VSL-11R2270-1	SS	538.00	0.81	2.031	1,092.478	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.85
LAWB87	LAW	VSL-11R2270-1	SS	1458.00	0.81	2.031	2,960.657	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.15
LAWB87	LAW	VSL-11R2270-1	SS	1925.00	0.81	2.031	3,908.960	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.23
LAWB88	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.04
LAWB88	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.23
LAWB88	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.33
LAWB88	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.45
LAWB88	LAW	VSL-11R2270-1	SS	538.00	0.81	2.031	1,092.478	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.86
LAWB88	LAW	VSL-11R2270-1	SS	1458.00	0.81	2.031	2,960.657	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.14
LAWB88	LAW	VSL-11R2270-1	SS	1925.00	0.81	2.031	3,908.960	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.26
LAWB89	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.22
LAWB89	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.35
LAWB89	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.46
LAWB89	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.74
LAWB89	LAW	VSL-11R2270-1	SS	364.00	0.81	2.031	739.149	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.85
LAWB89	LAW	VSL-11R2270-1	SS	546.00	0.81	2.031	1,108.723	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.96
LAWB89	LAW	VSL-11R2270-1	SS	730.00	0.81	2.031	1,482.359	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.03
LAWB89	LAW	VSL-11R2270-1	SS	1097.00	0.81	2.031	2,227.600	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.12
LAWB89	LAW	VSL-11R2270-1	SS	1849.00	0.81	2.031	3,754.632	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.26
LAWB90	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.28
LAWB90	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.37
LAWB90	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.45
LAWB90	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.76
LAWB90	LAW	VSL-11R2270-1	SS	364.00	0.81	2.031	739.149	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.86
LAWB90	LAW	VSL-11R2270-1	SS	546.00	0.81	2.031	1,108.723	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.97
LAWB90	LAW	VSL-11R2270-1	SS	730.00	0.81	2.031	1,482.359	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.05
LAWB90	LAW	VSL-11R2270-1	SS	1097.00	0.81	2.031	2,227.600	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.15
LAWB90	LAW	VSL-11R2270-1	SS	1849.00	0.81	2.031	3,754.632	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.35
LAWB91	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.34
LAWB91	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.45
LAWB91	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.56
LAWB91	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.84
LAWB91	LAW	VSL-11R2270-1	SS	364.00	0.81	2.031	739.149	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.95
LAWB91	LAW	VSL-11R2270-1	SS	546.00	0.81	2.031	1,108.723	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.06
LAWB91	LAW	VSL-11R2270-1	SS	730.00	0.81	2.031	1,482.359	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.12
LAWB91	LAW	VSL-11R2270-1	SS	1097.00	0.81	2.031	2,227.600	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.25
LAWB92	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.38
LAWB92	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.48
LAWB92	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.56
LAWB92	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.85
LAWB92	LAW	VSL-11R2270-1	SS	364.00	0.81	2.031	739.149	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.95
LAWB92	LAW	VSL-11R2270-1	SS	546.00	0.81	2.031	1,108.723	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.07
LAWB92	LAW	VSL-11R2270-1	SS	730.00	0.81	2.031	1,482.359	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.15
LAWB92	LAW	VSL-11R2270-1	SS	1097.00	0.81	2.031	2,227.600	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.26
LAWB92	LAW	VSL-11R2270-1	SS	1849.00	0.81	2.031	3,754.632	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.36

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
LAWB85	147.63	631.70	5.31		208.68	410.94	7.91							
LAWB85	133.53	830.90	9.16		287.17	650.11	9.64							
LAWB85	121.98	1094.17	11.26		342.06	721.30	14.05							
LAWB85	115.74	1892.20	30.60		476.90	1337.43	27.51	1.08						
LAWB85	99.25	2051.40	39.39		567.81	1656.70	34.04							
LAWB85	98.37	2337.87	60.52		596.68	2085.17	38.86							
LAWB85	92.20	2694.83	53.27		544.21	1914.97	43.64							
LAWB86	75.22	48.31	1.07		23.17	41.00		0.83						
LAWB86	114.87	161.57	1.55		70.31	128.87	2.16							
LAWB86	121.00	265.40	3.26		102.33	203.13	3.02	3.36						
LAWB86	136.53	492.47	7.86		172.03	347.37	5.25							
LAWB86	150.47	820.94	10.95		259.65	508.25	10.88							
LAWB86	142.13	1153.97	22.50		361.73	892.67	14.07							
LAWB86	121.84	1262.57	22.68		367.98	823.38	17.96							
LAWB86	119.54	1792.27	44.42		467.00	1298.57	26.78	1.20						
LAWB86	106.70	1884.03	52.58		538.91	1424.30	30.49							
LAWB86	105.12	2008.30	64.89		549.50	1730.10	31.07							
LAWB86	96.57	2257.57	61.90		536.34	1735.17	36.46							
LAWB87	50.52	21.40	0.98		13.44	15.47		1.56						
LAWB87	71.71	40.03	0.78		22.78	24.81		1.42						
LAWB87	72.25	42.86	0.86		25.33	25.53		1.17						
LAWB87	81.67	48.14	1.08		28.74	27.82		1.31						
LAWB87	101.80	66.68	1.24		38.86	31.94		1.23						
LAWB87	112.57	71.90	1.74		42.89	30.87		0.73						
LAWB87	147.52	97.35	2.48		58.03	42.15	1.88	1.04						
LAWB88	43.30	15.86	3.72		10.67	11.90		1.17						
LAWB88	52.58	20.81	3.50		13.82	12.81		1.10						
LAWB88	56.49	22.49	4.39		15.51	13.37		0.99						
LAWB88	63.64	24.91	3.89		17.36	14.50		1.14						
LAWB88	76.69	29.77	3.87		21.36	14.29		1.05						
LAWB88	90.92	29.76	4.52		23.66	12.87		0.74						
LAWB88	109.45	39.79	4.76		30.13	16.62		0.95						
LAWB89	58.47	18.60	2.06		13.97	14.08		1.36						
LAWB89	86.09	39.49	1.16		28.09	29.83		1.08						
LAWB89	90.89	48.92	1.39		34.81	35.80		1.03						0.73
LAWB89	141.60	209.01	3.51		117.84	159.22	4.56	0.77						
LAWB89	129.22	419.59	4.61		203.23	307.32	7.06							
LAWB89	126.45	563.83	11.17		240.90	408.27	13.33							
LAWB89	138.99	805.89	18.90		324.11	616.22	19.33	1.45						
LAWB89	134.65	771.42	18.02		304.46	568.56	20.35	2.89						
LAWB89	148.75	1027.23	28.27		412.41	784.36	27.18							
LAWB90	57.26	19.41	2.10		10.57	27.78		1.33						
LAWB90	81.51	39.39	1.15		20.61	55.95		1.04						
LAWB90	88.52	50.11	1.34		25.34	68.10		1.08						0.63
LAWB90	136.12	88.08	2.48		45.71	122.41	2.62	0.79						
LAWB90	135.36	86.49	2.20		45.61	126.67	2.53	0.86						
LAWB90	134.52	87.56	2.19		48.01	121.75	2.58	0.64						
LAWB90	158.46	91.06	2.73		55.53	128.75	2.15							
LAWB90	165.08	108.94	3.54		56.42	143.86	2.82	1.15						
LAWB90	192.32	163.29	4.67		86.58	198.91	4.09							
LAWB91	62.79	24.65	1.77		10.20	44.92		1.37						
LAWB91	92.68	55.22	1.08		21.39	97.66		1.11						
LAWB91	101.73	74.90	1.36		28.56	135.50		0.95						
LAWB91	181.16	248.83	3.75		81.74	467.27	5.30	0.82						
LAWB91	180.03	317.28	3.90		97.36	542.91	6.76	0.71						
LAWB91	193.84	486.33	6.21		123.56	790.66	10.38							
LAWB91	198.44	886.52	10.03		186.84	1243.23	17.32	1.27						
LAWB91	168.53	1313.27	20.97		275.87	1799.33	31.59	4.15						
LAWB92	64.66	28.43	1.74		8.41	59.63		1.35						
LAWB92	96.52	63.98	1.09		17.96	128.17	1.71	1.14						
LAWB92	101.97	78.40	1.47		21.95	167.80		0.93						
LAWB92	150.20	148.35	2.38		38.15	318.60	3.48	0.89						
LAWB92	176.22	182.68	2.76		47.63	386.18	4.57	0.91						
LAWB92	185.78	197.55	3.43		51.51	376.35	4.74							
LAWB92	206.48	239.41	4.04		65.08	459.57	5.18	0.79						
LAWB92	176.95	704.15	9.45		129.87	1085.37	16.28	2.65						
LAWB92	256.47	740.57	12.43		143.89	1240.33	17.53	0.69						

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
LAWB85		Not Studied		70.13	16.76	3.80651	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB85		Not Studied		70.13	16.76	3.80651	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB85		Not Studied		70.13	16.76	3.80651	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB85		Not Studied		70.13	16.76	3.80651	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB85		Not Studied		70.13	16.76	3.80651	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB85		Not Studied		70.13	16.76	3.80651	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB85		Not Studied		70.13	16.76	3.80651	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB86		Not Studied		71.11	17.222	-0.3758071	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB86		Not Studied		71.11	17.222	-0.3758071	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB86		Not Studied		71.11	17.222	-0.3758071	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB86		Not Studied		71.11	17.222	-0.3758071	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB86		Not Studied		71.11	17.222	-0.3758071	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB86		Not Studied		71.11	17.222	-0.3758071	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB86		Not Studied		71.11	17.222	-0.3758071	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB86		Not Studied		71.11	17.222	-0.3758071	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB86		Not Studied		71.11	17.222	-0.3758071	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB86		Not Studied		71.11	17.222	-0.3758071	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB86		Not Studied		71.11	17.222	-0.3758071	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB87		Not Studied		72.15	17.641	-4.4002543	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB87		Not Studied		72.15	17.641	-4.4002543	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB87		Not Studied		72.15	17.641	-4.4002543	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB87		Not Studied		72.15	17.641	-4.4002543	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB87		Not Studied		72.15	17.641	-4.4002543	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB87		Not Studied		72.15	17.641	-4.4002543	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB87		Not Studied		72.15	17.641	-4.4002543	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB88		Not Studied		73.01	16.681	-0.3605833	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB88		Not Studied		73.01	16.681	-0.3605833	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB88		Not Studied		73.01	16.681	-0.3605833	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB88		Not Studied		73.01	16.681	-0.3605833	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB88		Not Studied		73.01	16.681	-0.3605833	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB88		Not Studied		73.01	16.681	-0.3605833	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB88		Not Studied		73.01	16.681	-0.3605833	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB89		Not Studied		68.67	18.268	-2.3644519	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB89		Not Studied		68.67	18.268	-2.3644519	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB89		Not Studied		68.67	18.268	-2.3644519	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB89		Not Studied		68.67	18.268	-2.3644519	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB89		Not Studied		68.67	18.268	-2.3644519	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB89		Not Studied		68.67	18.268	-2.3644519	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB89		Not Studied		68.67	18.268	-2.3644519	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB89		Not Studied		68.67	18.268	-2.3644519	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB89		Not Studied		68.67	18.268	-2.3644519	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB90		Not Studied		68.74	18.287	-2.5807981	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB90		Not Studied		68.74	18.287	-2.5807981	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB90		Not Studied		68.74	18.287	-2.5807981	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB90		Not Studied		68.74	18.287	-2.5807981	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB90		Not Studied		68.74	18.287	-2.5807981	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB90		Not Studied		68.74	18.287	-2.5807981	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB90		Not Studied		68.74	18.287	-2.5807981	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB90		Not Studied		68.74	18.287	-2.5807981	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB90		Not Studied		68.74	18.287	-2.5807981	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB91		Not Studied		68.72	18.282	-2.5204891	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB91		Not Studied		68.72	18.282	-2.5204891	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB91		Not Studied		68.72	18.282	-2.5204891	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB91		Not Studied		68.72	18.282	-2.5204891	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB91		Not Studied		68.72	18.282	-2.5204891	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB91		Not Studied		68.72	18.282	-2.5204891	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB91		Not Studied		68.72	18.282	-2.5204891	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB91		Not Studied		68.72	18.282	-2.5204891	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB92		Not Studied		68.68	18.27	-2.3853685	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB92		Not Studied		68.68	18.27	-2.3853685	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB92		Not Studied		68.68	18.27	-2.3853685	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB92		Not Studied		68.68	18.27	-2.3853685	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB92		Not Studied		68.68	18.27	-2.3853685	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB92		Not Studied		68.68	18.27	-2.3853685	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB92		Not Studied		68.68	18.27	-2.3853685	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB92		Not Studied		68.68	18.27	-2.3853685	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB92		Not Studied		68.68	18.27	-2.3853685	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
LAWB85	HOMOGENEOUS	6.18	11.53	0.00	5.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.29	0.19	0.00	0.00
LAWB85	HOMOGENEOUS	6.18	11.53	0.00	5.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.29	0.19	0.00	0.00
LAWB85	HOMOGENEOUS	6.18	11.53	0.00	5.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.29	0.19	0.00	0.00
LAWB85	HOMOGENEOUS	6.18	11.53	0.00	5.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.29	0.19	0.00	0.00
LAWB85	HOMOGENEOUS	6.18	11.53	0.00	5.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.29	0.19	0.00	0.00
LAWB85	HOMOGENEOUS	6.18	11.53	0.00	5.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.29	0.19	0.00	0.00
LAWB85	HOMOGENEOUS	6.18	11.53	0.00	5.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.29	0.19	0.00	0.00
LAWB86	HOMOGENEOUS	6.19	12.43	0.00	5.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB86	HOMOGENEOUS	6.19	12.43	0.00	5.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB86	HOMOGENEOUS	6.19	12.43	0.00	5.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB86	HOMOGENEOUS	6.19	12.43	0.00	5.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB86	HOMOGENEOUS	6.19	12.43	0.00	5.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB86	HOMOGENEOUS	6.19	12.43	0.00	5.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB86	HOMOGENEOUS	6.19	12.43	0.00	5.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB86	HOMOGENEOUS	6.19	12.43	0.00	5.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB86	HOMOGENEOUS	6.19	12.43	0.00	5.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB86	HOMOGENEOUS	6.19	12.43	0.00	5.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB86	HOMOGENEOUS	6.19	12.43	0.00	5.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB87	HOMOGENEOUS	6.50	13.02	0.00	6.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.03	0.20	0.00	0.00
LAWB87	HOMOGENEOUS	6.50	13.02	0.00	6.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.03	0.20	0.00	0.00
LAWB87	HOMOGENEOUS	6.50	13.02	0.00	6.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.03	0.20	0.00	0.00
LAWB87	HOMOGENEOUS	6.50	13.02	0.00	6.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.03	0.20	0.00	0.00
LAWB87	HOMOGENEOUS	6.50	13.02	0.00	6.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.03	0.20	0.00	0.00
LAWB87	HOMOGENEOUS	6.50	13.02	0.00	6.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.03	0.20	0.00	0.00
LAWB87	HOMOGENEOUS	6.50	13.02	0.00	6.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.03	0.20	0.00	0.00
LAWB88	HOMOGENEOUS	6.49	13.01	0.00	7.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20	0.20	0.00	0.00
LAWB88	HOMOGENEOUS	6.49	13.01	0.00	7.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20	0.20	0.00	0.00
LAWB88	HOMOGENEOUS	6.49	13.01	0.00	7.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20	0.20	0.00	0.00
LAWB88	HOMOGENEOUS	6.49	13.01	0.00	7.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20	0.20	0.00	0.00
LAWB88	HOMOGENEOUS	6.49	13.01	0.00	7.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20	0.20	0.00	0.00
LAWB88	HOMOGENEOUS	6.49	13.01	0.00	7.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20	0.20	0.00	0.00
LAWB88	HOMOGENEOUS	6.49	13.01	0.00	7.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20	0.20	0.00	0.00
LAWB89	HOMOGENEOUS	6.19	10.04	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB89	HOMOGENEOUS	6.19	10.04	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB89	HOMOGENEOUS	6.19	10.04	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB89	HOMOGENEOUS	6.19	10.04	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB89	HOMOGENEOUS	6.19	10.04	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB89	HOMOGENEOUS	6.19	10.04	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB89	HOMOGENEOUS	6.19	10.04	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB89	HOMOGENEOUS	6.19	10.04	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB89	HOMOGENEOUS	6.19	10.04	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB90	HOMOGENEOUS	6.19	10.05	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB90	HOMOGENEOUS	6.19	10.05	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB90	HOMOGENEOUS	6.19	10.05	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB90	HOMOGENEOUS	6.19	10.05	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB90	HOMOGENEOUS	6.19	10.05	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB90	HOMOGENEOUS	6.19	10.05	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB90	HOMOGENEOUS	6.19	10.05	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB90	HOMOGENEOUS	6.19	10.05	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB90	HOMOGENEOUS	6.19	10.05	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB91	HOMOGENEOUS	6.19	10.05	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB91	HOMOGENEOUS	6.19	10.05	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB91	HOMOGENEOUS	6.19	10.05	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB91	HOMOGENEOUS	6.19	10.05	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB91	HOMOGENEOUS	6.19	10.05	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB91	HOMOGENEOUS	6.19	10.05	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB91	HOMOGENEOUS	6.19	10.05	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB91	HOMOGENEOUS	6.19	10.05	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB92	HOMOGENEOUS	6.19	10.04	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB92	HOMOGENEOUS	6.19	10.04	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB92	HOMOGENEOUS	6.19	10.04	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB92	HOMOGENEOUS	6.19	10.04	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB92	HOMOGENEOUS	6.19	10.04	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB92	HOMOGENEOUS	6.19	10.04	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB92	HOMOGENEOUS	6.19	10.04	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB92	HOMOGENEOUS	6.19	10.04	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB92	HOMOGENEOUS	6.19	10.04	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
LAWB85	4.31	2.97	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.63	0.00	0.00	0.00
LAWB85	4.31	2.97	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.63	0.00	0.00	0.00
LAWB85	4.31	2.97	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.63	0.00	0.00	0.00
LAWB85	4.31	2.97	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.63	0.00	0.00	0.00
LAWB85	4.31	2.97	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.63	0.00	0.00	0.00
LAWB85	4.31	2.97	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.63	0.00	0.00	0.00
LAWB85	4.31	2.97	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.63	0.00	0.00	0.00
LAWB86	4.36	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.66	0.00	0.00	0.00
LAWB86	4.36	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.66	0.00	0.00	0.00
LAWB86	4.36	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.66	0.00	0.00	0.00
LAWB86	4.36	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.66	0.00	0.00	0.00
LAWB86	4.36	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.66	0.00	0.00	0.00
LAWB86	4.36	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.66	0.00	0.00	0.00
LAWB86	4.36	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.66	0.00	0.00	0.00
LAWB86	4.36	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.66	0.00	0.00	0.00
LAWB86	4.36	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.66	0.00	0.00	0.00
LAWB86	4.36	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.66	0.00	0.00	0.00
LAWB86	4.36	2.97	0.00	0.00	5.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.66	0.00	0.00	0.00
LAWB87	4.70	1.41	0.00	0.00	5.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
LAWB87	4.70	1.41	0.00	0.00	5.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
LAWB87	4.70	1.41	0.00	0.00	5.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
LAWB87	4.70	1.41	0.00	0.00	5.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
LAWB87	4.70	1.41	0.00	0.00	5.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
LAWB87	4.70	1.41	0.00	0.00	5.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
LAWB87	4.70	1.41	0.00	0.00	5.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
LAWB88	4.70	1.41	0.00	0.00	5.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.10	0.00	0.00	0.00
LAWB88	4.70	1.41	0.00	0.00	5.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.10	0.00	0.00	0.00
LAWB88	4.70	1.41	0.00	0.00	5.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.10	0.00	0.00	0.00
LAWB88	4.70	1.41	0.00	0.00	5.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.10	0.00	0.00	0.00
LAWB88	4.70	1.41	0.00	0.00	5.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.10	0.00	0.00	0.00
LAWB88	4.70	1.41	0.00	0.00	5.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.10	0.00	0.00	0.00
LAWB88	4.70	1.41	0.00	0.00	5.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.10	0.00	0.00	0.00
LAWB89	5.01	2.97	0.00	0.00	4.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.35	0.00	0.00	0.00
LAWB89	5.01	2.97	0.00	0.00	4.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.35	0.00	0.00	0.00
LAWB89	5.01	2.97	0.00	0.00	4.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.35	0.00	0.00	0.00
LAWB89	5.01	2.97	0.00	0.00	4.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.35	0.00	0.00	0.00
LAWB89	5.01	2.97	0.00	0.00	4.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.35	0.00	0.00	0.00
LAWB89	5.01	2.97	0.00	0.00	4.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.35	0.00	0.00	0.00
LAWB89	5.01	2.97	0.00	0.00	4.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.35	0.00	0.00	0.00
LAWB89	5.01	2.97	0.00	0.00	4.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.35	0.00	0.00	0.00
LAWB89	5.01	2.97	0.00	0.00	4.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.35	0.00	0.00	0.00
LAWB90	3.62	2.98	0.00	0.00	6.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.00	0.00	0.00	0.00
LAWB90	3.62	2.98	0.00	0.00	6.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.00	0.00	0.00	0.00
LAWB90	3.62	2.98	0.00	0.00	6.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.00	0.00	0.00	0.00
LAWB90	3.62	2.98	0.00	0.00	6.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.00	0.00	0.00	0.00
LAWB90	3.62	2.98	0.00	0.00	6.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.00	0.00	0.00	0.00
LAWB90	3.62	2.98	0.00	0.00	6.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.00	0.00	0.00	0.00
LAWB90	3.62	2.98	0.00	0.00	6.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.00	0.00	0.00	0.00
LAWB90	3.62	2.98	0.00	0.00	6.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.00	0.00	0.00	0.00
LAWB90	3.62	2.98	0.00	0.00	6.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.00	0.00	0.00	0.00
LAWB91	2.93	2.98	0.00	0.00	8.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.82	0.00	0.00	0.00
LAWB91	2.93	2.98	0.00	0.00	8.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.82	0.00	0.00	0.00
LAWB91	2.93	2.98	0.00	0.00	8.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.82	0.00	0.00	0.00
LAWB91	2.93	2.98	0.00	0.00	8.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.82	0.00	0.00	0.00
LAWB91	2.93	2.98	0.00	0.00	8.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.82	0.00	0.00	0.00
LAWB91	2.93	2.98	0.00	0.00	8.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.82	0.00	0.00	0.00
LAWB91	2.93	2.98	0.00	0.00	8.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.82	0.00	0.00	0.00
LAWB91	2.93	2.98	0.00	0.00	8.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.82	0.00	0.00	0.00
LAWB92	2.22	2.97	0.00	0.00	10.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.10	0.00	0.00	0.00
LAWB92	2.22	2.97	0.00	0.00	10.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.10	0.00	0.00	0.00
LAWB92	2.22	2.97	0.00	0.00	10.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.10	0.00	0.00	0.00
LAWB92	2.22	2.97	0.00	0.00	10.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.10	0.00	0.00	0.00
LAWB92	2.22	2.97	0.00	0.00	10.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.10	0.00	0.00	0.00
LAWB92	2.22	2.97	0.00	0.00	10.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.10	0.00	0.00	0.00
LAWB92	2.22	2.97	0.00	0.00	10.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.10	0.00	0.00	0.00
LAWB92	2.22	2.97	0.00	0.00	10.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.10	0.00	0.00	0.00
LAWB92	2.22	2.97	0.00	0.00	10.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.10	0.00	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
LAWB85	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.74	100.00		
LAWB85	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.74	100.00		
LAWB85	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.74	100.00		
LAWB85	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.74	100.00		
LAWB85	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.74	100.00		
LAWB85	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.74	100.00		
LAWB85	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.74	100.00		
LAWB86	0.00	0.00	0.00	0.00	0.00	4.85	3.16	0.68	100.00		
LAWB86	0.00	0.00	0.00	0.00	0.00	4.85	3.16	0.68	100.00		
LAWB86	0.00	0.00	0.00	0.00	0.00	4.85	3.16	0.68	100.00		
LAWB86	0.00	0.00	0.00	0.00	0.00	4.85	3.16	0.68	100.00		
LAWB86	0.00	0.00	0.00	0.00	0.00	4.85	3.16	0.68	100.00		
LAWB86	0.00	0.00	0.00	0.00	0.00	4.85	3.16	0.68	100.00		
LAWB86	0.00	0.00	0.00	0.00	0.00	4.85	3.16	0.68	100.00		
LAWB86	0.00	0.00	0.00	0.00	0.00	4.85	3.16	0.68	100.00		
LAWB86	0.00	0.00	0.00	0.00	0.00	4.85	3.16	0.68	100.00		
LAWB86	0.00	0.00	0.00	0.00	0.00	4.85	3.16	0.68	100.00		
LAWB86	0.00	0.00	0.00	0.00	0.00	4.85	3.16	0.68	100.00		
LAWB87	0.00	0.00	0.00	0.00	0.00	4.89	3.20	0.71	100.00		
LAWB87	0.00	0.00	0.00	0.00	0.00	4.89	3.20	0.71	100.00		
LAWB87	0.00	0.00	0.00	0.00	0.00	4.89	3.20	0.71	100.00		
LAWB87	0.00	0.00	0.00	0.00	0.00	4.89	3.20	0.71	100.00		
LAWB87	0.00	0.00	0.00	0.00	0.00	4.89	3.20	0.71	100.00		
LAWB87	0.00	0.00	0.00	0.00	0.00	4.89	3.20	0.71	100.00		
LAWB87	0.00	0.00	0.00	0.00	0.00	4.89	3.20	0.71	100.00		
LAWB88	0.00	0.00	0.00	0.00	0.00	4.89	3.19	0.82	100.00		
LAWB88	0.00	0.00	0.00	0.00	0.00	4.89	3.19	0.82	100.00		
LAWB88	0.00	0.00	0.00	0.00	0.00	4.89	3.19	0.82	100.00		
LAWB88	0.00	0.00	0.00	0.00	0.00	4.89	3.19	0.82	100.00		
LAWB88	0.00	0.00	0.00	0.00	0.00	4.89	3.19	0.82	100.00		
LAWB88	0.00	0.00	0.00	0.00	0.00	4.89	3.19	0.82	100.00		
LAWB88	0.00	0.00	0.00	0.00	0.00	4.89	3.19	0.82	100.00		
LAWB89	0.00	0.00	1.39	0.00	0.00	4.85	3.16	0.69	100.00		
LAWB89	0.00	0.00	1.39	0.00	0.00	4.85	3.16	0.69	100.00		
LAWB89	0.00	0.00	1.39	0.00	0.00	4.85	3.16	0.69	100.00		
LAWB89	0.00	0.00	1.39	0.00	0.00	4.85	3.16	0.69	100.00		
LAWB89	0.00	0.00	1.39	0.00	0.00	4.85	3.16	0.69	100.00		
LAWB89	0.00	0.00	1.39	0.00	0.00	4.85	3.16	0.69	100.00		
LAWB89	0.00	0.00	1.39	0.00	0.00	4.85	3.16	0.69	100.00		
LAWB89	0.00	0.00	1.39	0.00	0.00	4.85	3.16	0.69	100.00		
LAWB89	0.00	0.00	1.39	0.00	0.00	4.85	3.16	0.69	100.00		
LAWB90	0.00	0.00	1.39	0.00	0.00	4.85	3.17	0.59	100.00		
LAWB90	0.00	0.00	1.39	0.00	0.00	4.85	3.17	0.59	100.00		
LAWB90	0.00	0.00	1.39	0.00	0.00	4.85	3.17	0.59	100.00		
LAWB90	0.00	0.00	1.39	0.00	0.00	4.85	3.17	0.59	100.00		
LAWB90	0.00	0.00	1.39	0.00	0.00	4.85	3.17	0.59	100.00		
LAWB90	0.00	0.00	1.39	0.00	0.00	4.85	3.17	0.59	100.00		
LAWB90	0.00	0.00	1.39	0.00	0.00	4.85	3.17	0.59	100.00		
LAWB90	0.00	0.00	1.39	0.00	0.00	4.85	3.17	0.59	100.00		
LAWB90	0.00	0.00	1.39	0.00	0.00	4.85	3.17	0.59	100.00		
LAWB91	0.00	0.00	1.39	0.00	0.00	4.85	3.17	0.62	100.00		
LAWB91	0.00	0.00	1.39	0.00	0.00	4.85	3.17	0.62	100.00		
LAWB91	0.00	0.00	1.39	0.00	0.00	4.85	3.17	0.62	100.00		
LAWB91	0.00	0.00	1.39	0.00	0.00	4.85	3.17	0.62	100.00		
LAWB91	0.00	0.00	1.39	0.00	0.00	4.85	3.17	0.62	100.00		
LAWB91	0.00	0.00	1.39	0.00	0.00	4.85	3.17	0.62	100.00		
LAWB91	0.00	0.00	1.39	0.00	0.00	4.85	3.17	0.62	100.00		
LAWB91	0.00	0.00	1.39	0.00	0.00	4.85	3.17	0.62	100.00		
LAWB92	0.00	0.00	1.39	0.00	0.00	4.85	3.16	0.68	100.00		
LAWB92	0.00	0.00	1.39	0.00	0.00	4.85	3.16	0.68	100.00		
LAWB92	0.00	0.00	1.39	0.00	0.00	4.85	3.16	0.68	100.00		
LAWB92	0.00	0.00	1.39	0.00	0.00	4.85	3.16	0.68	100.00		
LAWB92	0.00	0.00	1.39	0.00	0.00	4.85	3.16	0.68	100.00		
LAWB92	0.00	0.00	1.39	0.00	0.00	4.85	3.16	0.68	100.00		
LAWB92	0.00	0.00	1.39	0.00	0.00	4.85	3.16	0.68	100.00		
LAWB92	0.00	0.00	1.39	0.00	0.00	4.85	3.16	0.68	100.00		
LAWB92	0.00	0.00	1.39	0.00	0.00	4.85	3.16	0.68	100.00		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
LAWB93	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.27
LAWB93	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.37
LAWB93	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.45
LAWB93	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.55
LAWB93	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.64
LAWB93	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.77
LAWB93	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.85
LAWB93	LAW	VSL-11R2270-1	SS	548.00	0.81	2.031	1,112.784	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.95
LAWB93	LAW	VSL-11R2270-1	SS	730.00	0.81	2.031	1,482.359	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.04
LAWB93	LAW	VSL-11R2270-1	SS	1097.00	0.81	2.031	2,227.600	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.14
LAWB93	LAW	VSL-11R2270-1	SS	1465.00	0.81	2.031	2,974.871	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.25
LAWB93	LAW	VSL-11R2270-1	SS	1828.00	0.81	2.031	3,711.989	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.27
LAWB94	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.76
LAWB94	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.95
LAWB94	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.97
LAWB94	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.04
LAWB94	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.14
LAWB94	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.25
LAWB94	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.35
LAWB94	LAW	VSL-11R2270-1	SS	548.00	0.81	2.031	1,112.784	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.45
LAWB94	LAW	VSL-11R2270-1	SS	730.00	0.81	2.031	1,482.359	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.55
LAWB94	LAW	VSL-11R2270-1	SS	1097.00	0.81	2.031	2,227.600	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.64
LAWB94	LAW	VSL-11R2270-1	SS	1465.00	0.81	2.031	2,974.871	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.67
LAWB94	LAW	VSL-11R2270-1	SS	1828.00	0.81	2.031	3,711.989	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.74
LAWB95	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.26
LAWB95	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.36
LAWB95	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.45
LAWB95	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.54
LAWB95	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.64
LAWB95	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.77
LAWB95	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.86
LAWB95	LAW	VSL-11R2270-1	SS	548.00	0.81	2.031	1,112.784	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.92
LAWB95	LAW	VSL-11R2270-1	SS	730.00	0.81	2.031	1,482.359	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.06
LAWB95	LAW	VSL-11R2270-1	SS	1097.00	0.81	2.031	2,227.600	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.12
LAWB95	LAW	VSL-11R2270-1	SS	1465.00	0.81	2.031	2,974.871	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.26
LAWC12	LAW	VSL-11R2270-1	SS	7.00	0.79	2.000	14.003	**2.690**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.81
LAWC12	LAW	VSL-11R2270-1	SS	13.00	0.79	2.000	26.006	**2.690**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.88
LAWC12	LAW	VSL-11R2270-1	SS	56.00	0.79	2.000	112.024	**2.690**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.95
LAWC12	LAW	VSL-11R2270-1	SS	120.00	0.79	2.000	240.052	**2.690**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.06
LAWC12	LAW	VSL-11R2270-1	SS	180.00	0.79	2.000	360.078	**2.690**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.23
LAWC12	LAW	VSL-11R2270-1	SS	271.00	0.79	2.000	542.117	**2.690**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.35
LAWC12	LAW	VSL-11R2270-1	SS	365.00	0.79	2.000	730.158	**2.690**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.42
LAWC12	LAW	VSL-11R2270-1	SS	547.00	0.79	2.000	1,094.237	**2.690**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.54
LAWC12	LAW	VSL-11R2270-1	SS	730.00	0.79	2.000	1,460.316	**2.690**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.64
LAWC12	LAW	VSL-11R2270-1	SS	1331.00	0.79	2.000	2,662.577	**2.690**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.75
LAWC15	LAW	VSL-11R2270-1	SS	7.00	0.80	2.008	14.055	**2.680**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.45
LAWC15	LAW	VSL-11R2270-1	SS	28.00	0.80	2.008	56.221	**2.680**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.55
LAWC15	LAW	VSL-11R2270-1	SS	56.00	0.80	2.008	112.442	**2.680**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.64
LAWC15	LAW	VSL-11R2270-1	SS	120.00	0.80	2.008	240.948	**2.680**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.77
LAWC15	LAW	VSL-11R2270-1	SS	180.00	0.80	2.008	361.422	**2.680**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.94
LAWC15	LAW	VSL-11R2270-1	SS	267.00	0.80	2.008	536.109	**2.680**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.98
LAWC15	LAW	VSL-11R2270-1	SS	365.00	0.80	2.008	732.883	**2.680**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.07
LAWC15	LAW	VSL-11R2270-1	SS	547.00	0.80	2.008	1,098.320	**2.680**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.12
LAWC15	LAW	VSL-11R2270-1	SS	729.00	0.80	2.008	1,463.757	**2.680**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.37
LAWC15	LAW	VSL-11R2270-1	SS	1104.00	0.80	2.008	2,216.719	**2.680**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.45
LAWC15	LAW	VSL-11R2270-1	SS	1462.00	0.80	2.008	2,935.546	**2.680**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.56
LAWC15	LAW	VSL-11R2270-1	SS	1826.00	0.80	2.008	3,666.421	**2.680**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.65
LAWC15	LAW	VSL-11R2270-1	SS	2206.00	0.80	2.008	4,429.422	**2.680**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.74
LAWC21rev2	LAW	VSL-11R2270-1	SS	7.00	0.80	2.023	14.161	**2.660**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.27
LAWC21rev2	LAW	VSL-11R2270-1	SS	28.00	0.80	2.023	56.644	**2.660**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.44
LAWC21rev2	LAW	VSL-11R2270-1	SS	56.00	0.80	2.023	113.288	**2.660**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.65
LAWC21rev2	LAW	VSL-11R2270-1	SS	120.00	0.80	2.023	242.759	**2.660**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.77
LAWC21rev2	LAW	VSL-11R2270-1	SS	180.00	0.80	2.023	364.139	**2.660**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.87
LAWC21rev2	LAW	VSL-11R2270-1	SS	271.00	0.80	2.023	548.232	**2.660**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.95
LAWC21rev2	LAW	VSL-11R2270-1	SS	364.00	0.80	2.023	736.370	**2.660**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.05
LAWC21rev2	LAW	VSL-11R2270-1	SS	544.00	0.80	2.023	1,100.509	**2.660**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.15
LAWC21rev2	LAW	VSL-11R2270-1	SS	728.00	0.80	2.023	1,472.740	**2.660**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.25

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
LAWB93	52.00	26.69	2.09		12.85	17.55		1.39						
LAWB93	72.12	38.32	1.29		22.83	30.50		1.03						
LAWB93	91.28	51.76	1.48		30.38	44.14		0.97						
LAWB93	99.06	64.32	1.67		38.31	54.76								
LAWB93	109.79	71.61	1.67		40.59	55.18	1.77							
LAWB93	137.44	84.52	2.26		48.00	66.21	2.62	1.09						
LAWB93	154.19	89.78	2.73		56.77	78.55	2.48	1.06						
LAWB93	170.40	101.92	3.48		68.92	95.08	2.87							
LAWB93	152.16	107.25	3.37		71.96	92.37	3.05							
LAWB93	160.75	99.70	3.34		69.23	87.59	2.64	1.22						
LAWB93	207.38	126.25	3.04		75.56	165.09	10.17							
LAWB93	264.14	165.28	4.81		98.45	194.50	13.25							
LAWB94	52.87	22.12	2.06		14.59	11.75		1.14						
LAWB94	75.73	34.67	1.37		26.27	20.89		0.94						
LAWB94	102.18	50.80	1.62		38.33	32.90	1.86	0.96						
LAWB94	114.61	61.51	2.14		47.75	38.73								
LAWB94	119.81	63.97	1.76		47.47	37.55	1.81	0.97						
LAWB94	127.58	71.70	1.98		47.48	37.56	2.35	0.81						
LAWB94	149.97	80.36	2.36		59.26	47.40	2.55	0.98						
LAWB94	154.92	81.39	2.80		65.61	50.40	2.69							
LAWB94	174.93	118.14	3.54		90.54	72.24	2.91							
LAWB94	188.10	121.58	3.62		92.08	72.49	3.07	1.31						
LAWB94	220.14	136.98	4.36		105.31	84.76	3.20							
LAWB94	217.74	344.64	5.98		189.60	196.54	6.26							
LAWB95	51.49	20.85	2.02		15.12	8.02		1.24						
LAWB95	82.90	40.78	1.16		33.26	17.72		0.90						
LAWB95	114.48	72.69	2.12		55.72	34.26	2.15	0.84						
LAWB95	162.64	207.63	3.13		132.29	102.13	3.45							
LAWB95	148.15	413.95	4.34		222.48	177.38	6.19	0.79						
LAWB95	134.30	1069.57	16.25		474.66	438.01	19.54	2.49						
LAWB95	112.66	1527.97	37.61		675.62	663.36	36.98	2.18						
LAWB95	101.71	1921.57	51.32		768.84	875.10	49.93	1.72						
LAWB95	89.32	2246.97	47.75		897.43	979.24	51.59							
LAWB95	106.46	2116.73	67.41		919.75	986.99	64.88	3.20						
LAWB95	109.59	2109.70	63.97		885.93	994.87	59.39							
LAWC12	67.79	23.81	0.59			121.43		14.11			0.33		1.11	
LAWC12	87.97	41.63	0.42			171.70		14.89	1.13		0.34		1.88	0.46
LAWC12	93.93	56.58	0.51			215.37		17.10	1.39		0.47	0.55	2.48	0.51
LAWC12	101.33	71.73	0.25			306.20		19.24	1.48		0.58		2.94	
LAWC12	108.90	82.06	0.51			350.73		18.74	1.61		0.52	0.42	2.55	
LAWC12	118.13	96.04	0.27			356.63		20.54	1.43		0.73		3.52	
LAWC12	126.23	106.70	0.20			418.53		21.78	1.25		0.62		3.19	
LAWC12	130.80	117.10	0.53			434.20		20.62	1.25		0.46		2.49	
LAWC12	158.07	135.73	0.51			505.93	1.92	14.55					0.91	
LAWC12	998.61	3087.20	1.25			7230.87	78.89	2.10					1.08	
LAWC15	67.59	18.29				99.49		7.68			0.32		0.59	
LAWC15	86.53	31.09	0.28			146.27		8.77	1.67		0.56		1.13	0.67
LAWC15	101.47	41.67				198.60		9.74	1.63		0.52		1.11	0.94
LAWC15	100.28	47.93	0.39			209.67		8.83	2.13		0.72	0.74	3.30	0.90
LAWC15	115.67	52.75	0.65			229.07		10.35	1.91		0.76		1.20	1.39
LAWC15	109.43	57.66	0.56			263.67		9.14	2.09		0.78	0.66	1.91	
LAWC15	124.63	66.55	0.45			289.30		10.52	2.40		0.93	0.62	1.95	1.21
LAWC15	155.16	84.96	0.63			364.64		12.16	2.37		1.10	0.68	2.84	1.03
LAWC15	169.19	93.48	0.46			376.74	2.20	12.67	2.49		0.94	0.71	2.13	1.36
LAWC15	224.12	156.61	0.24			560.70	2.40	4.57				0.60		0.75
LAWC15	409.60	521.48	0.33			1655.97	7.82	1.23						
LAWC15	800.91	1370.73	0.43			3812.20	19.71	2.00						
LAWC15	955.73	2203.97	0.67			6018.03	35.20							
LAWC21rev2	60.18	21.63	0.52		9.03	63.84		2.15						
LAWC21rev2	92.71	40.52	0.50		15.41	107.67		2.39						
LAWC21rev2	110.93	50.23	1.25		20.63	146.37		2.36						
LAWC21rev2	139.03	68.48	1.21		26.05	204.07		2.55						
LAWC21rev2	142.13	70.23	1.20		26.16	225.77		2.43						
LAWC21rev2	190.13	95.91	1.02		37.73	260.17	1.83	2.68						
LAWC21rev2	183.49	93.44	1.13		35.49	250.64		2.63						
LAWC21rev2	198.53	100.30	1.15		41.72	302.03	2.68	1.85						
LAWC21rev2	211.01	107.11	1.49		42.43	311.13	3.11	1.35						

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
LAWB93		Not Studied		68.66	18.267	-2.3459761	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB93		Not Studied		68.66	18.267	-2.3459761	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB93		Not Studied		68.66	18.267	-2.3459761	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB93		Not Studied		68.66	18.267	-2.3459761	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB93		Not Studied		68.66	18.267	-2.3459761	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB93		Not Studied		68.66	18.267	-2.3459761	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB93		Not Studied		68.66	18.267	-2.3459761	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB93		Not Studied		68.66	18.267	-2.3459761	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB93		Not Studied		68.66	18.267	-2.3459761	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB93		Not Studied		68.66	18.267	-2.3459761	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB93		Not Studied		68.66	18.267	-2.3459761	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB93		Not Studied		68.66	18.267	-2.3459761	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB94		Not Studied		68.63	18.261	-2.2639843	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB94		Not Studied		68.63	18.261	-2.2639843	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB94		Not Studied		68.63	18.261	-2.2639843	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB94		Not Studied		68.63	18.261	-2.2639843	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB94		Not Studied		68.63	18.261	-2.2639843	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB94		Not Studied		68.63	18.261	-2.2639843	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB94		Not Studied		68.63	18.261	-2.2639843	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB94		Not Studied		68.63	18.261	-2.2639843	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB94		Not Studied		68.63	18.261	-2.2639843	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB94		Not Studied		68.63	18.261	-2.2639843	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB94		Not Studied		68.63	18.261	-2.2639843	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB94		Not Studied		68.63	18.261	-2.2639843	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB95		Not Studied		68.66	18.269	-2.3524612	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB95		Not Studied		68.66	18.269	-2.3524612	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB95		Not Studied		68.66	18.269	-2.3524612	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB95		Not Studied		68.66	18.269	-2.3524612	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB95		Not Studied		68.66	18.269	-2.3524612	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB95		Not Studied		68.66	18.269	-2.3524612	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB95		Not Studied		68.66	18.269	-2.3524612	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB95		Not Studied		68.66	18.269	-2.3524612	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB95		Not Studied		68.66	18.269	-2.3524612	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB95		Not Studied		68.66	18.269	-2.3524612	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWB95		Not Studied		68.66	18.269	-2.3524612	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC12		Not Studied		68.69	19.301	-8.2371133	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	High Ti
LAWC12		Not Studied		68.69	19.301	-8.2371133	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	High Ti
LAWC12		Not Studied		68.69	19.301	-8.2371133	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	High Ti
LAWC12		Not Studied		68.69	19.301	-8.2371133	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	High Ti
LAWC12		Not Studied		68.69	19.301	-8.2371133	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	High Ti
LAWC12		Not Studied		68.69	19.301	-8.2371133	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	High Ti
LAWC12		Not Studied		68.69	19.301	-8.2371133	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	High Ti
LAWC12		Not Studied		68.69	19.301	-8.2371133	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	High Ti
LAWC12		Not Studied		68.69	19.301	-8.2371133	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	High Ti
LAWC12		Not Studied		68.69	19.301	-8.2371133	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	High Ti
LAWC15		Not Studied		73.75	15.234	6.6284003	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWC15		Not Studied		73.75	15.234	6.6284003	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWC15		Not Studied		73.75	15.234	6.6284003	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWC15		Not Studied		73.75	15.234	6.6284003	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWC15		Not Studied		73.75	15.234	6.6284003	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWC15		Not Studied		73.75	15.234	6.6284003	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWC15		Not Studied		73.75	15.234	6.6284003	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWC15		Not Studied		73.75	15.234	6.6284003	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWC15		Not Studied		73.75	15.234	6.6284003	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWC15		Not Studied		73.75	15.234	6.6284003	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWC15		Not Studied		73.75	15.234	6.6284003	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWC15		Not Studied		73.75	15.234	6.6284003	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWC15		Not Studied		73.75	15.234	6.6284003	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWC21rev2		Not Studied		71.68	18.975	-11.182378	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC21rev2		Not Studied		71.68	18.975	-11.182378	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC21rev2		Not Studied		71.68	18.975	-11.182378	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC21rev2		Not Studied		71.68	18.975	-11.182378	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC21rev2		Not Studied		71.68	18.975	-11.182378	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC21rev2		Not Studied		71.68	18.975	-11.182378	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC21rev2		Not Studied		71.68	18.975	-11.182378	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC21rev2		Not Studied		71.68	18.975	-11.182378	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC21rev2		Not Studied		71.68	18.975	-11.182378	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
LAWB93	HOMOGENEOUS	6.19	10.04	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB93	HOMOGENEOUS	6.19	10.04	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB93	HOMOGENEOUS	6.19	10.04	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB93	HOMOGENEOUS	6.19	10.04	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB93	HOMOGENEOUS	6.19	10.04	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB93	HOMOGENEOUS	6.19	10.04	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB93	HOMOGENEOUS	6.19	10.04	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB93	HOMOGENEOUS	6.19	10.04	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB93	HOMOGENEOUS	6.19	10.04	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB93	HOMOGENEOUS	6.19	10.04	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB93	HOMOGENEOUS	6.19	10.04	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB93	HOMOGENEOUS	6.19	10.04	0.00	6.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB94	HOMOGENEOUS	6.19	10.03	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB94	HOMOGENEOUS	6.19	10.03	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB94	HOMOGENEOUS	6.19	10.03	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB94	HOMOGENEOUS	6.19	10.03	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB94	HOMOGENEOUS	6.19	10.03	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB94	HOMOGENEOUS	6.19	10.03	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB94	HOMOGENEOUS	6.19	10.03	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB94	HOMOGENEOUS	6.19	10.03	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB94	HOMOGENEOUS	6.19	10.03	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB94	HOMOGENEOUS	6.19	10.03	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB94	HOMOGENEOUS	6.19	10.03	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB94	HOMOGENEOUS	6.19	10.03	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB95	HOMOGENEOUS	6.19	10.04	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB95	HOMOGENEOUS	6.19	10.04	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB95	HOMOGENEOUS	6.19	10.04	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB95	HOMOGENEOUS	6.19	10.04	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB95	HOMOGENEOUS	6.19	10.04	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB95	HOMOGENEOUS	6.19	10.04	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB95	HOMOGENEOUS	6.19	10.04	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB95	HOMOGENEOUS	6.19	10.04	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB95	HOMOGENEOUS	6.19	10.04	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB95	HOMOGENEOUS	6.19	10.04	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWB95	HOMOGENEOUS	6.19	10.04	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.30	0.19	0.00	0.00
LAWC12	HOMOGENEOUS	11.99	9.14	0.00	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.72	0.14	0.00	0.00
LAWC12	HOMOGENEOUS	11.99	9.14	0.00	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.72	0.14	0.00	0.00
LAWC12	HOMOGENEOUS	11.99	9.14	0.00	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.72	0.14	0.00	0.00
LAWC12	HOMOGENEOUS	11.99	9.14	0.00	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.72	0.14	0.00	0.00
LAWC12	HOMOGENEOUS	11.99	9.14	0.00	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.72	0.14	0.00	0.00
LAWC12	HOMOGENEOUS	11.99	9.14	0.00	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.72	0.14	0.00	0.00
LAWC12	HOMOGENEOUS	11.99	9.14	0.00	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.72	0.14	0.00	0.00
LAWC12	HOMOGENEOUS	11.99	9.14	0.00	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.72	0.14	0.00	0.00
LAWC12	HOMOGENEOUS	11.99	9.14	0.00	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.72	0.14	0.00	0.00
LAWC12	HOMOGENEOUS	11.99	9.14	0.00	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.72	0.14	0.00	0.00
LAWC15	HOMOGENEOUS	6.22	8.93	0.00	2.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.01	0.14	0.00	0.00
LAWC15	HOMOGENEOUS	6.22	8.93	0.00	2.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.01	0.14	0.00	0.00
LAWC15	HOMOGENEOUS	6.22	8.93	0.00	2.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.01	0.14	0.00	0.00
LAWC15	HOMOGENEOUS	6.22	8.93	0.00	2.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.01	0.14	0.00	0.00
LAWC15	HOMOGENEOUS	6.22	8.93	0.00	2.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.01	0.14	0.00	0.00
LAWC15	HOMOGENEOUS	6.22	8.93	0.00	2.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.01	0.14	0.00	0.00
LAWC15	HOMOGENEOUS	6.22	8.93	0.00	2.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.01	0.14	0.00	0.00
LAWC15	HOMOGENEOUS	6.22	8.93	0.00	2.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.01	0.14	0.00	0.00
LAWC15	HOMOGENEOUS	6.22	8.93	0.00	2.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.01	0.14	0.00	0.00
LAWC15	HOMOGENEOUS	6.22	8.93	0.00	2.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.01	0.14	0.00	0.00
LAWC15	HOMOGENEOUS	6.22	8.93	0.00	2.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.01	0.14	0.00	0.00
LAWC15	HOMOGENEOUS	6.22	8.93	0.00	2.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.01	0.14	0.00	0.00
LAWC15	HOMOGENEOUS	6.22	8.93	0.00	2.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.01	0.14	0.00	0.00
LAWC21rev2	HOMOGENEOUS	6.13	10.06	0.00	6.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.44	0.14	0.00	0.00
LAWC21rev2	HOMOGENEOUS	6.13	10.06	0.00	6.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.44	0.14	0.00	0.00
LAWC21rev2	HOMOGENEOUS	6.13	10.06	0.00	6.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.44	0.14	0.00	0.00
LAWC21rev2	HOMOGENEOUS	6.13	10.06	0.00	6.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.44	0.14	0.00	0.00
LAWC21rev2	HOMOGENEOUS	6.13	10.06	0.00	6.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.44	0.14	0.00	0.00
LAWC21rev2	HOMOGENEOUS	6.13	10.06	0.00	6.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.44	0.14	0.00	0.00
LAWC21rev2	HOMOGENEOUS	6.13	10.06	0.00	6.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.44	0.14	0.00	0.00
LAWC21rev2	HOMOGENEOUS	6.13	10.06	0.00	6.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.44	0.14	0.00	0.00
LAWC21rev2	HOMOGENEOUS	6.13	10.06	0.00	6.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.44	0.14	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
LAWB93	4.66	2.97	0.00	0.00	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.98	0.00	0.00	0.00
LAWB93	4.66	2.97	0.00	0.00	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.98	0.00	0.00	0.00
LAWB93	4.66	2.97	0.00	0.00	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.98	0.00	0.00	0.00
LAWB93	4.66	2.97	0.00	0.00	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.98	0.00	0.00	0.00
LAWB93	4.66	2.97	0.00	0.00	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.98	0.00	0.00	0.00
LAWB93	4.66	2.97	0.00	0.00	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.98	0.00	0.00	0.00
LAWB93	4.66	2.97	0.00	0.00	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.98	0.00	0.00	0.00
LAWB93	4.66	2.97	0.00	0.00	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.98	0.00	0.00	0.00
LAWB93	4.66	2.97	0.00	0.00	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.98	0.00	0.00	0.00
LAWB93	4.66	2.97	0.00	0.00	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.98	0.00	0.00	0.00
LAWB93	4.66	2.97	0.00	0.00	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.98	0.00	0.00	0.00
LAWB93	4.66	2.97	0.00	0.00	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.98	0.00	0.00	0.00
LAWB94	5.36	2.97	0.00	0.00	3.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.66	0.00	0.00	0.00
LAWB94	5.36	2.97	0.00	0.00	3.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.66	0.00	0.00	0.00
LAWB94	5.36	2.97	0.00	0.00	3.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.66	0.00	0.00	0.00
LAWB94	5.36	2.97	0.00	0.00	3.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.66	0.00	0.00	0.00
LAWB94	5.36	2.97	0.00	0.00	3.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.66	0.00	0.00	0.00
LAWB94	5.36	2.97	0.00	0.00	3.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.66	0.00	0.00	0.00
LAWB94	5.36	2.97	0.00	0.00	3.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.66	0.00	0.00	0.00
LAWB94	5.36	2.97	0.00	0.00	3.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.66	0.00	0.00	0.00
LAWB94	5.36	2.97	0.00	0.00	3.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.66	0.00	0.00	0.00
LAWB94	5.36	2.97	0.00	0.00	3.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.66	0.00	0.00	0.00
LAWB94	5.36	2.97	0.00	0.00	3.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.66	0.00	0.00	0.00
LAWB94	5.36	2.97	0.00	0.00	3.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.66	0.00	0.00	0.00
LAWB95	5.76	2.97	0.00	0.00	2.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.21	0.00	0.00	0.00
LAWB95	5.76	2.97	0.00	0.00	2.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.21	0.00	0.00	0.00
LAWB95	5.76	2.97	0.00	0.00	2.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.21	0.00	0.00	0.00
LAWB95	5.76	2.97	0.00	0.00	2.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.21	0.00	0.00	0.00
LAWB95	5.76	2.97	0.00	0.00	2.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.21	0.00	0.00	0.00
LAWB95	5.76	2.97	0.00	0.00	2.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.21	0.00	0.00	0.00
LAWB95	5.76	2.97	0.00	0.00	2.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.21	0.00	0.00	0.00
LAWB95	5.76	2.97	0.00	0.00	2.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.21	0.00	0.00	0.00
LAWB95	5.76	2.97	0.00	0.00	2.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.21	0.00	0.00	0.00
LAWB95	5.76	2.97	0.00	0.00	2.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.21	0.00	0.00	0.00
LAWB95	5.76	2.97	0.00	0.00	2.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.21	0.00	0.00	0.00
LAWC12	0.00	1.39	0.00	0.00	20.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.38	0.00	0.00	0.00
LAWC12	0.00	1.39	0.00	0.00	20.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.38	0.00	0.00	0.00
LAWC12	0.00	1.39	0.00	0.00	20.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.38	0.00	0.00	0.00
LAWC12	0.00	1.39	0.00	0.00	20.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.38	0.00	0.00	0.00
LAWC12	0.00	1.39	0.00	0.00	20.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.38	0.00	0.00	0.00
LAWC12	0.00	1.39	0.00	0.00	20.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.38	0.00	0.00	0.00
LAWC12	0.00	1.39	0.00	0.00	20.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.38	0.00	0.00	0.00
LAWC12	0.00	1.39	0.00	0.00	20.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.38	0.00	0.00	0.00
LAWC12	0.00	1.39	0.00	0.00	20.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.38	0.00	0.00	0.00
LAWC12	0.00	1.39	0.00	0.00	20.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.38	0.00	0.00	0.00
LAWC15	0.00	2.01	0.00	0.00	19.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.71	0.00	0.00	0.00
LAWC15	0.00	2.01	0.00	0.00	19.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.71	0.00	0.00	0.00
LAWC15	0.00	2.01	0.00	0.00	19.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.71	0.00	0.00	0.00
LAWC15	0.00	2.01	0.00	0.00	19.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.71	0.00	0.00	0.00
LAWC15	0.00	2.01	0.00	0.00	19.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.71	0.00	0.00	0.00
LAWC15	0.00	2.01	0.00	0.00	19.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.71	0.00	0.00	0.00
LAWC15	0.00	2.01	0.00	0.00	19.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.71	0.00	0.00	0.00
LAWC15	0.00	2.01	0.00	0.00	19.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.71	0.00	0.00	0.00
LAWC15	0.00	2.01	0.00	0.00	19.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.71	0.00	0.00	0.00
LAWC15	0.00	2.01	0.00	0.00	19.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.71	0.00	0.00	0.00
LAWC15	0.00	2.01	0.00	0.00	19.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.71	0.00	0.00	0.00
LAWC15	0.00	2.01	0.00	0.00	19.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.71	0.00	0.00	0.00
LAWC15	0.00	2.01	0.00	0.00	19.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.71	0.00	0.00	0.00
LAWC21rev2	2.73	1.50	0.00	0.00	11.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.78	0.00	0.00	0.00
LAWC21rev2	2.73	1.50	0.00	0.00	11.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.78	0.00	0.00	0.00
LAWC21rev2	2.73	1.50	0.00	0.00	11.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.78	0.00	0.00	0.00
LAWC21rev2	2.73	1.50	0.00	0.00	11.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.78	0.00	0.00	0.00
LAWC21rev2	2.73	1.50	0.00	0.00	11.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.78	0.00	0.00	0.00
LAWC21rev2	2.73	1.50	0.00	0.00	11.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.78	0.00	0.00	0.00
LAWC21rev2	2.73	1.50	0.00	0.00	11.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.78	0.00	0.00	0.00
LAWC21rev2	2.73	1.50	0.00	0.00	11.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.78	0.00	0.00	0.00
LAWC21rev2	2.73	1.50	0.00	0.00	11.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.78	0.00	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
LAWB93	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.70	100.00		
LAWB93	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.70	100.00		
LAWB93	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.70	100.00		
LAWB93	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.70	100.00		
LAWB93	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.70	100.00		
LAWB93	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.70	100.00		
LAWB93	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.70	100.00		
LAWB93	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.70	100.00		
LAWB93	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.70	100.00		
LAWB93	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.70	100.00		
LAWB93	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.70	100.00		
LAWB93	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.70	100.00		
LAWB94	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.75	100.00		
LAWB94	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.75	100.00		
LAWB94	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.75	100.00		
LAWB94	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.75	100.00		
LAWB94	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.75	100.00		
LAWB94	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.75	100.00		
LAWB94	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.75	100.00		
LAWB94	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.75	100.00		
LAWB94	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.75	100.00		
LAWB94	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.75	100.00		
LAWB94	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.75	100.00		
LAWB94	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.75	100.00		
LAWB95	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.71	100.00		
LAWB95	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.71	100.00		
LAWB95	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.71	100.00		
LAWB95	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.71	100.00		
LAWB95	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.71	100.00		
LAWB95	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.71	100.00		
LAWB95	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.71	100.00		
LAWB95	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.71	100.00		
LAWB95	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.71	100.00		
LAWB95	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.71	100.00		
LAWB95	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.71	100.00		
LAWC12	0.00	0.00	3.42	0.00	0.00	4.27	2.46	0.47	100.00		
LAWC12	0.00	0.00	3.42	0.00	0.00	4.27	2.46	0.47	100.00		
LAWC12	0.00	0.00	3.42	0.00	0.00	4.27	2.46	0.47	100.00		
LAWC12	0.00	0.00	3.42	0.00	0.00	4.27	2.46	0.47	100.00		
LAWC12	0.00	0.00	3.42	0.00	0.00	4.27	2.46	0.47	100.00		
LAWC12	0.00	0.00	3.42	0.00	0.00	4.27	2.46	0.47	100.00		
LAWC12	0.00	0.00	3.42	0.00	0.00	4.27	2.46	0.47	100.00		
LAWC12	0.00	0.00	3.42	0.00	0.00	4.27	2.46	0.47	100.00		
LAWC12	0.00	0.00	3.42	0.00	0.00	4.27	2.46	0.47	100.00		
LAWC12	0.00	0.00	3.42	0.00	0.00	4.27	2.46	0.47	100.00		
LAWC15	0.00	0.00	2.00	0.00	0.00	2.99	3.01	1.01	100.00		
LAWC15	0.00	0.00	2.00	0.00	0.00	2.99	3.01	1.01	100.00		
LAWC15	0.00	0.00	2.00	0.00	0.00	2.99	3.01	1.01	100.00		
LAWC15	0.00	0.00	2.00	0.00	0.00	2.99	3.01	1.01	100.00		
LAWC15	0.00	0.00	2.00	0.00	0.00	2.99	3.01	1.01	100.00		
LAWC15	0.00	0.00	2.00	0.00	0.00	2.99	3.01	1.01	100.00		
LAWC15	0.00	0.00	2.00	0.00	0.00	2.99	3.01	1.01	100.00		
LAWC15	0.00	0.00	2.00	0.00	0.00	2.99	3.01	1.01	100.00		
LAWC15	0.00	0.00	2.00	0.00	0.00	2.99	3.01	1.01	100.00		
LAWC15	0.00	0.00	2.00	0.00	0.00	2.99	3.01	1.01	100.00		
LAWC15	0.00	0.00	2.00	0.00	0.00	2.99	3.01	1.01	100.00		
LAWC15	0.00	0.00	2.00	0.00	0.00	2.99	3.01	1.01	100.00		
LAWC15	0.00	0.00	2.00	0.00	0.00	2.99	3.01	1.01	100.00		
LAWC21rev2	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.68	100.00		
LAWC21rev2	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.68	100.00		
LAWC21rev2	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.68	100.00		
LAWC21rev2	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.68	100.00		
LAWC21rev2	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.68	100.00		
LAWC21rev2	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.68	100.00		
LAWC21rev2	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.68	100.00		
LAWC21rev2	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.68	100.00		
LAWC21rev2	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.68	100.00		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
LAWC21rev2	LAW	VSL-11R2270-1	SS	1091.00	0.80	2.023	2,207.087	**2.660**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.34
LAWC21rev2	LAW	VSL-11R2270-1	SS	1449.00	0.80	2.023	2,931.319	**2.660**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.46
LAWC21rev2	LAW	VSL-11R2270-1	SS	1826.00	0.80	2.023	3,693.988	**2.660**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.54
LAWC22	LAW	VSL-11R2270-1	SS	7.00	0.80	2.015	14.108	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.53
LAWC22	LAW	VSL-11R2270-1	SS	28.00	0.80	2.015	56.432	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.62
LAWC22	LAW	VSL-11R2270-1	SS	56.00	0.80	2.015	112.863	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.77
LAWC22	LAW	VSL-11R2270-1	SS	119.00	0.80	2.015	239.835	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.93
LAWC22	LAW	VSL-11R2270-1	SS	180.00	0.80	2.015	362.775	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.22
LAWC22	LAW	VSL-11R2270-1	SS	271.00	0.80	2.015	546.178	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.33
LAWC22	LAW	VSL-11R2270-1	SS	365.00	0.80	2.015	735.628	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.45
LAWC22	LAW	VSL-11R2270-1	SS	546.00	0.80	2.015	1,100.418	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.52
LAWC22	LAW	VSL-11R2270-1	SS	729.00	0.80	2.015	1,469.240	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.65
LAWC22	LAW	VSL-11R2270-1	SS	1096.00	0.80	2.015	2,208.898	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.72
LAWC22	LAW	VSL-11R2270-1	SS	1460.00	0.80	2.015	2,942.510	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.84
LAWC22	LAW	VSL-11R2270-1	SS	1827.00	0.80	2.015	3,682.169	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.95
LAWC22	LAW	VSL-11R2270-1	SS	2195.00	0.80	2.015	4,423.842	**2.670**	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.05
LAWC23	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.74
LAWC23	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.83
LAWC23	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.97
LAWC23	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.12
LAWC23	LAW	VSL-11R2270-1	SS	181.00	0.81	2.031	367.544	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.35
LAWC23	LAW	VSL-11R2270-1	SS	272.00	0.81	2.031	552.331	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.43
LAWC23	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.55
LAWC23	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.63
LAWC23	LAW	VSL-11R2270-1	SS	730.00	0.81	2.031	1,482.359	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.87
LAWC23	LAW	VSL-11R2270-1	SS	1093.00	0.81	2.031	2,219.477	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.93
LAWC23	LAW	VSL-11R2270-1	SS	1459.00	0.81	2.031	2,962.687	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.12
LAWC23	LAW	VSL-11R2270-1	SS	1828.00	0.81	2.031	3,711.989	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.21
LAWC23	LAW	VSL-11R2270-1	SS	2194.00	0.81	2.031	4,455.199	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.25
LAWC23	LAW	VSL-11R2270-1	SS	2653.00	0.81	2.031	5,387.258	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.26
LAWC24	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.62
LAWC24	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.72
LAWC24	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.85
LAWC24	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.02
LAWC24	LAW	VSL-11R2270-1	SS	181.00	0.81	2.031	367.544	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.25
LAWC24	LAW	VSL-11R2270-1	SS	272.00	0.81	2.031	552.331	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.33
LAWC24	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.46
LAWC24	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.54
LAWC24	LAW	VSL-11R2270-1	SS	730.00	0.81	2.031	1,482.359	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.73
LAWC24	LAW	VSL-11R2270-1	SS	1093.00	0.81	2.031	2,219.477	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.85
LAWC24	LAW	VSL-11R2270-1	SS	1459.00	0.81	2.031	2,962.687	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.93
LAWC24	LAW	VSL-11R2270-1	SS	1828.00	0.81	2.031	3,711.989	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.05
LAWC24	LAW	VSL-11R2270-1	SS	2194.00	0.81	2.031	4,455.199	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.07
LAWC24	LAW	VSL-11R2270-1	SS	2653.00	0.81	2.031	5,387.258	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.14
LAWC25	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.76
LAWC25	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	9.86
LAWC25	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.04
LAWC25	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.22
LAWC25	LAW	VSL-11R2270-1	SS	181.00	0.81	2.031	367.544	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.45
LAWC25	LAW	VSL-11R2270-1	SS	272.00	0.81	2.031	552.331	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.54
LAWC25	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.65
LAWC25	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.74
LAWC25	LAW	VSL-11R2270-1	SS	730.00	0.81	2.031	1,482.359	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.94
LAWC25	LAW	VSL-11R2270-1	SS	1093.00	0.81	2.031	2,219.477	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.03
LAWC25	LAW	VSL-11R2270-1	SS	1459.00	0.81	2.031	2,962.687	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.17
LAWC25	LAW	VSL-11R2270-1	SS	1828.00	0.81	2.031	3,711.989	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.23
LAWC25	LAW	VSL-11R2270-1	SS	2194.00	0.81	2.031	4,455.199	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.32
LAWC25	LAW	VSL-11R2270-1	SS	2653.00	0.81	2.031	5,387.258	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.37
LAWC26	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.17
LAWC26	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.36
LAWC26	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.46
LAWC26	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.56
LAWC26	LAW	VSL-11R2270-1	SS	179.00	0.81	2.031	363.483	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.66
LAWC26	LAW	VSL-11R2270-1	SS	270.00	0.81	2.031	548.270	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.75
LAWC26	LAW	VSL-11R2270-1	SS	368.00	0.81	2.031	747.271	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.84
LAWC26	LAW	VSL-11R2270-1	SS	557.00	0.81	2.031	1,131.060	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.95
LAWC26	LAW	VSL-11R2270-1	SS	728.00	0.81	2.031	1,478.298	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.07

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
LAWC21rev2	251.19	142.58	2.13		51.61	353.28	2.52	1.44						
LAWC21rev2	371.19	241.50	2.95		74.54	582.08	3.68	0.76						
LAWC21rev2	423.94	1303.17	5.35		276.73	2397.53	26.14	1.07						
LAWC22	78.92	32.32	0.57		10.29	100.17		2.93					0.57	
LAWC22	116.87	56.14	0.53		16.84	167.40		2.84					0.55	
LAWC22	136.53	65.07	0.32		20.44	178.93		2.99						
LAWC22	144.27	72.89	0.68		21.65	223.50		3.10						
LAWC22	159.13	82.25	0.69		24.21	250.47		2.80						
LAWC22	191.20	98.61	1.10		29.40	311.07		2.54						
LAWC22	243.90	139.65	0.90		40.76	432.79	1.88	3.30						
LAWC22	257.82	155.69	1.28		45.36	440.83		2.95						
LAWC22	298.46	246.70	1.79		65.82	630.72	2.28	1.34						
LAWC22	678.10	2803.93	6.42		416.83	5898.10	31.83	0.96						
LAWC22	724.79	2592.60	4.92		387.83	5214.50	32.01							
LAWC22	600.44	2547.70	5.19		368.53	5059.67	31.22	1.29						
LAWC22	523.74	2438.57	3.92		341.61	4898.03	25.85							
LAWC23	41.75	14.98	0.70			48.19	8.13	1.76						
LAWC23	61.83	27.27	1.00			78.22	12.85	2.04						
LAWC23	61.44	28.69	1.01			87.32	12.70	1.80						
LAWC23	67.24	31.67	1.09			99.34	14.68	1.83						
LAWC23	72.68	32.25	1.22			103.10	16.48	1.84						
LAWC23	80.22	36.59	1.49			113.50	18.66	1.98						
LAWC23	107.02	49.30	1.15			162.20	25.07	2.46						
LAWC23	93.98	45.49	0.90			177.84	21.28	2.41						
LAWC23	96.21	41.93	1.04			184.03	21.95	2.41						
LAWC23	113.82	51.30	1.22			181.65	25.99	2.34						
LAWC23	111.10	47.35	1.15			180.08	24.82	1.31						
LAWC23	128.99	65.00	1.47			213.16	29.20	1.20						
LAWC23	137.64	79.22	1.64			249.48	34.71							
LAWC23	166.79	107.16	8.82			353.76	43.74	0.76			1.81			
LAWC24	38.94	13.45	0.63			48.22	16.36	2.95						
LAWC24	54.33	23.41	0.82			73.72	24.28	3.07						
LAWC24	56.80	27.39	1.12			88.45	25.86	2.79						
LAWC24	65.48	31.19	0.85			104.40	31.67	3.02						
LAWC24	72.25	32.81	0.76			118.53	37.04	3.13						
LAWC24	83.69	38.33	1.07			134.67	43.39	3.28						
LAWC24	104.48	49.27	0.65			184.82	56.40	3.59						
LAWC24	103.20	50.15	0.60			218.25	53.10	3.96						
LAWC24	112.24	52.33	0.58			209.58	57.89	4.14						
LAWC24	136.18	67.89	0.68			242.94	72.65	4.39						
LAWC24	116.97	53.04	0.44			227.28	60.37	3.27						
LAWC24	130.03	68.46	0.64			255.57	66.96	2.85						
LAWC24	161.15	103.01	1.23			340.22	97.02	1.00						
LAWC24	230.78	207.60	16.82			587.71	170.25	1.18			3.50			
LAWC25	45.12	18.93	0.40			64.06	32.99	4.26						
LAWC25	63.21	32.90	0.52			101.97	51.19	4.28						
LAWC25	66.60	38.94	0.37			126.40	59.22	3.75						
LAWC25	76.72	47.82	0.59			144.83	69.56	4.05						
LAWC25	85.47	52.82	0.53			170.13	83.86	3.99						
LAWC25	93.52	60.00	0.69			184.97	93.29	4.15						
LAWC25	121.07	81.87	0.48			261.06	132.69	5.29						
LAWC25	133.20	94.99	0.43			354.21	145.42	5.88						
LAWC25	142.40	101.61	0.55			318.10	151.55	5.47						
LAWC25	157.24	113.58	0.45			354.21	171.57	5.18						
LAWC25	132.77	96.88	0.23			330.74	146.48	2.85						
LAWC25	258.76	306.80	0.85			817.28	362.69	1.45						
LAWC25	418.87	904.08	1.69			2002.70	846.44							
LAWC25	464.05	1106.93	16.73			2276.20	1024.30	1.07			3.10			
LAWC26	60.07	28.16			8.66	58.95		0.85						
LAWC26	79.20	41.55	1.16		13.07	87.61		1.14						
LAWC26	85.46	46.43	1.17		13.93	93.75		1.49						
LAWC26	92.27	52.41	1.05		17.68	113.63		1.89						
LAWC26	101.43	59.37	1.25		15.59	123.80		1.75						
LAWC26	135.59	80.34	2.31		25.40	169.75		2.83						
LAWC26	135.29	84.21	1.69		24.70	169.23		2.48						
LAWC26	123.65	79.90	1.24		24.37	175.98		3.56						
LAWC26	137.39	89.06	1.32		26.73	171.09	1.98	2.18						

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
LAWC21rev2		Not Studied		71.68	18.975	-11.182378	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC21rev2		Not Studied		71.68	18.975	-11.182378	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC21rev2		Not Studied		71.68	18.975	-11.182378	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC22		Not Studied		73.70	16.612	-1.0708861	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC22		Not Studied		73.70	16.612	-1.0708861	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC22		Not Studied		73.70	16.612	-1.0708861	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC22		Not Studied		73.70	16.612	-1.0708861	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC22		Not Studied		73.70	16.612	-1.0708861	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC22		Not Studied		73.70	16.612	-1.0708861	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC22		Not Studied		73.70	16.612	-1.0708861	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC22		Not Studied		73.70	16.612	-1.0708861	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC22		Not Studied		73.70	16.612	-1.0708861	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC22		Not Studied		73.70	16.612	-1.0708861	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC22		Not Studied		73.70	16.612	-1.0708861	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC22		Not Studied		73.70	16.612	-1.0708861	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC22		Not Studied		73.70	16.612	-1.0708861	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC23		Not Studied		71.58	18.989	-11.0978902	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC23		Not Studied		71.58	18.989	-11.0978902	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC23		Not Studied		71.58	18.989	-11.0978902	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC23		Not Studied		71.58	18.989	-11.0978902	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC23		Not Studied		71.58	18.989	-11.0978902	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC23		Not Studied		71.58	18.989	-11.0978902	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC23		Not Studied		71.58	18.989	-11.0978902	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC23		Not Studied		71.58	18.989	-11.0978902	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC23		Not Studied		71.58	18.989	-11.0978902	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC23		Not Studied		71.58	18.989	-11.0978902	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC23		Not Studied		71.58	18.989	-11.0978902	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC23		Not Studied		71.58	18.989	-11.0978902	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC23		Not Studied		71.58	18.989	-11.0978902	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC23		Not Studied		71.58	18.989	-11.0978902	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC24		Not Studied		72.34	18.483	-9.4587634	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC24		Not Studied		72.34	18.483	-9.4587634	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC24		Not Studied		72.34	18.483	-9.4587634	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC24		Not Studied		72.34	18.483	-9.4587634	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC24		Not Studied		72.34	18.483	-9.4587634	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC24		Not Studied		72.34	18.483	-9.4587634	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC24		Not Studied		72.34	18.483	-9.4587634	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC24		Not Studied		72.34	18.483	-9.4587634	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC24		Not Studied		72.34	18.483	-9.4587634	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC24		Not Studied		72.34	18.483	-9.4587634	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC24		Not Studied		72.34	18.483	-9.4587634	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC24		Not Studied		72.34	18.483	-9.4587634	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC24		Not Studied		72.34	18.483	-9.4587634	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC24		Not Studied		72.34	18.483	-9.4587634	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC25		Not Studied		72.94	17.952	-7.4218816	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC25		Not Studied		72.94	17.952	-7.4218816	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC25		Not Studied		72.94	17.952	-7.4218816	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC25		Not Studied		72.94	17.952	-7.4218816	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC25		Not Studied		72.94	17.952	-7.4218816	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC25		Not Studied		72.94	17.952	-7.4218816	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC25		Not Studied		72.94	17.952	-7.4218816	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC25		Not Studied		72.94	17.952	-7.4218816	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC25		Not Studied		72.94	17.952	-7.4218816	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC25		Not Studied		72.94	17.952	-7.4218816	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC25		Not Studied		72.94	17.952	-7.4218816	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC25		Not Studied		72.94	17.952	-7.4218816	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC25		Not Studied		72.94	17.952	-7.4218816	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC25		Not Studied		72.94	17.952	-7.4218816	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC26		Not Studied		78.06	12.542	14.9227964	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC26		Not Studied		78.06	12.542	14.9227964	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC26		Not Studied		78.06	12.542	14.9227964	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC26		Not Studied		78.06	12.542	14.9227964	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC26		Not Studied		78.06	12.542	14.9227964	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC26		Not Studied		78.06	12.542	14.9227964	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC26		Not Studied		78.06	12.542	14.9227964	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC26		Not Studied		78.06	12.542	14.9227964	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC26		Not Studied		78.06	12.542	14.9227964	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
LAWC21rev2	HOMOGENEOUS	6.13	10.06	0.00	6.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.44	0.14	0.00	0.00
LAWC21rev2	HOMOGENEOUS	6.13	10.06	0.00	6.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.44	0.14	0.00	0.00
LAWC21rev2	HOMOGENEOUS	6.13	10.06	0.00	6.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.44	0.14	0.00	0.00
LAWC22	HOMOGENEOUS	6.08	10.06	0.00	5.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.43	0.08	0.00	0.00
LAWC22	HOMOGENEOUS	6.08	10.06	0.00	5.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.43	0.08	0.00	0.00
LAWC22	HOMOGENEOUS	6.08	10.06	0.00	5.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.43	0.08	0.00	0.00
LAWC22	HOMOGENEOUS	6.08	10.06	0.00	5.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.43	0.08	0.00	0.00
LAWC22	HOMOGENEOUS	6.08	10.06	0.00	5.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.43	0.08	0.00	0.00
LAWC22	HOMOGENEOUS	6.08	10.06	0.00	5.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.43	0.08	0.00	0.00
LAWC22	HOMOGENEOUS	6.08	10.06	0.00	5.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.43	0.08	0.00	0.00
LAWC22	HOMOGENEOUS	6.08	10.06	0.00	5.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.43	0.08	0.00	0.00
LAWC22	HOMOGENEOUS	6.08	10.06	0.00	5.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.43	0.08	0.00	0.00
LAWC22	HOMOGENEOUS	6.08	10.06	0.00	5.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.43	0.08	0.00	0.00
LAWC22	HOMOGENEOUS	6.08	10.06	0.00	5.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.43	0.08	0.00	0.00
LAWC22	HOMOGENEOUS	6.08	10.06	0.00	5.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.43	0.08	0.00	0.00
LAWC22	HOMOGENEOUS	6.08	10.06	0.00	5.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.43	0.08	0.00	0.00
LAWC23	HOMOGENEOUS	6.12	10.08	0.00	6.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.47	2.88	0.00	0.00
LAWC23	HOMOGENEOUS	6.12	10.08	0.00	6.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.47	2.88	0.00	0.00
LAWC23	HOMOGENEOUS	6.12	10.08	0.00	6.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.47	2.88	0.00	0.00
LAWC23	HOMOGENEOUS	6.12	10.08	0.00	6.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.47	2.88	0.00	0.00
LAWC23	HOMOGENEOUS	6.12	10.08	0.00	6.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.47	2.88	0.00	0.00
LAWC23	HOMOGENEOUS	6.12	10.08	0.00	6.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.47	2.88	0.00	0.00
LAWC23	HOMOGENEOUS	6.12	10.08	0.00	6.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.47	2.88	0.00	0.00
LAWC23	HOMOGENEOUS	6.12	10.08	0.00	6.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.47	2.88	0.00	0.00
LAWC23	HOMOGENEOUS	6.12	10.08	0.00	6.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.47	2.88	0.00	0.00
LAWC23	HOMOGENEOUS	6.12	10.08	0.00	6.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.47	2.88	0.00	0.00
LAWC23	HOMOGENEOUS	6.12	10.08	0.00	6.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.47	2.88	0.00	0.00
LAWC23	HOMOGENEOUS	6.12	10.08	0.00	6.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.47	2.88	0.00	0.00
LAWC23	HOMOGENEOUS	6.12	10.08	0.00	6.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.47	2.88	0.00	0.00
LAWC23	HOMOGENEOUS	6.12	10.08	0.00	6.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.47	2.88	0.00	0.00
LAWC24	HOMOGENEOUS	5.96	9.81	0.00	6.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.30	5.56	0.00	0.00
LAWC24	HOMOGENEOUS	5.96	9.81	0.00	6.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.30	5.56	0.00	0.00
LAWC24	HOMOGENEOUS	5.96	9.81	0.00	6.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.30	5.56	0.00	0.00
LAWC24	HOMOGENEOUS	5.96	9.81	0.00	6.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.30	5.56	0.00	0.00
LAWC24	HOMOGENEOUS	5.96	9.81	0.00	6.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.30	5.56	0.00	0.00
LAWC24	HOMOGENEOUS	5.96	9.81	0.00	6.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.30	5.56	0.00	0.00
LAWC24	HOMOGENEOUS	5.96	9.81	0.00	6.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.30	5.56	0.00	0.00
LAWC24	HOMOGENEOUS	5.96	9.81	0.00	6.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.30	5.56	0.00	0.00
LAWC24	HOMOGENEOUS	5.96	9.81	0.00	6.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.30	5.56	0.00	0.00
LAWC24	HOMOGENEOUS	5.96	9.81	0.00	6.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.30	5.56	0.00	0.00
LAWC24	HOMOGENEOUS	5.96	9.81	0.00	6.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.30	5.56	0.00	0.00
LAWC24	HOMOGENEOUS	5.96	9.81	0.00	6.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.30	5.56	0.00	0.00
LAWC24	HOMOGENEOUS	5.96	9.81	0.00	6.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.30	5.56	0.00	0.00
LAWC24	HOMOGENEOUS	5.96	9.81	0.00	6.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.30	5.56	0.00	0.00
LAWC25	HOMOGENEOUS	5.78	9.53	0.00	6.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.12	8.08	0.00	0.00
LAWC25	HOMOGENEOUS	5.78	9.53	0.00	6.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.12	8.08	0.00	0.00
LAWC25	HOMOGENEOUS	5.78	9.53	0.00	6.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.12	8.08	0.00	0.00
LAWC25	HOMOGENEOUS	5.78	9.53	0.00	6.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.12	8.08	0.00	0.00
LAWC25	HOMOGENEOUS	5.78	9.53	0.00	6.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.12	8.08	0.00	0.00
LAWC25	HOMOGENEOUS	5.78	9.53	0.00	6.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.12	8.08	0.00	0.00
LAWC25	HOMOGENEOUS	5.78	9.53	0.00	6.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.12	8.08	0.00	0.00
LAWC25	HOMOGENEOUS	5.78	9.53	0.00	6.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.12	8.08	0.00	0.00
LAWC25	HOMOGENEOUS	5.78	9.53	0.00	6.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.12	8.08	0.00	0.00
LAWC25	HOMOGENEOUS	5.78	9.53	0.00	6.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.12	8.08	0.00	0.00
LAWC25	HOMOGENEOUS	5.78	9.53	0.00	6.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.12	8.08	0.00	0.00
LAWC25	HOMOGENEOUS	5.78	9.53	0.00	6.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.12	8.08	0.00	0.00
LAWC25	HOMOGENEOUS	5.78	9.53	0.00	6.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.12	8.08	0.00	0.00
LAWC25	HOMOGENEOUS	5.78	9.53	0.00	6.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.12	8.08	0.00	0.00
LAWC26	HOMOGENEOUS	6.12	13.26	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC26	HOMOGENEOUS	6.12	13.26	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC26	HOMOGENEOUS	6.12	13.26	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC26	HOMOGENEOUS	6.12	13.26	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC26	HOMOGENEOUS	6.12	13.26	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC26	HOMOGENEOUS	6.12	13.26	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC26	HOMOGENEOUS	6.12	13.26	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC26	HOMOGENEOUS	6.12	13.26	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC26	HOMOGENEOUS	6.12	13.26	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
LAWC21rev2	2.73	1.50	0.00	0.00	11.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.78	0.00	0.00	0.00
LAWC21rev2	2.73	1.50	0.00	0.00	11.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.78	0.00	0.00	0.00
LAWC21rev2	2.73	1.50	0.00	0.00	11.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.78	0.00	0.00	0.00
LAWC22	2.51	1.51	0.00	0.00	14.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
LAWC22	2.51	1.51	0.00	0.00	14.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
LAWC22	2.51	1.51	0.00	0.00	14.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
LAWC22	2.51	1.51	0.00	0.00	14.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
LAWC22	2.51	1.51	0.00	0.00	14.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
LAWC22	2.51	1.51	0.00	0.00	14.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
LAWC22	2.51	1.51	0.00	0.00	14.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
LAWC22	2.51	1.51	0.00	0.00	14.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
LAWC22	2.51	1.51	0.00	0.00	14.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
LAWC22	2.51	1.51	0.00	0.00	14.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
LAWC22	2.51	1.51	0.00	0.00	14.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
LAWC22	2.51	1.51	0.00	0.00	14.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
LAWC22	2.51	1.51	0.00	0.00	14.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
LAWC23	0.00	1.51	0.00	0.00	11.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.76	0.00	0.00	0.00
LAWC23	0.00	1.51	0.00	0.00	11.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.76	0.00	0.00	0.00
LAWC23	0.00	1.51	0.00	0.00	11.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.76	0.00	0.00	0.00
LAWC23	0.00	1.51	0.00	0.00	11.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.76	0.00	0.00	0.00
LAWC23	0.00	1.51	0.00	0.00	11.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.76	0.00	0.00	0.00
LAWC23	0.00	1.51	0.00	0.00	11.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.76	0.00	0.00	0.00
LAWC23	0.00	1.51	0.00	0.00	11.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.76	0.00	0.00	0.00
LAWC23	0.00	1.51	0.00	0.00	11.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.76	0.00	0.00	0.00
LAWC23	0.00	1.51	0.00	0.00	11.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.76	0.00	0.00	0.00
LAWC23	0.00	1.51	0.00	0.00	11.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.76	0.00	0.00	0.00
LAWC23	0.00	1.51	0.00	0.00	11.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.76	0.00	0.00	0.00
LAWC23	0.00	1.51	0.00	0.00	11.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.76	0.00	0.00	0.00
LAWC23	0.00	1.51	0.00	0.00	11.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.76	0.00	0.00	0.00
LAWC23	0.00	1.51	0.00	0.00	11.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.76	0.00	0.00	0.00
LAWC24	0.00	1.47	0.00	0.00	11.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.43	0.00	0.00	0.00
LAWC24	0.00	1.47	0.00	0.00	11.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.43	0.00	0.00	0.00
LAWC24	0.00	1.47	0.00	0.00	11.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.43	0.00	0.00	0.00
LAWC24	0.00	1.47	0.00	0.00	11.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.43	0.00	0.00	0.00
LAWC24	0.00	1.47	0.00	0.00	11.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.43	0.00	0.00	0.00
LAWC24	0.00	1.47	0.00	0.00	11.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.43	0.00	0.00	0.00
LAWC24	0.00	1.47	0.00	0.00	11.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.43	0.00	0.00	0.00
LAWC24	0.00	1.47	0.00	0.00	11.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.43	0.00	0.00	0.00
LAWC24	0.00	1.47	0.00	0.00	11.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.43	0.00	0.00	0.00
LAWC24	0.00	1.47	0.00	0.00	11.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.43	0.00	0.00	0.00
LAWC24	0.00	1.47	0.00	0.00	11.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.43	0.00	0.00	0.00
LAWC24	0.00	1.47	0.00	0.00	11.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.43	0.00	0.00	0.00
LAWC24	0.00	1.47	0.00	0.00	11.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.43	0.00	0.00	0.00
LAWC24	0.00	1.47	0.00	0.00	11.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.43	0.00	0.00	0.00
LAWC25	0.00	1.43	0.00	0.00	11.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.12	0.00	0.00	0.00
LAWC25	0.00	1.43	0.00	0.00	11.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.12	0.00	0.00	0.00
LAWC25	0.00	1.43	0.00	0.00	11.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.12	0.00	0.00	0.00
LAWC25	0.00	1.43	0.00	0.00	11.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.12	0.00	0.00	0.00
LAWC25	0.00	1.43	0.00	0.00	11.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.12	0.00	0.00	0.00
LAWC25	0.00	1.43	0.00	0.00	11.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.12	0.00	0.00	0.00
LAWC25	0.00	1.43	0.00	0.00	11.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.12	0.00	0.00	0.00
LAWC25	0.00	1.43	0.00	0.00	11.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.12	0.00	0.00	0.00
LAWC25	0.00	1.43	0.00	0.00	11.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.12	0.00	0.00	0.00
LAWC25	0.00	1.43	0.00	0.00	11.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.12	0.00	0.00	0.00
LAWC25	0.00	1.43	0.00	0.00	11.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.12	0.00	0.00	0.00
LAWC25	0.00	1.43	0.00	0.00	11.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.12	0.00	0.00	0.00
LAWC25	0.00	1.43	0.00	0.00	11.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.12	0.00	0.00	0.00
LAWC25	0.00	1.43	0.00	0.00	11.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.12	0.00	0.00	0.00
LAWC26	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.96	0.00	0.00	0.00
LAWC26	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.96	0.00	0.00	0.00
LAWC26	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.96	0.00	0.00	0.00
LAWC26	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.96	0.00	0.00	0.00
LAWC26	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.96	0.00	0.00	0.00
LAWC26	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.96	0.00	0.00	0.00
LAWC26	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.96	0.00	0.00	0.00
LAWC26	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.96	0.00	0.00	0.00
LAWC26	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.96	0.00	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
LAWC21rev2	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.68	100.00		
LAWC21rev2	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.68	100.00		
LAWC21rev2	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.68	100.00		
LAWC22	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.94	100.00		
LAWC22	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.94	100.00		
LAWC22	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.94	100.00		
LAWC22	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.94	100.00		
LAWC22	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.94	100.00		
LAWC22	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.94	100.00		
LAWC22	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.94	100.00		
LAWC22	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.94	100.00		
LAWC22	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.94	100.00		
LAWC22	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.94	100.00		
LAWC22	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.94	100.00		
LAWC22	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.94	100.00		
LAWC22	0.00	0.00	1.14	0.00	0.00	3.07	3.03	0.94	100.00		
LAWC23	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.78	100.00		
LAWC23	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.78	100.00		
LAWC23	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.78	100.00		
LAWC23	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.78	100.00		
LAWC23	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.78	100.00		
LAWC23	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.78	100.00		
LAWC23	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.78	100.00		
LAWC23	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.78	100.00		
LAWC23	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.78	100.00		
LAWC23	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.78	100.00		
LAWC23	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.78	100.00		
LAWC23	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.78	100.00		
LAWC23	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.78	100.00		
LAWC23	0.00	0.00	1.12	0.00	0.00	3.01	3.02	0.78	100.00		
LAWC24	0.00	0.00	1.09	0.00	0.00	2.93	2.94	0.75	100.00		
LAWC24	0.00	0.00	1.09	0.00	0.00	2.93	2.94	0.75	100.00		
LAWC24	0.00	0.00	1.09	0.00	0.00	2.93	2.94	0.75	100.00		
LAWC24	0.00	0.00	1.09	0.00	0.00	2.93	2.94	0.75	100.00		
LAWC24	0.00	0.00	1.09	0.00	0.00	2.93	2.94	0.75	100.00		
LAWC24	0.00	0.00	1.09	0.00	0.00	2.93	2.94	0.75	100.00		
LAWC24	0.00	0.00	1.09	0.00	0.00	2.93	2.94	0.75	100.00		
LAWC24	0.00	0.00	1.09	0.00	0.00	2.93	2.94	0.75	100.00		
LAWC24	0.00	0.00	1.09	0.00	0.00	2.93	2.94	0.75	100.00		
LAWC24	0.00	0.00	1.09	0.00	0.00	2.93	2.94	0.75	100.00		
LAWC24	0.00	0.00	1.09	0.00	0.00	2.93	2.94	0.75	100.00		
LAWC24	0.00	0.00	1.09	0.00	0.00	2.93	2.94	0.75	100.00		
LAWC24	0.00	0.00	1.09	0.00	0.00	2.93	2.94	0.75	100.00		
LAWC24	0.00	0.00	1.09	0.00	0.00	2.93	2.94	0.75	100.00		
LAWC25	0.00	0.00	1.06	0.00	0.00	2.85	2.85	0.93	100.00		
LAWC25	0.00	0.00	1.06	0.00	0.00	2.85	2.85	0.93	100.00		
LAWC25	0.00	0.00	1.06	0.00	0.00	2.85	2.85	0.93	100.00		
LAWC25	0.00	0.00	1.06	0.00	0.00	2.85	2.85	0.93	100.00		
LAWC25	0.00	0.00	1.06	0.00	0.00	2.85	2.85	0.93	100.00		
LAWC25	0.00	0.00	1.06	0.00	0.00	2.85	2.85	0.93	100.00		
LAWC25	0.00	0.00	1.06	0.00	0.00	2.85	2.85	0.93	100.00		
LAWC25	0.00	0.00	1.06	0.00	0.00	2.85	2.85	0.93	100.00		
LAWC25	0.00	0.00	1.06	0.00	0.00	2.85	2.85	0.93	100.00		
LAWC25	0.00	0.00	1.06	0.00	0.00	2.85	2.85	0.93	100.00		
LAWC25	0.00	0.00	1.06	0.00	0.00	2.85	2.85	0.93	100.00		
LAWC25	0.00	0.00	1.06	0.00	0.00	2.85	2.85	0.93	100.00		
LAWC25	0.00	0.00	1.06	0.00	0.00	2.85	2.85	0.93	100.00		
LAWC25	0.00	0.00	1.06	0.00	0.00	2.85	2.85	0.93	100.00		
LAWC26	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.74	100.00		
LAWC26	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.74	100.00		
LAWC26	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.74	100.00		
LAWC26	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.74	100.00		
LAWC26	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.74	100.00		
LAWC26	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.74	100.00		
LAWC26	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.74	100.00		
LAWC26	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.74	100.00		
LAWC26	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.74	100.00		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
LAWC26	LAW	VSL-11R2270-1	SS	1098.00	0.81	2.031	2,229.630	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.12
LAWC26	LAW	VSL-11R2270-1	SS	1461.00	0.81	2.031	2,966.748	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.25
LAWC26	LAW	VSL-11R2270-1	SS	1832.00	0.81	2.031	3,720.112	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.35
LAWC27	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.35
LAWC27	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.53
LAWC27	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.75
LAWC27	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.86
LAWC27	LAW	VSL-11R2270-1	SS	179.00	0.81	2.031	363.483	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.98
LAWC27	LAW	VSL-11R2270-1	SS	270.00	0.81	2.031	548.270	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.05
LAWC27	LAW	VSL-11R2270-1	SS	368.00	0.81	2.031	747.271	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.14
LAWC27	LAW	VSL-11R2270-1	SS	557.00	0.81	2.031	1,131.060	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.24
LAWC27	LAW	VSL-11R2270-1	SS	728.00	0.81	2.031	1,478.298	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.37
LAWC27	LAW	VSL-11R2270-1	SS	1098.00	0.81	2.031	2,229.630	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.45
LAWC27	LAW	VSL-11R2270-1	SS	1461.00	0.81	2.031	2,966.748	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.54
LAWC27	LAW	VSL-11R2270-1	SS	1832.00	0.81	2.031	3,720.112	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.64
LAWC28	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.74
LAWC28	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.25
LAWC28	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.28
LAWC28	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.35
LAWC28	LAW	VSL-11R2270-1	SS	179.00	0.81	2.031	363.483	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.45
LAWC28	LAW	VSL-11R2270-1	SS	270.00	0.81	2.031	548.270	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.54
LAWC28	LAW	VSL-11R2270-1	SS	368.00	0.81	2.031	747.271	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.65
LAWC28	LAW	VSL-11R2270-1	SS	557.00	0.81	2.031	1,131.060	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.78
LAWC28	LAW	VSL-11R2270-1	SS	728.00	0.81	2.031	1,478.298	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.84
LAWC28	LAW	VSL-11R2270-1	SS	1098.00	0.81	2.031	2,229.630	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.95
LAWC28	LAW	VSL-11R2270-1	SS	1461.00	0.81	2.031	2,966.748	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.04
LAWC28	LAW	VSL-11R2270-1	SS	1832.00	0.81	2.031	3,720.112	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	12.14
LAWC29	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.36
LAWC29	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.57
LAWC29	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.77
LAWC29	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.85
LAWC29	LAW	VSL-11R2270-1	SS	179.00	0.81	2.031	363.483	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.94
LAWC29	LAW	VSL-11R2270-1	SS	270.00	0.81	2.031	548.270	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.06
LAWC29	LAW	VSL-11R2270-1	SS	368.00	0.81	2.031	747.271	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.14
LAWC29	LAW	VSL-11R2270-1	SS	557.00	0.81	2.031	1,131.060	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.25
LAWC29	LAW	VSL-11R2270-1	SS	728.00	0.81	2.031	1,478.298	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.34
LAWC29	LAW	VSL-11R2270-1	SS	1098.00	0.81	2.031	2,229.630	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.43
LAWC29	LAW	VSL-11R2270-1	SS	1461.00	0.81	2.031	2,966.748	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.55
LAWC29	LAW	VSL-11R2270-1	SS	1832.00	0.81	2.031	3,720.112	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.62
LAWC30	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.55
LAWC30	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.77
LAWC30	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.95
LAWC30	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.14
LAWC30	LAW	VSL-11R2270-1	SS	179.00	0.81	2.031	363.483	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.24
LAWC30	LAW	VSL-11R2270-1	SS	270.00	0.81	2.031	548.270	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.35
LAWC30	LAW	VSL-11R2270-1	SS	368.00	0.81	2.031	747.271	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.43
LAWC30	LAW	VSL-11R2270-1	SS	557.00	0.81	2.031	1,131.060	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.54
LAWC30	LAW	VSL-11R2270-1	SS	728.00	0.81	2.031	1,478.298	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.65
LAWC30	LAW	VSL-11R2270-1	SS	1098.00	0.81	2.031	2,229.630	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.74
LAWC30	LAW	VSL-11R2270-1	SS	1461.00	0.81	2.031	2,966.748	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.84
LAWC30	LAW	VSL-11R2270-1	SS	1832.00	0.81	2.031	3,720.112	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.87
LAWC31	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.43
LAWC31	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.63
LAWC31	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.74
LAWC31	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.95
LAWC31	LAW	VSL-11R2270-1	SS	181.00	0.81	2.031	367.544	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.06
LAWC31	LAW	VSL-11R2270-1	SS	269.00	0.81	2.031	546.239	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.18
LAWC31	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.24
LAWC31	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.37
LAWC31	LAW	VSL-11R2270-1	SS	735.00	0.81	2.031	1,492.512	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.43
LAWC31	LAW	VSL-11R2270-1	SS	1093.00	0.81	2.031	2,219.477	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.55
LAWC31	LAW	VSL-11R2270-1	SS	1456.00	0.81	2.031	2,956.595	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.65
LAWC31	LAW	VSL-11R2270-1	SS	1827.00	0.81	2.031	3,709.959	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.67
LAWC32	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.57
LAWC32	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.74
LAWC32	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.86
LAWC32	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.98

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
LAWC26	145.49	96.29	1.29		29.30	186.77		2.50						
LAWC26	175.40	123.94	1.71		36.95	256.18	2.36	0.85						
LAWC26	259.53	184.39	2.79		57.77	337.56	2.58	0.88						
LAWC27	41.86	14.27	2.50		5.48	39.02		1.18						
LAWC27	56.11	21.25	3.28		8.49	60.51		1.38						
LAWC27	65.65	25.90	3.14		10.11	71.94		1.92						
LAWC27	76.30	29.99	2.99		13.50	94.77		2.29						
LAWC27	75.99	31.35	2.62		13.14	83.42		2.34						
LAWC27	115.22	41.86	3.76		20.19	143.47	1.71	3.66						
LAWC27	116.32	45.87	3.55		19.44	143.59		3.40						
LAWC27	108.86	39.78	3.19		19.06	141.53		4.06						
LAWC27	117.22	43.23	3.27		19.84	139.29	2.71	3.27						
LAWC27	124.53	44.04	2.97		21.03	149.58		3.13						
LAWC27	150.67	56.00	2.95		24.71	189.55	2.32	1.35						
LAWC27	235.17	96.37	3.48		39.06	264.59	2.59	1.36						
LAWC28	35.72	8.92	7.63		5.44	38.91		1.65						
LAWC28	45.08	11.76	9.76		7.81	57.40		2.04						
LAWC28	49.46	12.74	9.86		8.81	65.51		2.54						
LAWC28	56.57	14.13	10.11		12.01	90.61		3.02						
LAWC28	56.75	16.41	7.13		11.73	85.76		3.36						
LAWC28	84.45	18.40	8.62		18.14	139.77	2.20	4.90						
LAWC28	95.76	29.12	5.61		19.31	152.96		4.84						
LAWC28	103.70	29.39	3.95		21.95	178.06	1.91	5.95						
LAWC28	119.85	36.11	3.08		25.38	188.18	2.05	5.90						
LAWC28	152.26	54.10	2.18		32.33	232.35	2.16	5.30						
LAWC28	252.32	132.80	1.71		59.38	445.49	4.59	2.54						
LAWC28	512.18	2522.73	6.59		585.41	4171.53	37.53	2.66			0.47			
LAWC29	36.23	9.46	3.82		5.10	36.73		1.80						
LAWC29	49.91	13.53	5.23		8.11	58.90		2.21						
LAWC29	56.74	16.08	5.33		9.13	66.90		2.57						
LAWC29	68.31	19.13	5.58		13.11	94.46		3.37						
LAWC29	74.26	20.85	5.67		11.78	96.92		2.91						
LAWC29	100.55	27.98	7.22		18.42	136.63		4.72						
LAWC29	100.39	27.88	6.13		17.60	138.59		4.47						
LAWC29	93.79	26.89	5.05		16.83	145.64		5.79						
LAWC29	103.43	23.97	4.79		18.61	143.52	2.02	4.59						
LAWC29	112.31	28.53	3.59		19.62	153.88		4.96						
LAWC29	123.17	35.48	3.23		21.08	169.23		3.93						
LAWC29	158.69	90.29	3.42		35.30	271.97	2.77	4.00						
LAWC30	56.64	18.64			8.39	58.26		1.77						
LAWC30	95.74	40.70	0.58		17.24	115.23		1.78						
LAWC30	117.97	53.53	0.82		20.95	143.90		2.12						
LAWC30	149.53	69.93	1.02		28.83	202.07		2.39						
LAWC30	157.47	74.53	1.29		27.93	197.70		2.32						
LAWC30	209.53	105.89	1.68		43.18	299.34	2.53	2.87						
LAWC30	220.10	110.33	1.61		43.77	309.35	2.26	2.29						
LAWC30	204.29	101.78	1.63		38.94	296.13	2.42	5.37						
LAWC30	240.20	110.81	2.60		47.86	340.14	3.32	1.20						
LAWC30	308.15	161.35	3.37		60.99	398.33	3.63	1.58						
LAWC30	302.74	199.30	2.10		66.78	466.48	3.74	0.78						
LAWC30	454.02	958.28	4.84		215.23	1811.87	13.15	2.11						
LAWC31	52.25	17.14	1.19		7.96	55.57		1.83						
LAWC31	77.19	29.68	0.96		12.86	91.99		1.85						
LAWC31	89.60	36.03	1.00		15.84	112.37		2.16						
LAWC31	122.10	51.46	1.50		22.70	153.03		3.24						
LAWC31	132.80	55.36	1.54		25.84	186.80		3.42						
LAWC31	168.14	73.58	1.78		33.67	243.09	2.56	3.55						
LAWC31	168.71	72.39	1.69		33.43	249.16	2.60	3.37						
LAWC31	177.85	80.94			35.98	256.85	2.75	2.71						
LAWC31	205.62	100.53			41.22	305.28	3.37	1.77						
LAWC31	270.98	185.52	2.06		69.92	518.12	3.87	1.51						
LAWC31	358.35	932.64	3.87		180.42	1667.43	14.53	1.08						
LAWC31	417.74	1870.23	10.49		365.37	3404.77	38.43	1.24	1.29					
LAWC32	45.34	13.05	3.66		6.73	49.04		2.14						
LAWC32	53.48	16.88	3.44		8.78	65.54		2.16						
LAWC32	59.46	19.04	3.23		10.46	77.63		2.54						
LAWC32	80.27	26.00	3.68		14.75	103.20		4.05						

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
LAWC26		Not Studied		78.06	12.542	14.9227964	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC26		Not Studied		78.06	12.542	14.9227964	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC26		Not Studied		78.06	12.542	14.9227964	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC27		Not Studied		75.87	14.67	6.4047185	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC27		Not Studied		75.87	14.67	6.4047185	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC27		Not Studied		75.87	14.67	6.4047185	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC27		Not Studied		75.87	14.67	6.4047185	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC27		Not Studied		75.87	14.67	6.4047185	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC27		Not Studied		75.87	14.67	6.4047185	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC27		Not Studied		75.87	14.67	6.4047185	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC27		Not Studied		75.87	14.67	6.4047185	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC27		Not Studied		75.87	14.67	6.4047185	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC27		Not Studied		75.87	14.67	6.4047185	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC27		Not Studied		75.87	14.67	6.4047185	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC27		Not Studied		75.87	14.67	6.4047185	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC28		Not Studied		71.59	18.941	-10.8412273	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC28		Not Studied		71.59	18.941	-10.8412273	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC28		Not Studied		71.59	18.941	-10.8412273	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC28		Not Studied		71.59	18.941	-10.8412273	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC28		Not Studied		71.59	18.941	-10.8412273	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC28		Not Studied		71.59	18.941	-10.8412273	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC28		Not Studied		71.59	18.941	-10.8412273	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC28		Not Studied		71.59	18.941	-10.8412273	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC28		Not Studied		71.59	18.941	-10.8412273	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC28		Not Studied		71.59	18.941	-10.8412273	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC28		Not Studied		71.59	18.941	-10.8412273	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC28		Not Studied		71.59	18.941	-10.8412273	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC29		Not Studied		72.06	16.177	4.0108364	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC29		Not Studied		72.06	16.177	4.0108364	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC29		Not Studied		72.06	16.177	4.0108364	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC29		Not Studied		72.06	16.177	4.0108364	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC29		Not Studied		72.06	16.177	4.0108364	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC29		Not Studied		72.06	16.177	4.0108364	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC29		Not Studied		72.06	16.177	4.0108364	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC29		Not Studied		72.06	16.177	4.0108364	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC29		Not Studied		72.06	16.177	4.0108364	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC29		Not Studied		72.06	16.177	4.0108364	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC29		Not Studied		72.06	16.177	4.0108364	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC29		Not Studied		72.06	16.177	4.0108364	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC30		Not Studied		71.64	16.635	2.0912	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC30		Not Studied		71.64	16.635	2.0912	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC30		Not Studied		71.64	16.635	2.0912	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC30		Not Studied		71.64	16.635	2.0912	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC30		Not Studied		71.64	16.635	2.0912	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC30		Not Studied		71.64	16.635	2.0912	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC30		Not Studied		71.64	16.635	2.0912	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC30		Not Studied		71.64	16.635	2.0912	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC30		Not Studied		71.64	16.635	2.0912	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC30		Not Studied		71.64	16.635	2.0912	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC30		Not Studied		71.64	16.635	2.0912	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC30		Not Studied		71.64	16.635	2.0912	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC31		Not Studied		71.61	17.957	-5.3174656	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC31		Not Studied		71.61	17.957	-5.3174656	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC31		Not Studied		71.61	17.957	-5.3174656	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC31		Not Studied		71.61	17.957	-5.3174656	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC31		Not Studied		71.61	17.957	-5.3174656	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC31		Not Studied		71.61	17.957	-5.3174656	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC31		Not Studied		71.61	17.957	-5.3174656	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC31		Not Studied		71.61	17.957	-5.3174656	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC31		Not Studied		71.61	17.957	-5.3174656	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC31		Not Studied		71.61	17.957	-5.3174656	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC31		Not Studied		71.61	17.957	-5.3174656	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC31		Not Studied		71.61	17.957	-5.3174656	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC32		Not Studied		71.62	17.952	-5.3068651	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC32		Not Studied		71.62	17.952	-5.3068651	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC32		Not Studied		71.62	17.952	-5.3068651	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC32		Not Studied		71.62	17.952	-5.3068651	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
LAWC26	HOMOGENEOUS	6.12	13.26	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC26	HOMOGENEOUS	6.12	13.26	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC26	HOMOGENEOUS	6.12	13.26	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC27	HOMOGENEOUS	6.12	12.18	0.00	8.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC27	HOMOGENEOUS	6.12	12.18	0.00	8.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC27	HOMOGENEOUS	6.12	12.18	0.00	8.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC27	HOMOGENEOUS	6.12	12.18	0.00	8.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC27	HOMOGENEOUS	6.12	12.18	0.00	8.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC27	HOMOGENEOUS	6.12	12.18	0.00	8.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC27	HOMOGENEOUS	6.12	12.18	0.00	8.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC27	HOMOGENEOUS	6.12	12.18	0.00	8.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC27	HOMOGENEOUS	6.12	12.18	0.00	8.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC27	HOMOGENEOUS	6.12	12.18	0.00	8.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC27	HOMOGENEOUS	6.12	12.18	0.00	8.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC27	HOMOGENEOUS	6.12	12.18	0.00	8.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC28	HOMOGENEOUS	6.12	10.05	0.00	12.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC28	HOMOGENEOUS	6.12	10.05	0.00	12.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC28	HOMOGENEOUS	6.12	10.05	0.00	12.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC28	HOMOGENEOUS	6.12	10.05	0.00	12.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC28	HOMOGENEOUS	6.12	10.05	0.00	12.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC28	HOMOGENEOUS	6.12	10.05	0.00	12.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC28	HOMOGENEOUS	6.12	10.05	0.00	12.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC28	HOMOGENEOUS	6.12	10.05	0.00	12.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC28	HOMOGENEOUS	6.12	10.05	0.00	12.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC28	HOMOGENEOUS	6.12	10.05	0.00	12.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC28	HOMOGENEOUS	6.12	10.05	0.00	12.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC28	HOMOGENEOUS	6.12	10.05	0.00	12.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC29	HOMOGENEOUS	6.55	10.05	0.00	9.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC29	HOMOGENEOUS	6.55	10.05	0.00	9.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC29	HOMOGENEOUS	6.55	10.05	0.00	9.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC29	HOMOGENEOUS	6.55	10.05	0.00	9.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC29	HOMOGENEOUS	6.55	10.05	0.00	9.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC29	HOMOGENEOUS	6.55	10.05	0.00	9.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC29	HOMOGENEOUS	6.55	10.05	0.00	9.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC29	HOMOGENEOUS	6.55	10.05	0.00	9.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC29	HOMOGENEOUS	6.55	10.05	0.00	9.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC29	HOMOGENEOUS	6.55	10.05	0.00	9.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC29	HOMOGENEOUS	6.55	10.05	0.00	9.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC29	HOMOGENEOUS	6.55	10.05	0.00	9.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00
LAWC30	HOMOGENEOUS	6.12	10.05	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.10	0.14	0.00	0.00
LAWC30	HOMOGENEOUS	6.12	10.05	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.10	0.14	0.00	0.00
LAWC30	HOMOGENEOUS	6.12	10.05	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.10	0.14	0.00	0.00
LAWC30	HOMOGENEOUS	6.12	10.05	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.10	0.14	0.00	0.00
LAWC30	HOMOGENEOUS	6.12	10.05	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.10	0.14	0.00	0.00
LAWC30	HOMOGENEOUS	6.12	10.05	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.10	0.14	0.00	0.00
LAWC30	HOMOGENEOUS	6.12	10.05	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.10	0.14	0.00	0.00
LAWC30	HOMOGENEOUS	6.12	10.05	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.10	0.14	0.00	0.00
LAWC30	HOMOGENEOUS	6.12	10.05	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.10	0.14	0.00	0.00
LAWC30	HOMOGENEOUS	6.12	10.05	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.10	0.14	0.00	0.00
LAWC30	HOMOGENEOUS	6.12	10.05	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.10	0.14	0.00	0.00
LAWC30	HOMOGENEOUS	6.12	10.05	0.00	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.10	0.14	0.00	0.00
LAWC31	HOMOGENEOUS	6.12	10.05	0.00	7.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.43	0.14	0.00	0.00
LAWC31	HOMOGENEOUS	6.12	10.05	0.00	7.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.43	0.14	0.00	0.00
LAWC31	HOMOGENEOUS	6.12	10.05	0.00	7.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.43	0.14	0.00	0.00
LAWC31	HOMOGENEOUS	6.12	10.05	0.00	7.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.43	0.14	0.00	0.00
LAWC31	HOMOGENEOUS	6.12	10.05	0.00	7.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.43	0.14	0.00	0.00
LAWC31	HOMOGENEOUS	6.12	10.05	0.00	7.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.43	0.14	0.00	0.00
LAWC31	HOMOGENEOUS	6.12	10.05	0.00	7.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.43	0.14	0.00	0.00
LAWC31	HOMOGENEOUS	6.12	10.05	0.00	7.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.43	0.14	0.00	0.00
LAWC31	HOMOGENEOUS	6.12	10.05	0.00	7.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.43	0.14	0.00	0.00
LAWC31	HOMOGENEOUS	6.12	10.05	0.00	7.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.43	0.14	0.00	0.00
LAWC31	HOMOGENEOUS	6.12	10.05	0.00	7.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.43	0.14	0.00	0.00
LAWC31	HOMOGENEOUS	6.12	10.05	0.00	7.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.43	0.14	0.00	0.00
LAWC32	HOMOGENEOUS	6.49	10.05	0.00	9.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.42	0.14	0.00	0.00
LAWC32	HOMOGENEOUS	6.49	10.05	0.00	9.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.42	0.14	0.00	0.00
LAWC32	HOMOGENEOUS	6.49	10.05	0.00	9.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.42	0.14	0.00	0.00
LAWC32	HOMOGENEOUS	6.49	10.05	0.00	9.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.42	0.14	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
LAWC26	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.96	0.00	0.00	0.00
LAWC26	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.96	0.00	0.00	0.00
LAWC26	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.96	0.00	0.00	0.00
LAWC27	2.73	1.50	0.00	0.00	11.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.87	0.00	0.00	0.00
LAWC27	2.73	1.50	0.00	0.00	11.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.87	0.00	0.00	0.00
LAWC27	2.73	1.50	0.00	0.00	11.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.87	0.00	0.00	0.00
LAWC27	2.73	1.50	0.00	0.00	11.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.87	0.00	0.00	0.00
LAWC27	2.73	1.50	0.00	0.00	11.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.87	0.00	0.00	0.00
LAWC27	2.73	1.50	0.00	0.00	11.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.87	0.00	0.00	0.00
LAWC27	2.73	1.50	0.00	0.00	11.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.87	0.00	0.00	0.00
LAWC27	2.73	1.50	0.00	0.00	11.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.87	0.00	0.00	0.00
LAWC27	2.73	1.50	0.00	0.00	11.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.87	0.00	0.00	0.00
LAWC27	2.73	1.50	0.00	0.00	11.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.87	0.00	0.00	0.00
LAWC27	2.73	1.50	0.00	0.00	11.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.87	0.00	0.00	0.00
LAWC27	2.73	1.50	0.00	0.00	11.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.87	0.00	0.00	0.00
LAWC28	2.73	1.50	0.00	0.00	11.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.72	0.00	0.00	0.00
LAWC28	2.73	1.50	0.00	0.00	11.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.72	0.00	0.00	0.00
LAWC28	2.73	1.50	0.00	0.00	11.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.72	0.00	0.00	0.00
LAWC28	2.73	1.50	0.00	0.00	11.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.72	0.00	0.00	0.00
LAWC28	2.73	1.50	0.00	0.00	11.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.72	0.00	0.00	0.00
LAWC28	2.73	1.50	0.00	0.00	11.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.72	0.00	0.00	0.00
LAWC28	2.73	1.50	0.00	0.00	11.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.72	0.00	0.00	0.00
LAWC28	2.73	1.50	0.00	0.00	11.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.72	0.00	0.00	0.00
LAWC28	2.73	1.50	0.00	0.00	11.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.72	0.00	0.00	0.00
LAWC28	2.73	1.50	0.00	0.00	11.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.72	0.00	0.00	0.00
LAWC28	2.73	1.50	0.00	0.00	11.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.72	0.00	0.00	0.00
LAWC28	2.73	1.50	0.00	0.00	11.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.72	0.00	0.00	0.00
LAWC29	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.18	0.00	0.00	0.00
LAWC29	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.18	0.00	0.00	0.00
LAWC29	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.18	0.00	0.00	0.00
LAWC29	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.18	0.00	0.00	0.00
LAWC29	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.18	0.00	0.00	0.00
LAWC29	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.18	0.00	0.00	0.00
LAWC29	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.18	0.00	0.00	0.00
LAWC29	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.18	0.00	0.00	0.00
LAWC29	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.18	0.00	0.00	0.00
LAWC29	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.18	0.00	0.00	0.00
LAWC29	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.18	0.00	0.00	0.00
LAWC29	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.18	0.00	0.00	0.00
LAWC30	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.75	0.00	0.00	0.00
LAWC30	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.75	0.00	0.00	0.00
LAWC30	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.75	0.00	0.00	0.00
LAWC30	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.75	0.00	0.00	0.00
LAWC30	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.75	0.00	0.00	0.00
LAWC30	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.75	0.00	0.00	0.00
LAWC30	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.75	0.00	0.00	0.00
LAWC30	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.75	0.00	0.00	0.00
LAWC30	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.75	0.00	0.00	0.00
LAWC30	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.75	0.00	0.00	0.00
LAWC30	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.75	0.00	0.00	0.00
LAWC30	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.75	0.00	0.00	0.00
LAWC31	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
LAWC31	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
LAWC31	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
LAWC31	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
LAWC31	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
LAWC31	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
LAWC31	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
LAWC31	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
LAWC31	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
LAWC31	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
LAWC31	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
LAWC31	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.73	0.00	0.00	0.00
LAWC32	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.74	0.00	0.00	0.00
LAWC32	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.74	0.00	0.00	0.00
LAWC32	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.74	0.00	0.00	0.00
LAWC32	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.74	0.00	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
LAWC26	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.74	100.00		
LAWC26	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.74	100.00		
LAWC26	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.74	100.00		
LAWC27	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.80	100.00		
LAWC27	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.80	100.00		
LAWC27	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.80	100.00		
LAWC27	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.80	100.00		
LAWC27	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.80	100.00		
LAWC27	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.80	100.00		
LAWC27	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.80	100.00		
LAWC27	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.80	100.00		
LAWC27	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.80	100.00		
LAWC27	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.80	100.00		
LAWC27	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.80	100.00		
LAWC27	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.80	100.00		
LAWC28	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.82	100.00		
LAWC28	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.82	100.00		
LAWC28	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.82	100.00		
LAWC28	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.82	100.00		
LAWC28	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.82	100.00		
LAWC28	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.82	100.00		
LAWC28	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.82	100.00		
LAWC28	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.82	100.00		
LAWC28	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.82	100.00		
LAWC28	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.82	100.00		
LAWC28	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.82	100.00		
LAWC28	0.00	0.00	1.12	0.00	0.00	3.02	3.02	0.82	100.00		
LAWC29	0.00	0.00	1.12	0.00	0.00	5.37	3.02	0.76	100.00		
LAWC29	0.00	0.00	1.12	0.00	0.00	5.37	3.02	0.76	100.00		
LAWC29	0.00	0.00	1.12	0.00	0.00	5.37	3.02	0.76	100.00		
LAWC29	0.00	0.00	1.12	0.00	0.00	5.37	3.02	0.76	100.00		
LAWC29	0.00	0.00	1.12	0.00	0.00	5.37	3.02	0.76	100.00		
LAWC29	0.00	0.00	1.12	0.00	0.00	5.37	3.02	0.76	100.00		
LAWC29	0.00	0.00	1.12	0.00	0.00	5.37	3.02	0.76	100.00		
LAWC29	0.00	0.00	1.12	0.00	0.00	5.37	3.02	0.76	100.00		
LAWC29	0.00	0.00	1.12	0.00	0.00	5.37	3.02	0.76	100.00		
LAWC29	0.00	0.00	1.12	0.00	0.00	5.37	3.02	0.76	100.00		
LAWC29	0.00	0.00	1.12	0.00	0.00	5.37	3.02	0.76	100.00		
LAWC29	0.00	0.00	1.12	0.00	0.00	5.37	3.02	0.76	100.00		
LAWC30	0.00	0.00	1.12	0.00	0.00	5.35	3.02	0.73	100.00		
LAWC30	0.00	0.00	1.12	0.00	0.00	5.35	3.02	0.73	100.00		
LAWC30	0.00	0.00	1.12	0.00	0.00	5.35	3.02	0.73	100.00		
LAWC30	0.00	0.00	1.12	0.00	0.00	5.35	3.02	0.73	100.00		
LAWC30	0.00	0.00	1.12	0.00	0.00	5.35	3.02	0.73	100.00		
LAWC30	0.00	0.00	1.12	0.00	0.00	5.35	3.02	0.73	100.00		
LAWC30	0.00	0.00	1.12	0.00	0.00	5.35	3.02	0.73	100.00		
LAWC30	0.00	0.00	1.12	0.00	0.00	5.35	3.02	0.73	100.00		
LAWC30	0.00	0.00	1.12	0.00	0.00	5.35	3.02	0.73	100.00		
LAWC30	0.00	0.00	1.12	0.00	0.00	5.35	3.02	0.73	100.00		
LAWC30	0.00	0.00	1.12	0.00	0.00	5.35	3.02	0.73	100.00		
LAWC30	0.00	0.00	1.12	0.00	0.00	5.35	3.02	0.73	100.00		
LAWC31	0.00	0.00	1.12	0.00	0.00	4.02	3.02	0.78	100.00		
LAWC31	0.00	0.00	1.12	0.00	0.00	4.02	3.02	0.78	100.00		
LAWC31	0.00	0.00	1.12	0.00	0.00	4.02	3.02	0.78	100.00		
LAWC31	0.00	0.00	1.12	0.00	0.00	4.02	3.02	0.78	100.00		
LAWC31	0.00	0.00	1.12	0.00	0.00	4.02	3.02	0.78	100.00		
LAWC31	0.00	0.00	1.12	0.00	0.00	4.02	3.02	0.78	100.00		
LAWC31	0.00	0.00	1.12	0.00	0.00	4.02	3.02	0.78	100.00		
LAWC31	0.00	0.00	1.12	0.00	0.00	4.02	3.02	0.78	100.00		
LAWC31	0.00	0.00	1.12	0.00	0.00	4.02	3.02	0.78	100.00		
LAWC31	0.00	0.00	1.12	0.00	0.00	4.02	3.02	0.78	100.00		
LAWC31	0.00	0.00	1.12	0.00	0.00	4.02	3.02	0.78	100.00		
LAWC31	0.00	0.00	1.12	0.00	0.00	4.02	3.02	0.78	100.00		
LAWC32	0.00	0.00	1.12	0.00	0.00	4.02	3.02	0.77	100.00		
LAWC32	0.00	0.00	1.12	0.00	0.00	4.02	3.02	0.77	100.00		
LAWC32	0.00	0.00	1.12	0.00	0.00	4.02	3.02	0.77	100.00		
LAWC32	0.00	0.00	1.12	0.00	0.00	4.02	3.02	0.77	100.00		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
LAWC32	LAW	VSL-11R2270-1	SS	181.00	0.81	2.031	367.544	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.11
LAWC32	LAW	VSL-11R2270-1	SS	269.00	0.81	2.031	546.239	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.25
LAWC32	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.36
LAWC32	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.44
LAWC32	LAW	VSL-11R2270-1	SS	735.00	0.81	2.031	1,492.512	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.55
LAWC32	LAW	VSL-11R2270-1	SS	1093.00	0.81	2.031	2,219.477	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.65
LAWC32	LAW	VSL-11R2270-1	SS	1456.00	0.81	2.031	2,956.595	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.76
LAWC32	LAW	VSL-11R2270-1	SS	1827.00	0.81	2.031	3,709.959	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.77
LAWC33	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.53
LAWC33	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.64
LAWC33	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.74
LAWC33	LAW	VSL-11R2270-1	SS	263.00	0.81	2.031	534.055	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.04
LAWC33	LAW	VSL-11R2270-1	SS	362.00	0.81	2.031	735.088	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.15
LAWC33	LAW	VSL-11R2270-1	SS	552.00	0.81	2.031	1,120.907	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.24
LAWC33	LAW	VSL-11R2270-1	SS	1448.00	0.81	2.031	2,940.350	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.55
LAWC33	LAW	VSL-11R2270-1	SS	1896.00	0.81	2.031	3,850.072	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.62
PNLA126CC	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.56
PNLA126CC	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.65
PNLA126CC	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.74
PNLA126CC	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.84
PNLA126CC	LAW	VSL-11R2270-1	SS	181.00	0.81	2.031	367.544	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.92
PNLA126CC	LAW	VSL-11R2270-1	SS	269.00	0.81	2.031	546.239	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.05
PNLA126CC	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.17
PNLA126CC	LAW	VSL-11R2270-1	SS	730.00	0.81	2.031	1,482.359	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.34
PNLA126CC	LAW	VSL-11R2270-1	SS	1093.00	0.81	2.031	2,219.477	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.45
PNLA126CC	LAW	VSL-11R2270-1	SS	1456.00	0.81	2.031	2,956.595	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.55
PNLA126CC	LAW	VSL-11R2270-1	SS	1799.00	0.81	2.031	3,653.101	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.65
TFA-BASE	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.21
TFA-BASE	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.28
TFA-BASE	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.72
TFA-BASE	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.82
TFA-BASE	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.03
TFA-BASE	LAW	VSL-11R2270-1	SS	270.00	0.81	2.031	548.270	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.24
TFA-BASE	LAW	VSL-11R2270-1	SS	371.00	0.81	2.031	753.363	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.41
TFA-BASE	LAW	VSL-11R2270-1	SS	547.00	0.81	2.031	1,110.754	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.54
TFA-BASE	LAW	VSL-11R2270-1	SS	727.00	0.81	2.031	1,476.267	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.65
TFA-BASE	LAW	VSL-11R2270-1	SS	1296.00	0.81	2.031	2,631.695	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.77
TFA-BASE	LAW	VSL-11R2270-1	T	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.35
TFA-BASE	LAW	VSL-11R2270-1	T	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.27
TFA-BASE	LAW	VSL-11R2270-1	T	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.27
TFA-BASE	LAW	VSL-11R2270-1	T	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.62
TFA-BASE	LAW	VSL-11R2270-1	T	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.43
TFA-BASE	LAW	VSL-11R2270-1	T	240.00	0.81	2.031	487.351	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.24
WVF-G-21B	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.67
WVF-G-21B	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.76
WVF-G-21B	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.84
WVF-G-21B	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.94
WVF-G-21B	LAW	VSL-11R2270-1	SS	181.00	0.81	2.031	367.544	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.14
WVF-G-21B	LAW	VSL-11R2270-1	SS	269.00	0.81	2.031	546.239	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.24
WVF-G-21B	LAW	VSL-11R2270-1	SS	365.00	0.81	2.031	741.179	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.36
WVF-G-21B	LAW	VSL-11R2270-1	SS	730.00	0.81	2.031	1,482.359	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.55
WVF-G-21B	LAW	VSL-11R2270-1	SS	1093.00	0.81	2.031	2,219.477	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.65
WVF-G-21B	LAW	VSL-11R2270-1	SS	1456.00	0.81	2.031	2,956.595	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.74
WVF-G-21B	LAW	VSL-11R2270-1	SS	1799.00	0.81	2.031	3,653.101	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.82
WVH-G-57B	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.35
WVH-G-57B	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.43
WVH-G-57B	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.54
WVH-G-57B	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.64
WVH-G-57B	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.75
WVH-G-57B	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.85
WVH-G-57B	LAW	VSL-11R2270-1	SS	362.00	0.81	2.031	735.088	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.95
WVH-G-57B	LAW	VSL-11R2270-1	SS	546.00	0.81	2.031	1,108.723	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.15
WVH-G-57B	LAW	VSL-11R2270-1	SS	729.00	0.81	2.031	1,480.328	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.26
WVH-G-57B	LAW	VSL-11R2270-1	SS	1092.00	0.81	2.031	2,217.446	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.34
WVH-G-57B	LAW	VSL-11R2270-1	SS	1435.00	0.81	2.031	2,913.952	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.45
WVH-G-57B	LAW	VSL-11R2270-1	SS	1778.00	0.81	2.031	3,610.458	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.55
WVJ-G-109D	LAW	VSL-11R2270-1	SS	7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.27

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
LAWC32	87.94	26.96	3.46		16.70	134.50		3.57						
LAWC32	114.68	39.20	3.70		23.19	179.85	2.42	4.94						
LAWC32	106.58	35.12	3.14		21.27	173.92	2.09	4.32						
LAWC32	129.99	42.76	0.83		26.52	201.46	2.58	5.28						
LAWC32	134.03	43.08	0.64		26.16	202.62	2.93	5.15						
LAWC32	156.03	43.91	2.07		30.89	248.50	2.35	5.27						
LAWC32	212.64	85.24	1.82		41.88	321.76	2.31	3.55						
LAWC32	355.21	255.28	1.74		90.55	695.18	5.27	1.79						
LAWC33	66.05	22.03	1.01		9.86	67.86		2.49						
LAWC33	89.61	35.16	0.82		15.67	102.73		3.03						
LAWC33	108.53	44.12	1.44		19.17	127.23		2.61						
LAWC33	142.68	62.32	1.57		24.96	183.47	2.02	2.56						
LAWC33	170.29	67.32	1.72		29.48	203.10	2.12	3.95						
LAWC33	146.33	58.36	1.58		24.97	180.61	1.81	2.64						
LAWC33	282.33	152.99	3.77		55.17	373.97	3.26							
LAWC33	280.40	312.00	3.17		109.14	697.92	6.03	2.72						
PNLA126CC	64.91	27.40				107.50	14.27	5.93			0.97		1.39	
PNLA126CC	85.70	63.09				207.43	26.66	7.70			0.84		2.11	0.55
PNLA126CC	99.25	82.52	0.21			264.29	32.69	8.16	2.46		1.02	0.55	2.27	0.97
PNLA126CC	109.23	103.97				318.74	41.75	8.65					2.06	0.72
PNLA126CC	110.97	112.81	0.13			330.48	42.29	8.16			0.36		0.70	0.75
PNLA126CC	110.30	131.55	0.25			382.38	50.23	9.72	2.14		1.05		2.35	0.80
PNLA126CC	126.69	139.12	0.18			412.77	51.71	9.55			0.34		0.64	0.64
PNLA126CC	141.10	169.48	0.19			523.48	67.21	10.86					1.06	
PNLA126CC	195.94	209.19	0.10			643.23	79.62	4.66						
PNLA126CC	394.25	430.67	0.18			1230.27	162.62	1.82						
PNLA126CC	639.63	909.11	0.69			2368.07	323.30	1.68						
TFA-BASE	73.52	24.39	0.17			96.56		11.75	4.83		1.27	2.04	1.56	1.10
TFA-BASE	92.13	56.17	0.22			178.67		12.96	5.92		2.09	2.58	3.01	1.48
TFA-BASE	102.50	75.77	0.29			254.17	2.14	13.04	6.21		2.59	2.61	3.48	1.40
TFA-BASE	108.47	97.82	0.23			297.77	2.66	13.56	5.79		2.58	2.39	3.15	1.08
TFA-BASE	119.17	112.17	0.20			362.43	2.93	12.07	5.92		3.05	2.39	3.67	1.34
TFA-BASE	119.30	121.80	0.11			417.47	2.63	10.38	5.76		3.03	2.50	4.58	1.68
TFA-BASE	143.63	157.70				414.87	3.78	12.58	5.91		3.34	2.50	4.13	1.43
TFA-BASE	129.90	149.53	0.19			585.43		10.66	4.83		2.85	1.75	2.85	0.76
TFA-BASE	157.27	185.63	0.38			533.00	6.16	10.83	3.67		1.94	1.38	2.59	0.75
TFA-BASE	233.42	264.71	0.26			757.00	6.98	11.40	3.15		1.70	1.19	2.17	0.79
TFA-BASE	68.57	24.79	0.22			93.70		12.50	5.33		1.15	2.41	1.98	1.43
TFA-BASE	82.18	56.52	0.12			186.27		12.30	6.23		2.32	2.76	2.84	1.47
TFA-BASE	82.93	76.46	0.25			266.10	2.01	11.42	6.07		2.68	2.66	3.66	1.50
TFA-BASE	79.34	108.37	0.58			337.27	2.29	7.29	4.78		2.45	2.12	3.69	1.22
TFA-BASE	78.47	129.87	0.21			370.67		5.64	3.91		2.26	1.71	3.98	1.12
TFA-BASE	72.90	161.93				576.57	2.68	4.18	2.91		2.44	1.59	4.51	1.17
WVF-G-21B	66.35	25.39				108.80	7.45	6.86			0.82		1.24	
WVF-G-21B	86.68	50.60	0.10			209.99	12.42	8.03	1.57		0.70		1.85	1.01
WVF-G-21B	105.05	79.26	0.26			266.32	17.41	9.77	1.95		0.97	0.72	2.03	1.16
WVF-G-21B	114.54	94.95				285.98	21.39	10.22	1.26			0.59	2.04	1.06
WVF-G-21B	114.35	102.01	0.13			300.13	21.41	9.98			0.38	0.64	0.68	0.87
WVF-G-21B	121.23	121.06	0.35			416.45	25.59	12.15	1.67		0.97	0.54	2.22	0.89
WVF-G-21B	128.60	123.00	0.28			457.22	26.09	11.83			0.44		0.69	1.21
WVF-G-21B	147.71	149.04	0.22			519.02	31.45	13.03			0.49		0.89	0.53
WVF-G-21B	237.32	226.17	0.25			832.55	52.11	5.33						
WVF-G-21B	464.08	511.53	0.17			1698.73	106.28	4.28					0.58	
WVF-G-21B	773.16	1276.63	0.38			3441.50	234.35	1.87					0.47	
WVH-G-57B	44.52	14.97	1.01		6.51	43.01		1.78						
WVH-G-57B	77.37	30.03	0.99		11.54	78.05		1.86						
WVH-G-57B	88.19	37.55	1.17		14.39	100.21		2.10						
WVH-G-57B	101.28	41.28	1.01		17.29	114.02		1.94						
WVH-G-57B	103.94	45.00	1.01		18.00	119.89	1.99	1.21						
WVH-G-57B	120.56	53.52	1.40		21.02	139.93	1.84	2.36						
WVH-G-57B	128.11	53.37	1.64		23.37	145.86	2.28	2.32						
WVH-G-57B	128.33	56.03	1.58		24.12	166.56		2.23						
WVH-G-57B	148.71	62.81	1.90		26.79	172.53	2.44	2.32						
WVH-G-57B	215.13	144.56	2.07		58.78	346.64	3.55	1.02						
WVH-G-57B	327.64	325.84	3.85		108.28	705.15	6.20	1.52						
WVH-G-57B	433.06	1150.63	5.60		235.65	2179.67	20.42	0.74						
WVJ-G-109D	44.33	15.35	1.20		10.15	17.72		1.44						

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
LAWC32		Not Studied		71.62	17.952	-5.3068651	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC32		Not Studied		71.62	17.952	-5.3068651	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC32		Not Studied		71.62	17.952	-5.3068651	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC32		Not Studied		71.62	17.952	-5.3068651	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC32		Not Studied		71.62	17.952	-5.3068651	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC32		Not Studied		71.62	17.952	-5.3068651	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC32		Not Studied		71.62	17.952	-5.3068651	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC32		Not Studied		71.62	17.952	-5.3068651	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC33		Not Studied		71.98	17.537	-3.5483056	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC33		Not Studied		71.98	17.537	-3.5483056	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC33		Not Studied		71.98	17.537	-3.5483056	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC33		Not Studied		71.98	17.537	-3.5483056	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC33		Not Studied		71.98	17.537	-3.5483056	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC33		Not Studied		71.98	17.537	-3.5483056	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC33		Not Studied		71.98	17.537	-3.5483056	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC33		Not Studied		71.98	17.537	-3.5483056	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
PNLA126CC		Not Studied		76.44	13.215	13.7114795	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
PNLA126CC		Not Studied		76.44	13.215	13.7114795	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
PNLA126CC		Not Studied		76.44	13.215	13.7114795	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
PNLA126CC		Not Studied		76.44	13.215	13.7114795	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
PNLA126CC		Not Studied		76.44	13.215	13.7114795	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
PNLA126CC		Not Studied		76.44	13.215	13.7114795	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
PNLA126CC		Not Studied		76.44	13.215	13.7114795	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
PNLA126CC		Not Studied		76.44	13.215	13.7114795	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
PNLA126CC		Not Studied		76.44	13.215	13.7114795	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
PNLA126CC		Not Studied		76.44	13.215	13.7114795	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
PNLA126CC		Not Studied		76.44	13.215	13.7114795	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
WVF-G-21B		Not Studied		75.93	13.608	12.3064721	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVF-G-21B		Not Studied		75.93	13.608	12.3064721	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVF-G-21B		Not Studied		75.93	13.608	12.3064721	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVF-G-21B		Not Studied		75.93	13.608	12.3064721	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVF-G-21B		Not Studied		75.93	13.608	12.3064721	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVF-G-21B		Not Studied		75.93	13.608	12.3064721	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVF-G-21B		Not Studied		75.93	13.608	12.3064721	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVF-G-21B		Not Studied		75.93	13.608	12.3064721	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVF-G-21B		Not Studied		75.93	13.608	12.3064721	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVF-G-21B		Not Studied		75.93	13.608	12.3064721	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVF-G-21B		Not Studied		75.93	13.608	12.3064721	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVH-G-57B		Not Studied		71.47	17.915	-4.865389	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVH-G-57B		Not Studied		71.47	17.915	-4.865389	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVH-G-57B		Not Studied		71.47	17.915	-4.865389	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVH-G-57B		Not Studied		71.47	17.915	-4.865389	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVH-G-57B		Not Studied		71.47	17.915	-4.865389	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVH-G-57B		Not Studied		71.47	17.915	-4.865389	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVH-G-57B		Not Studied		71.47	17.915	-4.865389	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVH-G-57B		Not Studied		71.47	17.915	-4.865389	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVH-G-57B		Not Studied		71.47	17.915	-4.865389	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVH-G-57B		Not Studied		71.47	17.915	-4.865389	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVH-G-57B		Not Studied		71.47	17.915	-4.865389	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVH-G-57B		Not Studied		71.47	17.915	-4.865389	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVJ-G-109D		Not Studied		68.57	18.231	-1.9983403	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
LAWC32	HOMOGENEOUS	6.49	10.05	0.00	9.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.42	0.14	0.00	0.00
LAWC32	HOMOGENEOUS	6.49	10.05	0.00	9.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.42	0.14	0.00	0.00
LAWC32	HOMOGENEOUS	6.49	10.05	0.00	9.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.42	0.14	0.00	0.00
LAWC32	HOMOGENEOUS	6.49	10.05	0.00	9.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.42	0.14	0.00	0.00
LAWC32	HOMOGENEOUS	6.49	10.05	0.00	9.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.42	0.14	0.00	0.00
LAWC32	HOMOGENEOUS	6.49	10.05	0.00	9.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.42	0.14	0.00	0.00
LAWC32	HOMOGENEOUS	6.49	10.05	0.00	9.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.42	0.14	0.00	0.00
LAWC32	HOMOGENEOUS	6.49	10.05	0.00	9.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.42	0.14	0.00	0.00
LAWC33	HOMOGENEOUS	6.15	10.10	0.00	6.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.44	0.14	0.00	0.00
LAWC33	HOMOGENEOUS	6.15	10.10	0.00	6.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.44	0.14	0.00	0.00
LAWC33	HOMOGENEOUS	6.15	10.10	0.00	6.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.44	0.14	0.00	0.00
LAWC33	HOMOGENEOUS	6.15	10.10	0.00	6.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.44	0.14	0.00	0.00
LAWC33	HOMOGENEOUS	6.15	10.10	0.00	6.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.44	0.14	0.00	0.00
LAWC33	HOMOGENEOUS	6.15	10.10	0.00	6.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.44	0.14	0.00	0.00
LAWC33	HOMOGENEOUS	6.15	10.10	0.00	6.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.44	0.14	0.00	0.00
LAWC33	HOMOGENEOUS	6.15	10.10	0.00	6.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.44	0.14	0.00	0.00
PNLA126CC	HOMOGENEOUS	5.65	9.85	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.56	3.88	0.00	0.00
PNLA126CC	HOMOGENEOUS	5.65	9.85	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.56	3.88	0.00	0.00
PNLA126CC	HOMOGENEOUS	5.65	9.85	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.56	3.88	0.00	0.00
PNLA126CC	HOMOGENEOUS	5.65	9.85	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.56	3.88	0.00	0.00
PNLA126CC	HOMOGENEOUS	5.65	9.85	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.56	3.88	0.00	0.00
PNLA126CC	HOMOGENEOUS	5.65	9.85	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.56	3.88	0.00	0.00
PNLA126CC	HOMOGENEOUS	5.65	9.85	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.56	3.88	0.00	0.00
PNLA126CC	HOMOGENEOUS	5.65	9.85	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.56	3.88	0.00	0.00
PNLA126CC	HOMOGENEOUS	5.65	9.85	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.56	3.88	0.00	0.00
PNLA126CC	HOMOGENEOUS	5.65	9.85	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.56	3.88	0.00	0.00
PNLA126CC	HOMOGENEOUS	5.65	9.85	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.56	3.88	0.00	0.00
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00
WVF-G-21B	HOMOGENEOUS	6.08	9.80	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.54	2.13	0.00	0.00
WVF-G-21B	HOMOGENEOUS	6.08	9.80	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.54	2.13	0.00	0.00
WVF-G-21B	HOMOGENEOUS	6.08	9.80	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.54	2.13	0.00	0.00
WVF-G-21B	HOMOGENEOUS	6.08	9.80	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.54	2.13	0.00	0.00
WVF-G-21B	HOMOGENEOUS	6.08	9.80	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.54	2.13	0.00	0.00
WVF-G-21B	HOMOGENEOUS	6.08	9.80	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.54	2.13	0.00	0.00
WVF-G-21B	HOMOGENEOUS	6.08	9.80	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.54	2.13	0.00	0.00
WVF-G-21B	HOMOGENEOUS	6.08	9.80	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.54	2.13	0.00	0.00
WVF-G-21B	HOMOGENEOUS	6.08	9.80	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.54	2.13	0.00	0.00
WVF-G-21B	HOMOGENEOUS	6.08	9.80	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.54	2.13	0.00	0.00
WVF-G-21B	HOMOGENEOUS	6.08	9.80	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.54	2.13	0.00	0.00
WVH-G-57B	HOMOGENEOUS	6.10	10.02	0.00	7.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.42	0.14	0.00	0.00
WVH-G-57B	HOMOGENEOUS	6.10	10.02	0.00	7.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.42	0.14	0.00	0.00
WVH-G-57B	HOMOGENEOUS	6.10	10.02	0.00	7.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.42	0.14	0.00	0.00
WVH-G-57B	HOMOGENEOUS	6.10	10.02	0.00	7.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.42	0.14	0.00	0.00
WVH-G-57B	HOMOGENEOUS	6.10	10.02	0.00	7.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.42	0.14	0.00	0.00
WVH-G-57B	HOMOGENEOUS	6.10	10.02	0.00	7.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.42	0.14	0.00	0.00
WVH-G-57B	HOMOGENEOUS	6.10	10.02	0.00	7.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.42	0.14	0.00	0.00
WVH-G-57B	HOMOGENEOUS	6.10	10.02	0.00	7.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.42	0.14	0.00	0.00
WVH-G-57B	HOMOGENEOUS	6.10	10.02	0.00	7.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.42	0.14	0.00	0.00
WVH-G-57B	HOMOGENEOUS	6.10	10.02	0.00	7.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.42	0.14	0.00	0.00
WVH-G-57B	HOMOGENEOUS	6.10	10.02	0.00	7.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.42	0.14	0.00	0.00
WVH-G-57B	HOMOGENEOUS	6.10	10.02	0.00	7.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.42	0.14	0.00	0.00
WVJ-G-109D	HOMOGENEOUS	6.17	10.02	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.28	0.19	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
LAWC32	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.74	0.00	0.00	0.00
LAWC32	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.74	0.00	0.00	0.00
LAWC32	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.74	0.00	0.00	0.00
LAWC32	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.74	0.00	0.00	0.00
LAWC32	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.74	0.00	0.00	0.00
LAWC32	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.74	0.00	0.00	0.00
LAWC32	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.74	0.00	0.00	0.00
LAWC32	2.73	1.50	0.00	0.00	11.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.74	0.00	0.00	0.00
LAWC33	2.75	1.51	0.00	0.00	12.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.98	0.00	0.00	0.00
LAWC33	2.75	1.51	0.00	0.00	12.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.98	0.00	0.00	0.00
LAWC33	2.75	1.51	0.00	0.00	12.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.98	0.00	0.00	0.00
LAWC33	2.75	1.51	0.00	0.00	12.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.98	0.00	0.00	0.00
LAWC33	2.75	1.51	0.00	0.00	12.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.98	0.00	0.00	0.00
LAWC33	2.75	1.51	0.00	0.00	12.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.98	0.00	0.00	0.00
LAWC33	2.75	1.51	0.00	0.00	12.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.98	0.00	0.00	0.00
LAWC33	2.75	1.51	0.00	0.00	12.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.98	0.00	0.00	0.00
PNLA126CC	0.00	1.48	0.00	0.00	18.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.24	0.00	0.00	0.00
PNLA126CC	0.00	1.48	0.00	0.00	18.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.24	0.00	0.00	0.00
PNLA126CC	0.00	1.48	0.00	0.00	18.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.24	0.00	0.00	0.00
PNLA126CC	0.00	1.48	0.00	0.00	18.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.24	0.00	0.00	0.00
PNLA126CC	0.00	1.48	0.00	0.00	18.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.24	0.00	0.00	0.00
PNLA126CC	0.00	1.48	0.00	0.00	18.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.24	0.00	0.00	0.00
PNLA126CC	0.00	1.48	0.00	0.00	18.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.24	0.00	0.00	0.00
PNLA126CC	0.00	1.48	0.00	0.00	18.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.24	0.00	0.00	0.00
PNLA126CC	0.00	1.48	0.00	0.00	18.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.24	0.00	0.00	0.00
PNLA126CC	0.00	1.48	0.00	0.00	18.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.24	0.00	0.00	0.00
PNLA126CC	0.00	1.48	0.00	0.00	18.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.24	0.00	0.00	0.00
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00
WVF-G-21B	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
WVF-G-21B	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
WVF-G-21B	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
WVF-G-21B	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
WVF-G-21B	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
WVF-G-21B	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
WVF-G-21B	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
WVF-G-21B	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
WVF-G-21B	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
WVF-G-21B	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
WVF-G-21B	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.00	0.00	0.00	0.00
WVH-G-57B	2.73	1.50	0.00	0.00	11.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
WVH-G-57B	2.73	1.50	0.00	0.00	11.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
WVH-G-57B	2.73	1.50	0.00	0.00	11.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
WVH-G-57B	2.73	1.50	0.00	0.00	11.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
WVH-G-57B	2.73	1.50	0.00	0.00	11.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
WVH-G-57B	2.73	1.50	0.00	0.00	11.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
WVH-G-57B	2.73	1.50	0.00	0.00	11.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
WVH-G-57B	2.73	1.50	0.00	0.00	11.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
WVH-G-57B	2.73	1.50	0.00	0.00	11.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
WVH-G-57B	2.73	1.50	0.00	0.00	11.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
WVH-G-57B	2.73	1.50	0.00	0.00	11.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
WVH-G-57B	2.73	1.50	0.00	0.00	11.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.64	0.00	0.00	0.00
WVJ-G-109D	4.31	2.98	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.58	0.00	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
LAWC32	0.00	0.00	1.12	0.00	0.00	4.02	3.02	0.77	100.00		
LAWC32	0.00	0.00	1.12	0.00	0.00	4.02	3.02	0.77	100.00		
LAWC32	0.00	0.00	1.12	0.00	0.00	4.02	3.02	0.77	100.00		
LAWC32	0.00	0.00	1.12	0.00	0.00	4.02	3.02	0.77	100.00		
LAWC32	0.00	0.00	1.12	0.00	0.00	4.02	3.02	0.77	100.00		
LAWC32	0.00	0.00	1.12	0.00	0.00	4.02	3.02	0.77	100.00		
LAWC32	0.00	0.00	1.12	0.00	0.00	4.02	3.02	0.77	100.00		
LAWC32	0.00	0.00	1.12	0.00	0.00	4.02	3.02	0.77	100.00		
LAWC33	0.00	0.00	1.13	0.00	0.00	4.04	3.03	0.76	100.00		
LAWC33	0.00	0.00	1.13	0.00	0.00	4.04	3.03	0.76	100.00		
LAWC33	0.00	0.00	1.13	0.00	0.00	4.04	3.03	0.76	100.00		
LAWC33	0.00	0.00	1.13	0.00	0.00	4.04	3.03	0.76	100.00		
LAWC33	0.00	0.00	1.13	0.00	0.00	4.04	3.03	0.76	100.00		
LAWC33	0.00	0.00	1.13	0.00	0.00	4.04	3.03	0.76	100.00		
LAWC33	0.00	0.00	1.13	0.00	0.00	4.04	3.03	0.76	100.00		
LAWC33	0.00	0.00	1.13	0.00	0.00	4.04	3.03	0.76	100.00		
PNLA126CC	0.00	0.00	2.00	0.00	0.00	2.96	3.00	0.90	100.00		
PNLA126CC	0.00	0.00	2.00	0.00	0.00	2.96	3.00	0.90	100.00		
PNLA126CC	0.00	0.00	2.00	0.00	0.00	2.96	3.00	0.90	100.00		
PNLA126CC	0.00	0.00	2.00	0.00	0.00	2.96	3.00	0.90	100.00		
PNLA126CC	0.00	0.00	2.00	0.00	0.00	2.96	3.00	0.90	100.00		
PNLA126CC	0.00	0.00	2.00	0.00	0.00	2.96	3.00	0.90	100.00		
PNLA126CC	0.00	0.00	2.00	0.00	0.00	2.96	3.00	0.90	100.00		
PNLA126CC	0.00	0.00	2.00	0.00	0.00	2.96	3.00	0.90	100.00		
PNLA126CC	0.00	0.00	2.00	0.00	0.00	2.96	3.00	0.90	100.00		
PNLA126CC	0.00	0.00	2.00	0.00	0.00	2.96	3.00	0.90	100.00		
PNLA126CC	0.00	0.00	2.00	0.00	0.00	2.96	3.00	0.90	100.00		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		
WVF-G-21B	0.00	0.00	1.99	0.00	0.00	2.95	2.99	1.05	100.00		
WVF-G-21B	0.00	0.00	1.99	0.00	0.00	2.95	2.99	1.05	100.00		
WVF-G-21B	0.00	0.00	1.99	0.00	0.00	2.95	2.99	1.05	100.00		
WVF-G-21B	0.00	0.00	1.99	0.00	0.00	2.95	2.99	1.05	100.00		
WVF-G-21B	0.00	0.00	1.99	0.00	0.00	2.95	2.99	1.05	100.00		
WVF-G-21B	0.00	0.00	1.99	0.00	0.00	2.95	2.99	1.05	100.00		
WVF-G-21B	0.00	0.00	1.99	0.00	0.00	2.95	2.99	1.05	100.00		
WVF-G-21B	0.00	0.00	1.99	0.00	0.00	2.95	2.99	1.05	100.00		
WVF-G-21B	0.00	0.00	1.99	0.00	0.00	2.95	2.99	1.05	100.00		
WVF-G-21B	0.00	0.00	1.99	0.00	0.00	2.95	2.99	1.05	100.00		
WVF-G-21B	0.00	0.00	1.99	0.00	0.00	2.95	2.99	1.05	100.00		
WVH-G-57B	0.00	0.00	1.12	0.00	0.00	4.01	3.01	0.97	100.00		
WVH-G-57B	0.00	0.00	1.12	0.00	0.00	4.01	3.01	0.97	100.00		
WVH-G-57B	0.00	0.00	1.12	0.00	0.00	4.01	3.01	0.97	100.00		
WVH-G-57B	0.00	0.00	1.12	0.00	0.00	4.01	3.01	0.97	100.00		
WVH-G-57B	0.00	0.00	1.12	0.00	0.00	4.01	3.01	0.97	100.00		
WVH-G-57B	0.00	0.00	1.12	0.00	0.00	4.01	3.01	0.97	100.00		
WVH-G-57B	0.00	0.00	1.12	0.00	0.00	4.01	3.01	0.97	100.00		
WVH-G-57B	0.00	0.00	1.12	0.00	0.00	4.01	3.01	0.97	100.00		
WVH-G-57B	0.00	0.00	1.12	0.00	0.00	4.01	3.01	0.97	100.00		
WVH-G-57B	0.00	0.00	1.12	0.00	0.00	4.01	3.01	0.97	100.00		
WVH-G-57B	0.00	0.00	1.12	0.00	0.00	4.01	3.01	0.97	100.00		
WVH-G-57B	0.00	0.00	1.12	0.00	0.00	4.01	3.01	0.97	100.00		
WVJ-G-109D	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.83	100.00		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
WVJ-G-109D	LAW	VSL-11R2270-1	SS	28.00	0.81	2.031	56.858	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.34
WVJ-G-109D	LAW	VSL-11R2270-1	SS	56.00	0.81	2.031	113.715	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.43
WVJ-G-109D	LAW	VSL-11R2270-1	SS	120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.54
WVJ-G-109D	LAW	VSL-11R2270-1	SS	180.00	0.81	2.031	365.513	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.64
WVJ-G-109D	LAW	VSL-11R2270-1	SS	271.00	0.81	2.031	550.300	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.76
WVJ-G-109D	LAW	VSL-11R2270-1	SS	362.00	0.81	2.031	735.088	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.84
WVJ-G-109D	LAW	VSL-11R2270-1	SS	546.00	0.81	2.031	1,108.723	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	10.98
WVJ-G-109D	LAW	VSL-11R2270-1	SS	729.00	0.81	2.031	1,480.328	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.07
WVJ-G-109D	LAW	VSL-11R2270-1	SS	1092.00	0.81	2.031	2,217.446	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.15
WVJ-G-109D	LAW	VSL-11R2270-1	SS	1435.00	0.81	2.031	2,913.952	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.22
WVJ-G-109D	LAW	VSL-11R2270-1	SS	1778.00	0.81	2.031	3,610.458	2.650	40.00	100-200	1.125E-04	0.400	ASTM I	90	11.26
LAWA41	LAW	VSL-11R2270-1	SS	7.00	0.80	20.230	141.610	**2.660**	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.86
LAWA41	LAW	VSL-11R2270-1	SS	28.00	0.80	20.230	566.439	**2.660**	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.16
LAWA41	LAW	VSL-11R2270-1	SS	56.00	0.80	20.230	1,132.877	**2.660**	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.21
LAWA41	LAW	VSL-11R2270-1	SS	120.00	0.80	20.230	2,427.594	**2.660**	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.32
LAWA41	LAW	VSL-11R2270-1	SS	181.00	0.80	20.230	3,661.620	**2.660**	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.48
LAWA41	LAW	VSL-11R2270-1	SS	266.00	0.80	20.230	5,381.166	**2.660**	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.76
LAWA41	LAW	VSL-11R2270-1	SS	365.00	0.80	20.230	7,383.931	**2.660**	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.82
LAWA41	LAW	VSL-11R2270-1	SS	547.00	0.80	20.230	11,065.781	**2.660**	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.96
LAWA41	LAW	VSL-11R2270-1	SS	730.00	0.80	20.230	14,767.861	**2.660**	40.00	100-200	1.125E-04	0.040	ASTM I	90	13.06
LAWA41	LAW	VSL-11R2270-1	SS	1325.00	0.80	20.230	26,804.680	**2.660**	40.00	100-200	1.125E-04	0.040	ASTM I	90	13.15
LAWA41	LAW	VSL-11R2270-1	T	7.00	0.80	20.230	141.610	**2.660**	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.71
LAWA41	LAW	VSL-11R2270-1	T	28.00	0.80	20.230	566.439	**2.660**	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.12
LAWA41	LAW	VSL-11R2270-1	T	56.00	0.80	20.230	1,132.877	**2.660**	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.23
LAWA41	LAW	VSL-11R2270-1	T	120.00	0.80	20.230	2,427.594	**2.660**	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.41
LAWA41	LAW	VSL-11R2270-1	T	180.00	0.80	20.230	3,641.390	**2.660**	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.14
LAWA41	LAW	VSL-11R2270-1	T	272.00	0.80	20.230	5,502.546	**2.660**	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.24
LAWA42	LAW	VSL-11R2270-1	SS	7.00	0.81	20.306	142.144	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.32
LAWA42	LAW	VSL-11R2270-1	SS	28.00	0.81	20.306	568.576	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.55
LAWA42	LAW	VSL-11R2270-1	SS	56.00	0.81	20.306	1,137.152	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.62
LAWA42	LAW	VSL-11R2270-1	SS	120.00	0.81	20.306	2,436.754	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.71
LAWA42	LAW	VSL-11R2270-1	SS	181.00	0.81	20.306	3,675.438	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	13.04
LAWA42	LAW	VSL-11R2270-1	SS	266.00	0.81	20.306	5,401.472	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	13.24
LAWA42	LAW	VSL-11R2270-1	SS	365.00	0.81	20.306	7,411.795	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	13.33
LAWA42	LAW	VSL-11R2270-1	SS	547.00	0.81	20.306	11,107.539	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	13.42
LAWA42	LAW	VSL-11R2270-1	SS	730.00	0.81	20.306	14,823.589	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	13.55
LAWA42	LAW	VSL-11R2270-1	SS	1325.00	0.81	20.306	26,905.830	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	13.66
LAWA42	LAW	VSL-11R2270-1	T	7.00	0.81	20.306	142.144	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.24
LAWA42	LAW	VSL-11R2270-1	T	28.00	0.81	20.306	568.576	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.52
LAWA42	LAW	VSL-11R2270-1	T	56.00	0.81	20.306	1,137.152	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.57
LAWA42	LAW	VSL-11R2270-1	T	120.00	0.81	20.306	2,436.754	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.72
LAWA42	LAW	VSL-11R2270-1	T	180.00	0.81	20.306	3,655.132	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.65
LAWA42	LAW	VSL-11R2270-1	T	272.00	0.81	20.306	5,523.310	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.85
LAWA43-1	LAW	VSL-11R2270-1	SS	7.00	0.81	20.306	142.144	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.83
LAWA43-1	LAW	VSL-11R2270-1	SS	28.00	0.81	20.306	568.576	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.15
LAWA43-1	LAW	VSL-11R2270-1	SS	56.00	0.81	20.306	1,137.152	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.22
LAWA43-1	LAW	VSL-11R2270-1	SS	120.00	0.81	20.306	2,436.754	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.31
LAWA43-1	LAW	VSL-11R2270-1	SS	181.00	0.81	20.306	3,675.438	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.45
LAWA43-1	LAW	VSL-11R2270-1	SS	266.00	0.81	20.306	5,401.472	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.65
LAWA43-1	LAW	VSL-11R2270-1	SS	365.00	0.81	20.306	7,411.795	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.77
LAWA43-1	LAW	VSL-11R2270-1	SS	547.00	0.81	20.306	11,107.539	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	13.15
LAWA43-1	LAW	VSL-11R2270-1	SS	730.00	0.81	20.306	14,823.589	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	13.25
LAWA43-1	LAW	VSL-11R2270-1	SS	1325.00	0.81	20.306	26,905.830	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	13.35
LAWA43-1	LAW	VSL-11R2270-1	T	7.00	0.81	20.306	142.144	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.72
LAWA43-1	LAW	VSL-11R2270-1	T	28.00	0.81	20.306	568.576	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.11
LAWA43-1	LAW	VSL-11R2270-1	T	56.00	0.81	20.306	1,137.152	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.17
LAWA43-1	LAW	VSL-11R2270-1	T	120.00	0.81	20.306	2,436.754	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.41
LAWA43-1	LAW	VSL-11R2270-1	T	180.00	0.81	20.306	3,655.132	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.12
LAWA43-1	LAW	VSL-11R2270-1	T	272.00	0.81	20.306	5,523.310	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.35
LAWA44	LAW	VSL-11R2270-1	SS	7.00	0.80	20.154	141.079	**2.670**	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.42
LAWA44	LAW	VSL-11R2270-1	SS	28.00	0.80	20.154	564.317	**2.670**	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.91
LAWA44	LAW	VSL-11R2270-1	SS	56.00	0.80	20.154	1,128.634	**2.670**	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.97
LAWA44	LAW	VSL-11R2270-1	SS	120.00	0.80	20.154	2,418.502	**2.670**	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.12
LAWA44	LAW	VSL-11R2270-1	SS	181.00	0.80	20.154	3,647.906	**2.670**	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.22
LAWA44	LAW	VSL-11R2270-1	SS	269.00	0.80	20.154	5,421.474	**2.670**	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.35
LAWA44	LAW	VSL-11R2270-1	SS	371.00	0.80	20.154	7,477.201	**2.670**	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.43
LAWA44	LAW	VSL-11R2270-1	SS	547.00	0.80	20.154	11,024.336	**2.670**	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.52

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
WVJ-G-109D	70.14	31.11	1.13		17.84	33.23		1.09						
WVJ-G-109D	83.39	43.49	1.37		23.65	44.28	2.02	1.38						
WVJ-G-109D	94.50	53.46	1.15		28.68	53.66		1.08						
WVJ-G-109D	95.20	56.29	1.22		32.97	58.77	2.52							
WVJ-G-109D	115.56	74.29	1.67		41.47	77.34	2.93	1.27						
WVJ-G-109D	136.61	127.75	2.90		55.00	119.10	3.31	0.88						
WVJ-G-109D	121.31	266.70	4.83		111.77	275.33	7.38	0.83						
WVJ-G-109D	130.44	370.50	6.06		136.07	347.28	10.14	1.49						
WVJ-G-109D	125.37	634.09	15.43		217.36	645.40	22.38	0.65						
WVJ-G-109D	130.87	680.07	15.15		212.66	762.87	22.16	1.69						
WVJ-G-109D	179.07	974.95	23.55		307.80	1045.07	34.94	0.79						
LAWA41	185.13	95.31	0.45			606.43	59.88	19.24	6.41		3.03	0.57	4.99	0.57
LAWA41	231.90	136.00	0.26			971.80	78.00	21.52			0.44		0.58	
LAWA41	270.33	156.80	0.80			969.57	91.62	21.28						
LAWA41	334.73	190.73	0.68			1328.63	110.03	20.40						
LAWA41	486.13	250.50	0.38			1493.93	144.37	9.45						
LAWA41	1404.70	972.30	0.50			1926.03	374.63	2.24					1.03	
LAWA41	1975.07	2448.03	0.41			8204.50	696.63	3.32	1.37				2.26	
LAWA41	6105.57	12784.30	3.91		1.47	32360.90	3073.13	16.27	11.32			1.78	27.83	1.91
LAWA41	7506.30	17344.10	4.93		2.82	45184.47	3658.07	20.52	14.93			3.13	45.00	3.97
LAWA41	10456.33	21064.33	6.96		3.57	56689.67	4079.77	30.30	28.64		1.14	9.48	58.82	
LAWA41	162.83	89.04	0.39			649.77	58.98	15.65	2.92		0.96		1.70	
LAWA41	210.17	138.43	0.27			899.63	85.15	19.34			0.23			
LAWA41	249.23	157.37				1021.83	88.78	18.39						
LAWA41	280.43	196.87				1443.87	100.90	14.02					0.74	
LAWA41	250.70	204.60	0.25			1326.17	128.33	15.34					0.73	
LAWA41	820.17	774.37	0.58			3281.93	365.10	2.15					0.51	
LAWA42	402.00	651.53	0.39			2218.30	276.03	7.12					0.52	
LAWA42	558.30	1062.53	0.50			3798.13	395.00	8.06					0.62	
LAWA42	590.07	1058.37	1.12			3378.43	399.73	8.51					0.65	
LAWA42	889.80	2898.27	1.22			8865.60	936.70	5.22	1.46				2.83	
LAWA42	1439.83	7331.70	2.06			19110.33	1869.27	7.86	2.88				9.94	
LAWA42	1943.50	10442.97	2.49		2.08	24173.20	2719.90	12.44	3.73			0.73	17.19	
LAWA42	2496.97	15607.13	3.72		3.54	36074.13	3527.47	15.22	4.97		0.27	1.37	23.31	0.86
LAWA42	3340.57	20851.13	7.03		2.15	40008.57	4259.27	17.71	7.38			1.33	37.43	1.13
LAWA42	3561.50	19310.27	7.47		3.55	45056.53	4413.30	16.31	7.43			1.60	36.54	1.78
LAWA42	3613.80	20947.33	4.85		2.44	48448.67	4203.47	12.59	4.14		0.40	1.10	33.52	
LAWA42	341.87	582.07	0.33			2247.17	243.00	6.87						
LAWA42	579.37	1175.40	0.94			3752.13	451.03	8.72					0.68	
LAWA42	586.20	1113.80	0.17			3657.47	410.60	7.73						
LAWA42	593.13	1318.23				5902.80	442.83	4.48						
LAWA42	670.03	2158.77	0.82			6251.10	680.33	15.62					3.04	
LAWA42	1060.07	4866.83	1.49		1.11	11719.10	1445.33	7.61	2.18				4.39	
LAWA43-1	99.71	72.16	0.50			482.73	42.64	54.19	2.82		1.30		3.26	0.65
LAWA43-1	127.90	109.83	0.44			788.47	57.21	64.84	2.46		1.16		2.73	
LAWA43-1	153.07	140.57	0.51			835.83	69.25	61.88			0.25		0.63	
LAWA43-1	184.10	176.57	0.36			1127.37	85.03	62.81						
LAWA43-1	251.70	321.27	0.64			1542.20	131.40	48.03					0.58	
LAWA43-1	2801.33	31487.77	6.59		4.54	51960.73	10223.10	33.71	9.91			2.92	115.33	1.59
LAWA43-1	2664.57	30551.03	5.50		5.33	76318.23	8599.80	28.31	7.16		0.34	2.50	86.09	1.59
LAWA43-1	2638.80	22120.70	6.30		2.27	44777.93	8064.67	24.37	6.61			1.15	68.02	1.01
LAWA43-1	2653.00	16664.53	6.38		2.96	41002.63	6837.27	19.20	6.21			1.16	48.64	1.67
LAWA43-1	2855.63	21033.33	6.08		2.80	51067.00	8046.00	26.07	6.00		0.82	1.31	50.51	
LAWA43-1	86.27	66.18	0.53			517.33	45.08	53.62	1.75		0.44		0.81	
LAWA43-1	120.20	118.60	0.30			760.63	69.43	64.92	1.16		0.59		1.38	
LAWA43-1	128.27	136.97				828.97	70.71	63.12						
LAWA43-1	135.97	168.37				1113.43	87.76	58.12						
LAWA43-1	125.40	199.77	0.25			1098.63	98.65	52.18					1.04	
LAWA43-1	131.07	247.20				1346.00	135.83	44.32						
LAWA44	139.57	97.87	0.59			505.27	5.68	21.88	7.81		4.92	0.91	7.28	0.84
LAWA44	166.33	144.67	1.03			654.37	8.03	24.93	8.26		6.02	1.06	8.93	0.86
LAWA44	187.70	162.90	0.77			793.33	7.25	22.34	5.16		4.06	0.74	5.58	0.63
LAWA44	231.30	207.40	0.28			1003.30	9.39	15.85			0.39		0.47	
LAWA44	282.30	232.13				975.53	10.24	17.08						
LAWA44	476.47	349.97	0.37			1352.03	16.93	4.13						
LAWA44	1232.17	1901.33	1.55			5312.33	70.15	0.96					0.59	
LAWA44	1425.33	3808.57	3.02			9435.17	166.33	1.83	1.41				1.19	

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
WVJ-G-109D		Not Studied		68.57	18.231	-1.9983403	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVJ-G-109D		Not Studied		68.57	18.231	-1.9983403	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVJ-G-109D		Not Studied		68.57	18.231	-1.9983403	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVJ-G-109D		Not Studied		68.57	18.231	-1.9983403	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVJ-G-109D		Not Studied		68.57	18.231	-1.9983403	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVJ-G-109D		Not Studied		68.57	18.231	-1.9983403	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVJ-G-109D		Not Studied		68.57	18.231	-1.9983403	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVJ-G-109D		Not Studied		68.57	18.231	-1.9983403	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVJ-G-109D		Not Studied		68.57	18.231	-1.9983403	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVJ-G-109D		Not Studied		68.57	18.231	-1.9983403	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVJ-G-109D		Not Studied		68.57	18.231	-1.9983403	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA41		Not Studied		74.02	15.186	6.4649462	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA42		Not Studied		70.15	17.019	2.3196773	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA43-1		Not Studied		68.50	20.85	-16.682494	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
WVJ-G-109D	HOMOGENEOUS	6.17	10.02	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.28	0.19	0.00	0.00
WVJ-G-109D	HOMOGENEOUS	6.17	10.02	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.28	0.19	0.00	0.00
WVJ-G-109D	HOMOGENEOUS	6.17	10.02	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.28	0.19	0.00	0.00
WVJ-G-109D	HOMOGENEOUS	6.17	10.02	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.28	0.19	0.00	0.00
WVJ-G-109D	HOMOGENEOUS	6.17	10.02	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.28	0.19	0.00	0.00
WVJ-G-109D	HOMOGENEOUS	6.17	10.02	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.28	0.19	0.00	0.00
WVJ-G-109D	HOMOGENEOUS	6.17	10.02	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.28	0.19	0.00	0.00
WVJ-G-109D	HOMOGENEOUS	6.17	10.02	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.28	0.19	0.00	0.00
WVJ-G-109D	HOMOGENEOUS	6.17	10.02	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.28	0.19	0.00	0.00
WVJ-G-109D	HOMOGENEOUS	6.17	10.02	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.28	0.19	0.00	0.00
WVJ-G-109D	HOMOGENEOUS	6.17	10.02	0.00	6.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.28	0.19	0.00	0.00
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00
LAWA41	HOMOGENEOUS	6.20	7.50	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA42	HOMOGENEOUS	6.20	9.03	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.41	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA43-1	HOMOGENEOUS	12.00	7.39	0.00	1.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	3.10	0.00	0.00
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
WVJ-G-109D	4.31	2.98	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.58	0.00	0.00	0.00
WVJ-G-109D	4.31	2.98	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.58	0.00	0.00	0.00
WVJ-G-109D	4.31	2.98	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.58	0.00	0.00	0.00
WVJ-G-109D	4.31	2.98	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.58	0.00	0.00	0.00
WVJ-G-109D	4.31	2.98	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.58	0.00	0.00	0.00
WVJ-G-109D	4.31	2.98	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.58	0.00	0.00	0.00
WVJ-G-109D	4.31	2.98	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.58	0.00	0.00	0.00
WVJ-G-109D	4.31	2.98	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.58	0.00	0.00	0.00
WVJ-G-109D	4.31	2.98	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.58	0.00	0.00	0.00
WVJ-G-109D	4.31	2.98	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.58	0.00	0.00	0.00
WVJ-G-109D	4.31	2.98	0.00	0.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.58	0.00	0.00	0.00
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00
LAWA41	0.00	2.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.41	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA42	0.00	2.40	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA43-1	0.00	1.97	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.01	0.00	0.00	0.00
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
WVJ-G-109D	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.83	100.00		
WVJ-G-109D	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.83	100.00		
WVJ-G-109D	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.83	100.00		
WVJ-G-109D	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.83	100.00		
WVJ-G-109D	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.83	100.00		
WVJ-G-109D	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.83	100.00		
WVJ-G-109D	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.83	100.00		
WVJ-G-109D	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.83	100.00		
WVJ-G-109D	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.83	100.00		
WVJ-G-109D	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.83	100.00		
WVJ-G-109D	0.00	0.00	1.39	0.00	0.00	4.84	3.16	0.83	100.00		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		
LAWA41	0.00	0.00	2.00	0.00	0.00	2.99	3.00	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA42	0.00	0.00	2.40	0.00	0.00	3.61	3.61	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA43-1	0.00	0.00	1.97	0.00	0.00	2.95	2.95	0.82	100.00		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
LAWA44	LAW	VSL-11R2270-1	SS	730.00	0.80	20.154	14,712.551	**2.670**	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.65
LAWA44	LAW	VSL-11R2270-1	SS	1291.00	0.80	20.154	26,019.046	**2.670**	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.77
LAWA44	LAW	VSL-11R2270-1	T	7.00	0.80	20.154	141.079	**2.670**	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.66
LAWA44	LAW	VSL-11R2270-1	T	28.00	0.80	20.154	564.317	**2.670**	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.81
LAWA44	LAW	VSL-11R2270-1	T	56.00	0.80	20.154	1,128.634	**2.670**	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.77
LAWA44	LAW	VSL-11R2270-1	T	120.00	0.80	20.154	2,418.502	**2.670**	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.95
LAWA44	LAW	VSL-11R2270-1	T	179.00	0.80	20.154	3,607.598	**2.670**	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.66
LAWA44	LAW	VSL-11R2270-1	T	239.00	0.80	20.154	4,816.849	**2.670**	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.57
LAWA45	LAW	VSL-11R2270-1	SS	7.00	0.81	20.306	142.144	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	10.64
LAWA45	LAW	VSL-11R2270-1	SS	28.00	0.81	20.306	568.576	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	10.84
LAWA45	LAW	VSL-11R2270-1	SS	56.00	0.81	20.306	1,137.152	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	10.94
LAWA45	LAW	VSL-11R2270-1	SS	120.00	0.81	20.306	2,436.754	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	10.97
LAWA45	LAW	VSL-11R2270-1	SS	181.00	0.81	20.306	3,675.438	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.05
LAWA45	LAW	VSL-11R2270-1	SS	269.00	0.81	20.306	5,462.391	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.14
LAWA45	LAW	VSL-11R2270-1	SS	371.00	0.81	20.306	7,533.632	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.25
LAWA45	LAW	VSL-11R2270-1	SS	547.00	0.81	20.306	11,107.539	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.45
LAWA45	LAW	VSL-11R2270-1	SS	730.00	0.81	20.306	14,823.589	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.52
LAWA45	LAW	VSL-11R2270-1	SS	1291.00	0.81	20.306	26,215.416	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.65
LAWA45	LAW	VSL-11R2270-1	T	7.00	0.81	20.306	142.144	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	10.75
LAWA45	LAW	VSL-11R2270-1	T	28.00	0.81	20.306	568.576	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	10.94
LAWA45	LAW	VSL-11R2270-1	T	56.00	0.81	20.306	1,137.152	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	10.92
LAWA45	LAW	VSL-11R2270-1	T	120.00	0.81	20.306	2,436.754	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	10.92
LAWA45	LAW	VSL-11R2270-1	T	179.00	0.81	20.306	3,634.825	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	10.58
LAWA45	LAW	VSL-11R2270-1	T	239.00	0.81	20.306	4,853.202	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	10.46
LAWA49	LAW	VSL-11R2270-1	SS	7.00	0.81	20.306	142.144	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.57
LAWA49	LAW	VSL-11R2270-1	SS	28.00	0.81	20.306	568.576	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.70
LAWA49	LAW	VSL-11R2270-1	SS	56.00	0.81	20.306	1,137.152	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.76
LAWA49	LAW	VSL-11R2270-1	SS	120.00	0.81	20.306	2,436.754	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.91
LAWA49	LAW	VSL-11R2270-1	SS	180.00	0.81	20.306	3,655.132	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.02
LAWA49	LAW	VSL-11R2270-1	SS	271.00	0.81	20.306	5,503.004	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.13
LAWA49	LAW	VSL-11R2270-1	SS	365.00	0.81	20.306	7,411.795	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.22
LAWA49	LAW	VSL-11R2270-1	SS	545.00	0.81	20.306	11,066.926	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.35
LAWA49	LAW	VSL-11R2270-1	SS	728.00	0.81	20.306	14,782.977	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.45
LAWA49	LAW	VSL-11R2270-1	SS	1271.00	0.81	20.306	25,809.290	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.56
LAWA50	LAW	VSL-11R2270-1	SS	7.00	0.81	20.306	142.144	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.60
LAWA50	LAW	VSL-11R2270-1	SS	28.00	0.81	20.306	568.576	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.76
LAWA50	LAW	VSL-11R2270-1	SS	56.00	0.81	20.306	1,137.152	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.78
LAWA50	LAW	VSL-11R2270-1	SS	120.00	0.81	20.306	2,436.754	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.96
LAWA50	LAW	VSL-11R2270-1	SS	180.00	0.81	20.306	3,655.132	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.14
LAWA50	LAW	VSL-11R2270-1	SS	271.00	0.81	20.306	5,503.004	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.26
LAWA50	LAW	VSL-11R2270-1	SS	365.00	0.81	20.306	7,411.795	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.35
LAWA50	LAW	VSL-11R2270-1	SS	545.00	0.81	20.306	11,066.926	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.47
LAWA50	LAW	VSL-11R2270-1	SS	728.00	0.81	20.306	14,782.977	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.54
LAWA50	LAW	VSL-11R2270-1	SS	1271.00	0.81	20.306	25,809.290	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.65
LAWA51	LAW	VSL-11R2270-1	SS	7.00	0.81	20.306	142.144	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	10.22
LAWA51	LAW	VSL-11R2270-1	SS	28.00	0.81	20.306	568.576	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	10.33
LAWA51	LAW	VSL-11R2270-1	SS	56.00	0.81	20.306	1,137.152	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	10.38
LAWA51	LAW	VSL-11R2270-1	SS	120.00	0.81	20.306	2,436.754	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	10.42
LAWA51	LAW	VSL-11R2270-1	SS	180.00	0.81	20.306	3,655.132	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.05
LAWA51	LAW	VSL-11R2270-1	SS	271.00	0.81	20.306	5,503.004	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.15
LAWA51	LAW	VSL-11R2270-1	SS	365.00	0.81	20.306	7,411.795	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.25
LAWA51	LAW	VSL-11R2270-1	SS	545.00	0.81	20.306	11,066.926	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.37
LAWA51	LAW	VSL-11R2270-1	SS	728.00	0.81	20.306	14,782.977	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.46
LAWA51	LAW	VSL-11R2270-1	SS	1271.00	0.81	20.306	25,809.290	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.54
TFA-BASE	LAW	VSL-11R2270-1	SS	7.00	0.81	20.306	142.144	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.31
TFA-BASE	LAW	VSL-11R2270-1	SS	28.00	0.81	20.306	568.576	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.53
TFA-BASE	LAW	VSL-11R2270-1	SS	56.00	0.81	20.306	1,137.152	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.58
TFA-BASE	LAW	VSL-11R2270-1	SS	120.00	0.81	20.306	2,436.754	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.63
TFA-BASE	LAW	VSL-11R2270-1	SS	181.00	0.81	20.306	3,675.438	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.83
TFA-BASE	LAW	VSL-11R2270-1	SS	269.00	0.81	20.306	5,462.391	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.93
TFA-BASE	LAW	VSL-11R2270-1	SS	371.00	0.81	20.306	7,533.632	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.13
TFA-BASE	LAW	VSL-11R2270-1	SS	547.00	0.81	20.306	11,107.539	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.22
TFA-BASE	LAW	VSL-11R2270-1	SS	730.00	0.81	20.306	14,823.589	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.34
TFA-BASE	LAW	VSL-11R2270-1	SS	1291.00	0.81	20.306	26,215.416	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	12.46
TFA-BASE	LAW	VSL-11R2270-1	T	7.00	0.81	20.306	142.144	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.43
TFA-BASE	LAW	VSL-11R2270-1	T	28.00	0.81	20.306	568.576	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.62
TFA-BASE	LAW	VSL-11R2270-1	T	56.00	0.81	20.306	1,137.152	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.62

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
LAWA44	2019.93	8903.03	3.57		1.68	20393.80	416.50	2.68	1.87				2.18	1.10
LAWA44	3023.37	15439.00	6.88		2.95	37605.67	909.21	7.99	3.07			0.43	4.85	1.00
LAWA44	124.30	89.29	0.53			465.93	4.94	14.85	4.96		2.74	0.48	4.10	0.49
LAWA44	160.60	137.10	0.39			630.83	6.74	19.15	6.33		4.02	0.72	5.61	0.73
LAWA44	171.73	162.53	0.44			696.37	9.28	17.27	4.15		2.77	0.58	3.34	
LAWA44	185.70	194.20	0.63			882.80	11.81	10.69			0.37			
LAWA44	198.53	251.00	0.17			1053.43	10.42	5.46						
LAWA44	216.97	287.63				1396.70	13.18	1.26						
LAWA45	137.23	357.63				810.33	9.01	7.05	12.67		10.44	1.84	12.12	1.82
LAWA45	176.80	625.23	0.43			1383.67	16.73	2.29	2.49		2.25		2.58	
LAWA45	206.90	777.60	0.41			1774.23	17.13	1.03						
LAWA45	225.63	899.47	0.36			2130.17	20.53	0.85						
LAWA45	246.93	1027.17	0.14			2165.30	22.85	1.37						
LAWA45	274.83	1184.57	0.27			2386.93	30.71	2.02						
LAWA45	293.17	1444.90	1.24			2846.83	32.20	1.42						
LAWA45	377.23	1458.03	0.58			3138.80	38.90	0.65						
LAWA45	509.93	1658.90	0.23			3492.50	47.00							
LAWA45	778.95	2825.17				6197.40	80.80	2.44						
LAWA45	116.43	338.57	0.49			802.77	8.77	5.49	6.46		5.13	0.96	6.14	1.13
LAWA45	170.40	610.23				1358.13	14.31	2.09	1.79		1.55		1.31	
LAWA45	196.63	715.53	0.24			1551.73	19.35	0.90						
LAWA45	229.73		0.39			2090.63	25.17	0.65						
LAWA45	212.13	873.67	0.37			2378.60	23.73							
LAWA45	196.93	1280.33	0.52			3036.07	28.45							
LAWA49	136.10	93.17	0.50			417.87	3.83	16.56	13.32		4.83	1.65	9.13	2.06
LAWA49	173.60	141.63	0.44			597.07	5.79	18.55	17.04		6.58	2.21	13.06	2.56
LAWA49	198.00	174.77	0.40			705.80	7.48	18.74	14.92		6.31	2.02	12.08	2.80
LAWA49	199.57	202.40	0.50			797.73	9.12	13.52	1.47		0.61		1.27	0.55
LAWA49	281.53	267.17	0.17			1018.37	10.31	12.53	1.88		0.81			0.54
LAWA49	338.60	328.63				1177.67	13.01	10.46						
LAWA49	656.23	626.30				2038.30	25.21	0.99						
LAWA49	2123.67	6433.17	1.54			15622.93	208.63	1.60	1.82				1.80	
LAWA49	2760.17	12366.00	0.93			27620.00	368.55	3.26	3.18		0.59	0.78	3.82	0.91
LAWA49	2846.93	18492.67	0.95		1.89	40349.33	786.51	3.86	2.93		0.48	0.98	6.02	1.16
LAWA50	115.97	92.62	0.20			409.40	4.00	21.37	13.53		4.96	1.36	9.09	1.77
LAWA50	149.50	140.43	0.33			585.07	5.74	24.41	18.61		6.99	1.91	13.81	2.13
LAWA50	176.10	180.63	0.35			725.47	7.85	24.46	17.44		7.07	1.80	13.21	2.36
LAWA50	234.27	250.00	0.20			921.47	10.02	15.86			0.33		0.60	
LAWA50	248.07	266.03	0.16			958.90	10.77	16.40	1.85		0.90		0.62	
LAWA50	332.73	344.37				1127.57	13.15	13.24			0.34			
LAWA50	417.80	409.03				1383.23	14.98	5.17						
LAWA50	1481.23	6241.23	0.83			15413.80	190.47	1.76	1.77				1.28	
LAWA50	2732.67	17705.33	1.04		1.38	39349.67	749.10	3.45	3.09		0.67	0.78	4.47	1.01
LAWA50	2957.40	27515.33	1.13		2.75	52797.33	959.44	4.73	3.47		0.58	1.42	5.99	1.77
LAWA51	81.71	210.00	0.23			462.00	3.71	8.58	7.64		7.17	1.40	10.51	1.66
LAWA51	112.53	415.63	0.47			826.37	6.70	7.85	10.61		10.88	2.31	16.70	2.41
LAWA51	126.20	545.47	0.69			1095.40	9.09	5.37	8.01		8.68	1.78	12.35	2.21
LAWA51	136.73	731.93	0.45			1347.97	11.75	1.02			0.99		1.27	
LAWA51	160.43	863.93	1.73			1706.00	21.72							
LAWA51	160.53	1031.33				1626.83	16.40	0.99						
LAWA51	159.27	1140.07				1906.67	16.56							
LAWA51	174.80	1273.23	0.64			2340.90	23.14	0.70						
LAWA51	316.65	1741.90	0.30			3233.10	35.42	1.47			0.26		2.26	
LAWA51	406.58	2167.57	0.23			3541.70	37.00	1.13						
TFA-BASE	143.07	140.70	0.27			475.67	3.54	16.05	8.72		6.68	2.98	5.93	1.40
TFA-BASE	191.17	244.97	0.34			729.23	5.99	13.97	9.33		8.93	2.88	7.90	1.34
TFA-BASE	209.03	294.03	0.40			937.20	5.93	9.53	4.28		4.35	1.38	3.72	0.56
TFA-BASE	239.87	359.43	0.30			1161.27	6.49	6.39			0.68			
TFA-BASE	274.67	413.77				1166.87	7.16	8.46						
TFA-BASE	339.37	517.00	0.61			1473.23	13.73	7.39						
TFA-BASE	487.13	618.77	0.31			1562.90	16.01	4.68						
TFA-BASE	1051.90	1052.67	1.24			3469.53	28.72							
TFA-BASE	1835.13	2808.37	0.30			6718.77	71.77	0.83					0.97	
TFA-BASE	3735.50	12417.67	0.81		1.54	27598.00	463.27	5.97	3.10			1.25	3.89	
TFA-BASE	102.90	140.23	0.30			480.00	3.74	25.01	6.32		3.47	2.43	3.63	1.42
TFA-BASE	144.87	265.47	0.19			814.40	5.65	18.64	5.61		4.27	1.90	4.08	1.09
TFA-BASE	147.33	321.13	0.21			957.47	7.70	14.01	2.45		1.91	0.79	1.82	

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA44		Not Studied		73.97	15.175	6.600833	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA45		Not Studied		76.95	13.181	13.0809092	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA49		Not Studied		73.98	16.185	0.8917445	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA49		Not Studied		73.98	16.185	0.8917445	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA49		Not Studied		73.98	16.185	0.8917445	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA49		Not Studied		73.98	16.185	0.8917445	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA49		Not Studied		73.98	16.185	0.8917445	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA49		Not Studied		73.98	16.185	0.8917445	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA49		Not Studied		73.98	16.185	0.8917445	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA49		Not Studied		73.98	16.185	0.8917445	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA49		Not Studied		73.98	16.185	0.8917445	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA49		Not Studied		73.98	16.185	0.8917445	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA50		Not Studied		71.95	18.182	-7.1446351	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA50		Not Studied		71.95	18.182	-7.1446351	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA50		Not Studied		71.95	18.182	-7.1446351	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA50		Not Studied		71.95	18.182	-7.1446351	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA50		Not Studied		71.95	18.182	-7.1446351	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA50		Not Studied		71.95	18.182	-7.1446351	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA50		Not Studied		71.95	18.182	-7.1446351	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA50		Not Studied		71.95	18.182	-7.1446351	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA50		Not Studied		71.95	18.182	-7.1446351	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA50		Not Studied		71.95	18.182	-7.1446351	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA51		Not Studied		77.01	13.201	12.8797607	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA51		Not Studied		77.01	13.201	12.8797607	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA51		Not Studied		77.01	13.201	12.8797607	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA51		Not Studied		77.01	13.201	12.8797607	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA51		Not Studied		77.01	13.201	12.8797607	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA51		Not Studied		77.01	13.201	12.8797607	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA51		Not Studied		77.01	13.201	12.8797607	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA51		Not Studied		77.01	13.201	12.8797607	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA51		Not Studied		77.01	13.201	12.8797607	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWA51		Not Studied		77.01	13.201	12.8797607	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA44	HOMOGENEOUS	6.20	8.90	0.00	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA45	HOMOGENEOUS	6.20	11.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	0.50	0.00	0.00
LAWA49	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.98	0.50	0.00	0.00
LAWA49	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.98	0.50	0.00	0.00
LAWA49	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.98	0.50	0.00	0.00
LAWA49	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.98	0.50	0.00	0.00
LAWA49	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.98	0.50	0.00	0.00
LAWA49	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.98	0.50	0.00	0.00
LAWA49	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.98	0.50	0.00	0.00
LAWA49	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.98	0.50	0.00	0.00
LAWA49	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.98	0.50	0.00	0.00
LAWA49	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.98	0.50	0.00	0.00
LAWA50	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.98	0.50	0.00	0.00
LAWA50	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.98	0.50	0.00	0.00
LAWA50	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.98	0.50	0.00	0.00
LAWA50	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.98	0.50	0.00	0.00
LAWA50	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.98	0.50	0.00	0.00
LAWA50	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.98	0.50	0.00	0.00
LAWA50	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.98	0.50	0.00	0.00
LAWA50	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.98	0.50	0.00	0.00
LAWA50	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.98	0.50	0.00	0.00
LAWA50	HOMOGENEOUS	6.20	8.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.98	0.50	0.00	0.00
LAWA51	HOMOGENEOUS	6.20	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	0.45	0.00	0.00
LAWA51	HOMOGENEOUS	6.20	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	0.45	0.00	0.00
LAWA51	HOMOGENEOUS	6.20	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	0.45	0.00	0.00
LAWA51	HOMOGENEOUS	6.20	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	0.45	0.00	0.00
LAWA51	HOMOGENEOUS	6.20	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	0.45	0.00	0.00
LAWA51	HOMOGENEOUS	6.20	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	0.45	0.00	0.00
LAWA51	HOMOGENEOUS	6.20	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	0.45	0.00	0.00
LAWA51	HOMOGENEOUS	6.20	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	0.45	0.00	0.00
LAWA51	HOMOGENEOUS	6.20	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	0.45	0.00	0.00
LAWA51	HOMOGENEOUS	6.20	11.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	0.45	0.00	0.00
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA44	0.00	1.99	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.56	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA45	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.55	0.00	0.00	0.00
LAWA49	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.00
LAWA49	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.00
LAWA49	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.00
LAWA49	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.00
LAWA49	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.00
LAWA49	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.00
LAWA49	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.00
LAWA49	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.00
LAWA49	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.00
LAWA49	0.00	1.48	0.00	0.00	20.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.57	0.00	0.00	0.00
LAWA50	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.55	0.00	0.00	0.00
LAWA50	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.55	0.00	0.00	0.00
LAWA50	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.55	0.00	0.00	0.00
LAWA50	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.55	0.00	0.00	0.00
LAWA50	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.55	0.00	0.00	0.00
LAWA50	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.55	0.00	0.00	0.00
LAWA50	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.55	0.00	0.00	0.00
LAWA50	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.55	0.00	0.00	0.00
LAWA50	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.55	0.00	0.00	0.00
LAWA50	0.00	1.48	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.55	0.00	0.00	0.00
LAWA51	0.00	1.48	0.00	0.00	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.58	0.00	0.00	0.00
LAWA51	0.00	1.48	0.00	0.00	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.58	0.00	0.00	0.00
LAWA51	0.00	1.48	0.00	0.00	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.58	0.00	0.00	0.00
LAWA51	0.00	1.48	0.00	0.00	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.58	0.00	0.00	0.00
LAWA51	0.00	1.48	0.00	0.00	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.58	0.00	0.00	0.00
LAWA51	0.00	1.48	0.00	0.00	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.58	0.00	0.00	0.00
LAWA51	0.00	1.48	0.00	0.00	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.58	0.00	0.00	0.00
LAWA51	0.00	1.48	0.00	0.00	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.58	0.00	0.00	0.00
LAWA51	0.00	1.48	0.00	0.00	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.58	0.00	0.00	0.00
LAWA51	0.00	1.48	0.00	0.00	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.58	0.00	0.00	0.00
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA44	0.00	0.00	1.99	0.00	0.00	2.97	2.99	0.91	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA45	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA49	0.00	0.00	2.00	0.00	0.00	2.48	2.99	0.90	100.00		
LAWA49	0.00	0.00	2.00	0.00	0.00	2.48	2.99	0.90	100.00		
LAWA49	0.00	0.00	2.00	0.00	0.00	2.48	2.99	0.90	100.00		
LAWA49	0.00	0.00	2.00	0.00	0.00	2.48	2.99	0.90	100.00		
LAWA49	0.00	0.00	2.00	0.00	0.00	2.48	2.99	0.90	100.00		
LAWA49	0.00	0.00	2.00	0.00	0.00	2.48	2.99	0.90	100.00		
LAWA49	0.00	0.00	2.00	0.00	0.00	2.48	2.99	0.90	100.00		
LAWA49	0.00	0.00	2.00	0.00	0.00	2.48	2.99	0.90	100.00		
LAWA49	0.00	0.00	2.00	0.00	0.00	2.48	2.99	0.90	100.00		
LAWA49	0.00	0.00	2.00	0.00	0.00	2.48	2.99	0.90	100.00		
LAWA50	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA50	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA50	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA50	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA50	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA50	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA50	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA50	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA50	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA50	0.00	0.00	1.99	0.00	0.00	2.48	2.99	0.92	100.00		
LAWA51	0.00	0.00	2.00	0.00	0.00	2.49	3.00	0.82	100.00		
LAWA51	0.00	0.00	2.00	0.00	0.00	2.49	3.00	0.82	100.00		
LAWA51	0.00	0.00	2.00	0.00	0.00	2.49	3.00	0.82	100.00		
LAWA51	0.00	0.00	2.00	0.00	0.00	2.49	3.00	0.82	100.00		
LAWA51	0.00	0.00	2.00	0.00	0.00	2.49	3.00	0.82	100.00		
LAWA51	0.00	0.00	2.00	0.00	0.00	2.49	3.00	0.82	100.00		
LAWA51	0.00	0.00	2.00	0.00	0.00	2.49	3.00	0.82	100.00		
LAWA51	0.00	0.00	2.00	0.00	0.00	2.49	3.00	0.82	100.00		
LAWA51	0.00	0.00	2.00	0.00	0.00	2.49	3.00	0.82	100.00		
LAWA51	0.00	0.00	2.00	0.00	0.00	2.49	3.00	0.82	100.00		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
TFA-BASE	LAW	VSL-11R2270-1	T	120.00	0.81	20.306	2,436.754	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.65
TFA-BASE	LAW	VSL-11R2270-1	T	179.00	0.81	20.306	3,634.825	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.55
TFA-BASE	LAW	VSL-11R2270-1	T	239.00	0.81	20.306	4,853.202	2.650	40.00	100-200	1.125E-04	0.040	ASTM I	90	11.45
ANL on EA	HLW	ANL-98/27	SS	7.00	0.02	2.094	14.661	**2.650**	1.15	100-200	1.125E-04	0.011	J13	90	11.61
ANL on EA	HLW	ANL-98/27	SS	30.00	0.02	2.031	60.919	**2.650**	1.14	100-200	1.125E-04	0.011	J13	90	11.80
ANL on EA	HLW	ANL-98/27	SS	70.00	0.02	2.031	142.144	**2.650**	1.07	100-200	1.125E-04	0.011	J13	90	11.73
ANL on EA	HLW	ANL-98/27	SS	313.00	0.02	2.029	635.030	**2.650**	1.14	100-200	1.125E-04	0.011	J13	90	12.07
ANL on EA	HLW	ANL-98/27	SS	470.00	0.02	2.031	954.395	**2.650**	1.22	100-200	1.125E-04	0.012	J13	90	12.04
ANL on EA	HLW	ANL-98/27	SS	592.00	0.03	2.031	1,202.132	**2.650**	1.25	100-200	1.125E-04	0.013	J13	90	11.97
ANL on EA	HLW	ANL-98/27	SS	600.00	0.02	2.031	1,218.377	**2.650**	1.12	100-200	1.125E-04	0.011	J13	90	12.05
ANL on EA	HLW	ANL-98/27	SS	7.00	0.10	20.306	142.144	**2.650**	5.00	100-200	1.125E-04	0.005	J13	90	11.86
ANL on EA	HLW	ANL-98/27	SS	14.00	0.10	20.306	284.288	**2.650**	5.01	100-200	1.125E-04	0.005	J13	90	11.71
ANL on EA	HLW	ANL-98/27	SS	20.00	0.10	20.306	406.126	**2.650**	5.05	100-200	1.125E-04	0.005	J13	90	11.87
ANL on EA	HLW	ANL-98/27	SS	22.00	0.10	20.306	446.738	**2.650**	5.07	100-200	1.125E-04	0.005	J13	90	11.96
ANL on EA	HLW	ANL-98/27	SS	35.00	0.10	20.306	710.720	**2.650**	5.02	100-200	1.125E-04	0.005	J13	90	11.91
ANL on EA	HLW	ANL-98/27	SS	42.00	0.10	20.347	854.570	**2.650**	5.01	100-200	1.125E-04	0.005	J13	90	11.92
ANL on EA	HLW	ANL-98/27	SS	56.00	0.14	20.364	1,140.378	**2.650**	7.07	100-200	1.125E-04	0.007	J13	90	12.26
ANL on EA	HLW	ANL-98/27	SS	98.00	0.14	20.249	1,984.402	**2.650**	7.07	100-200	1.125E-04	0.007	J13	90	12.37
ANL on EA	HLW	ANL-98/27	SS	182.00	0.14	20.335	3,700.986	**2.650**	7.06	100-200	1.125E-04	0.007	J13	90	12.23
ANL on EA	HLW	ANL-98/27	SS	367.00	0.14	20.306	7,452.407	**2.650**	7.13	100-200	1.125E-04	0.007	J13	90	11.69
ANL on EA	HLW	ANL-98/27	SS	407.00	0.15	20.306	8,264.659	**2.650**	7.24	100-200	1.125E-04	0.007	J13	90	11.58
ANL on EA	HLW	ANL-98/27	SS	470.00	0.14	20.335	9,557.266	**2.650**	7.18	100-200	1.125E-04	0.007	J13	90	--
ANL on EA	HLW	ANL-98/27	SS	525.00	0.14	20.249	10,630.514	**2.650**	7.02	100-200	1.125E-04	0.007	J13	90	11.41
ANL on EA	HLW	ANL-98/27	SS	1155.00	0.14	20.306	23,453.761	**2.650**	7.05	100-200	1.125E-04	0.007	J13	90	--
ANL on EA	HLW	ANL-98/27	SS	56.00	0.14	19.162	1,073.052	**2.650**	3.68	200-325	5.900E-05	0.007	J13	90	12.25
ANL on EA	HLW	ANL-98/27	SS	98.00	0.14	19.201	1,881.671	**2.650**	3.69	200-325	5.900E-05	0.007	J13	90	12.29
ANL on EA	HLW	ANL-98/27	SS	182.00	0.14	19.177	3,490.255	**2.650**	3.66	200-325	5.900E-05	0.007	J13	90	12.23
ANL on EA	HLW	ANL-98/27	SS	367.00	0.14	19.188	7,041.893	**2.650**	3.64	200-325	5.900E-05	0.007	J13	90	11.77
ANL on EA	HLW	ANL-98/27	SS	525.00	0.14	19.175	10,066.833	**2.650**	3.75	200-325	5.900E-05	0.007	J13	90	11.60
ANL on EA	HLW	ANL-98/27	SS	1155.00	0.14	19.188	22,161.816	**2.650**	3.74	200-325	5.900E-05	0.007	J13	90	11.70
M-Area HSi-5-A	LAW	SRNL-STI-2011-00702 and 1996 Whited Thesis	T	14.00	0.02	1.081	15.132	2.600	2.00	60-80	2.135E-04	0.020	E-Area	25	9.27
M-Area HSi-5-B	LAW	SRNL-STI-2011-00702 and 1996 Whited Thesis	T	14.00	0.02	2.162	30.265	2.600	2.00	60-80	2.135E-04	0.010	E-Area	25	8.82
M-Area HSi-5-E	LAW	SRNL-STI-2011-00702 and 1996 Whited Thesis	T	28.00	0.02	1.081	30.265	2.600	2.00	60-80	2.135E-04	0.020	E-Area	25	7.39
M-Area HSi-5-F	LAW	SRNL-STI-2011-00702 and 1996 Whited Thesis	T	28.00	0.02	2.162	60.530	2.600	2.00	60-80	2.135E-04	0.010	E-Area	25	7.96
M-Area HSi-5-G	LAW	SRNL-STI-2011-00702 and 1996 Whited Thesis	T	28.00	0.04	1.817	50.878	2.600	2.00	100-140	1.270E-04	0.020	E-Area	25	10.87
M-Area HSi-5-H	LAW	SRNL-STI-2011-00702 and 1996 Whited Thesis	T	28.00	0.04	3.634	101.757	2.600	2.00	100-140	1.270E-04	0.010	E-Area	25	8.72
M-Area HSi-5-I	LAW	SRNL-STI-2011-00702 and 1996 Whited Thesis	T	42.00	0.10	5.128	215.385	2.600	2.00	270-400	4.500E-05	0.020	E-Area	25	8.61
M-Area HSi-5J	LAW	SRNL-STI-2011-00702 and 1996 Whited Thesis	T	42.00	0.10	10.256	430.769	2.600	2.00	270-400	4.500E-05	0.010	E-Area	25	8.68
M-Area MN-12-A	LAW	SRNL-STI-2011-00702 and 1996 Whited Thesis	T	14.00	0.02	1.081	15.132	2.600	2.00	60-80	2.135E-04	0.020	E-Area	25	9.59
M-Area MN-12-B	LAW	SRNL-STI-2011-00702 and 1996 Whited Thesis	T	14.00	0.02	2.162	30.265	2.600	2.00	60-80	2.135E-04	0.010	E-Area	25	9.72
M-Area MN-12-E	LAW	SRNL-STI-2011-00702 and 1996 Whited Thesis	T	28.00	0.02	1.081	30.265	2.600	2.00	60-80	2.135E-04	0.020	E-Area	25	9.48
M-Area MN-12-F	LAW	SRNL-STI-2011-00702 and 1996 Whited Thesis	T	28.00	0.02	2.162	60.530	2.600	2.00	60-80	2.135E-04	0.010	E-Area	25	9.78
M-Area MN-12-G	LAW	SRNL-STI-2011-00702 and 1996 Whited Thesis	T	28.00	0.04	1.817	50.878	2.600	2.00	100-140	1.270E-04	0.020	E-Area	25	8.79
M-Area MN-12-H	LAW	SRNL-STI-2011-00702 and 1996 Whited Thesis	T	28.00	0.04	3.634	101.757	2.600	2.00	100-140	1.270E-04	0.010	E-Area	25	10.87
M-Area MN-12-I	LAW	SRNL-STI-2011-00702 and 1996 Whited Thesis	T	42.00	0.10	5.128	215.385	2.600	2.00	270-400	4.500E-05	0.020	E-Area	25	10.89
M-Area MN-12-J	LAW	SRNL-STI-2011-00702 and 1996 Whited Thesis	T	42.00	0.10	10.256	430.769	2.600	2.00	270-400	4.500E-05	0.010	E-Area	25	10.00
M-Area MN-13-A	LAW	SRNL-STI-2011-00702 and 1996 Whited Thesis	T	14.00	0.02	1.081	15.132	2.600	2.00	60-80	2.135E-04	0.020	E-Area	25	9.68
M-Area MN-13-B	LAW	SRNL-STI-2011-00702 and 1996 Whited Thesis	T	14.00	0.02	2.162	30.265	2.600	2.00	60-80	2.135E-04	0.010	E-Area	25	9.73

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
TFA-BASE	170.43	430.43	0.40			1274.03	9.57	9.85						
TFA-BASE	151.70	493.87				1336.73	9.75	5.69						
TFA-BASE	146.50	606.97	0.14			1395.90	10.78	4.00						
ANL on EA	633.00	314.00	5.29		108.00	948.00	13.60	1.51	0.04		0.01	0.01	0.01	
ANL on EA	833.50	504.00			153.50	1036.00		1.14	0.09				0.03	
ANL on EA	669.50	354.50			115.00	1207.00	9.05	2.79	0.23					0.28
ANL on EA	1820.00	402.00	19.00		215.00	4075.00	12.50	0.85				0.01	0.02	
ANL on EA	1840.00	2390.00	12.30		348.00	6316.00	6.23	0.89						0.01
ANL on EA	2580.00	2520.00	16.40		375.00	6375.00	20.00	0.61	0.02		0.02			0.01
ANL on EA	2410.00	2350.00	24.50		362.00	5414.00	173.00	1.13			0.54		1.80	
ANL on EA	3470.00	3550.00			995.00	15950.00	108.00							
ANL on EA	3610.00	3870.00			1013.00	16633.00	106.00							
ANL on EA	1190.00	5660.00			1357.00	24571.00	144.00							
ANL on EA	527.00	7550.00			1114.00	21030.00	94.20							
ANL on EA	3920.00	9910.00			1337.00	26033.00	113.00							
ANL on EA	973.00	9920.00			1340.00	26416.00	151.00							
ANL on EA	957.00	7630.00	0.85		953.50	24414.00	30.50	4.10	0.53					
ANL on EA	1185.00	11175.00	0.60		1205.50	29848.50			0.25					
ANL on EA	7555.00	17325.00	1.23		1893.00	53319.50	58.30	11.54	0.62					
ANL on EA	20300.00	23805.00	136.10		2027.00	74594.00	137.50	35.70	2.50		0.14	0.34	0.40	52.50
ANL on EA	17460.00	24740.00	63.90		1894.00	57013.00	93.80	7.91				0.02		0.50
ANL on EA	12140.00	28500.00	96.60		1730.00	58710.00	113.00	30.10			0.02	0.17	1.10	30.00
ANL on EA	9560.00	31330.00	19.50		2261.00	72247.00	147.00	19.80	0.76		0.11	0.08		0.24
ANL on EA	14673.33	25570.00	127.66		1683.00	55598.00	85.93	22.80				0.15		28.70
ANL on EA	883.00	6365.00	0.50		747.00	18994.00	25.00	1.95	0.34					
ANL on EA	1990.00	9640.00	0.34		1040.00	25663.00			0.17					
ANL on EA	6640.00	11340.00	0.62		1317.00	36069.00	45.05	6.61	0.40					1.15
ANL on EA	6700.00	16775.00	70.50		1362.00	42967.00	115.00	17.35	0.28		0.14	0.03	0.03	1.70
ANL on EA	6245.00	16985.00	48.50		1331.00	39698.00	83.00	7.80	0.28		0.02	0.01	0.01	0.20
ANL on EA	6175.00	13665.00	48.35		715.50	34728.00	63.55	6.87	0.72			0.02	0.01	1.50
M-Area HSi-5-A	2.76	0.25	2.43			6.52		0.03			0.35			
M-Area HSi-5-B	3.04	0.41	2.10		0.04	7.69		0.03			0.34			
M-Area HSi-5-E	2.97	0.32	2.47		0.03	6.89		0.03	0.02		0.35			
M-Area HSi-5-F	3.82	0.52	2.09		0.06	8.30		0.03	0.02		0.33			
M-Area HSi-5-G	34.68	17.91	0.10		25.94	16.51		28.75	0.98		0.03			
M-Area HSi-5-H	3.28	1.45	0.10		0.10	5.57		1.13	0.02		0.02			
M-Area HSi-5-I	3.78	1.01	1.00		0.13	11.84		0.44	0.02		0.22			
M-Area HSi-5J	4.12	1.28	1.19		0.17	12.39		0.59	0.03		0.19			
M-Area MN-12-A	3.32	1.16	1.16		3.22	6.23		1.46			0.23			
M-Area MN-12-B	4.35	2.06	0.36		5.92	7.69		2.62			0.10			
M-Area MN-12-E	3.56	1.45	1.03		3.92	6.66		2.26	0.01		0.21			
M-Area MN-12-F	4.87	2.27	0.59		5.75	7.80		3.97	0.07		0.12			
M-Area MN-12-G	2.43	0.92	0.54		0.06	3.45		0.97	0.01		0.01			
M-Area MN-12-H	39.56	22.72	0.11		32.79	20.01		34.25	1.05		0.03			
M-Area MN-12-I	33.94	20.39	0.18		31.30	23.35		35.49	0.65		0.05			
M-Area MN-12-J	11.42	5.39	0.11		10.96	11.00		11.74	0.12		0.02			
M-Area MN-13-A	2.26	0.08	1.67		1.29	4.16		0.15	0.01		0.25			
M-Area MN-13-B	3.75	0.19	1.71		2.82	6.12		0.43			0.29			

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
TFA-BASE		Not Studied		79.47	12.508	12.8442656	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
ANL on EA		No Zeolite		81.10	14.231385	0.500433797	Indeterminate	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
ANL on EA		No Zeolite		81.10	14.231385	0.500433797	Indeterminate	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
ANL on EA		No Zeolite		81.10	14.231385	0.500433797	Indeterminate	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
ANL on EA		No Zeolite		81.10	14.231385	0.500433797	Indeterminate	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
ANL on EA		Zeolite		81.10	14.231385	0.500433797	Indeterminate	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
ANL on EA		Zeolite		81.10	14.231385	0.500433797	Indeterminate	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
ANL on EA		Zeolite		81.10	14.231385	0.500433797	Indeterminate	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
ANL on EA		Zeolite		81.10	14.231385	0.500433797	Indeterminate	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
ANL on EA		Zeolite		81.10	14.231385	0.500433797	Indeterminate	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
ANL on EA		Zeolite		81.10	14.231385	0.500433797	Indeterminate	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
ANL on EA		Zeolite		81.10	14.231385	0.500433797	Indeterminate	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
ANL on EA		Zeolite		81.10	14.231385	0.500433797	Indeterminate	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
ANL on EA		Zeolite		81.10	14.231385	0.500433797	Indeterminate	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
ANL on EA		Zeolite		81.10	14.231385	0.500433797	Indeterminate	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
ANL on EA		Zeolite		81.10	14.231385	0.500433797	Indeterminate	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
ANL on EA		Zeolite		81.10	14.231385	0.500433797	Indeterminate	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
ANL on EA		Zeolite		81.10	14.231385	0.500433797	Indeterminate	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
ANL on EA		Zeolite		81.10	14.231385	0.500433797	Indeterminate	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
ANL on EA		Zeolite		81.10	14.231385	0.500433797	Indeterminate	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
ANL on EA		Zeolite		81.10	14.231385	0.500433797	Indeterminate	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
ANL on EA		Zeolite		81.10	14.231385	0.500433797	Indeterminate	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
ANL on EA		Zeolite		81.10	14.231385	0.500433797	Indeterminate	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
ANL on EA		Zeolite		81.10	14.231385	0.500433797	Indeterminate	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
ANL on EA		Zeolite		81.10	14.231385	0.500433797	Indeterminate	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
ANL on EA		Zeolite		81.10	14.231385	0.500433797	Indeterminate	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
ANL on EA		Zeolite		81.10	14.231385	0.500433797	Indeterminate	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
ANL on EA		Zeolite		81.10	14.231385	0.500433797	Indeterminate	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
M-Area HSi-5-A	0.08	Not Studied		71.90	21.46	-25.573138	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
M-Area HSi-5-B	0.16	Not Studied		71.90	21.46	-25.573138	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
M-Area HSi-5-E	0.09	Not Studied		71.90	21.46	-25.573138	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
M-Area HSi-5-F	0.14	Not Studied		71.90	21.46	-25.573138	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
M-Area HSi-5-G	4.85	Not Studied		71.90	21.46	-25.573138	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
M-Area HSi-5-H	0.37	Not Studied		71.90	21.46	-25.573138	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
M-Area HSi-5-I	0.43	Not Studied		71.90	21.46	-25.573138	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
M-Area HSi-5J	0.51	Not Studied		71.90	21.46	-25.573138	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
M-Area MN-12-A	0.45	Not Studied		69.60	20.23	-14.938294	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
M-Area MN-12-B	0.72	Not Studied		69.60	20.23	-14.938294	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
M-Area MN-12-E	0.49	Not Studied		69.60	20.23	-14.938294	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
M-Area MN-12-F	0.75	Not Studied		69.60	20.23	-14.938294	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
M-Area MN-12-G	0.20	Not Studied		69.60	20.23	-14.938294	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
M-Area MN-12-H		Not Studied		69.60	20.23	-14.938294	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
M-Area MN-12-I	4.01	Not Studied		69.60	20.23	-14.938294	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
M-Area MN-12-J	1.70	Not Studied		69.60	20.23	-14.938294	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
M-Area MN-13-A	0.23	Not Studied		68.51	19.72	-10.310101	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
M-Area MN-13-B	0.36	Not Studied		68.51	19.72	-10.310101	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00
TFA-BASE	HOMOGENEOUS	7.00	10.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.41	0.00	0.00
ANL on EA	Potential ϕ-sep.	3.70	11.30	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.38	0.04	0.00	0.42
ANL on EA	Potential ϕ-sep.	3.70	11.30	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.38	0.04	0.00	0.42
ANL on EA	Potential ϕ-sep.	3.70	11.30	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.38	0.04	0.00	0.42
ANL on EA	Potential ϕ-sep.	3.70	11.30	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.38	0.04	0.00	0.42
ANL on EA	Potential ϕ-sep.	3.70	11.30	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.38	0.04	0.00	0.42
ANL on EA	Potential ϕ-sep.	3.70	11.30	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.38	0.04	0.00	0.42
ANL on EA	Potential ϕ-sep.	3.70	11.30	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.38	0.04	0.00	0.42
ANL on EA	Potential ϕ-sep.	3.70	11.30	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.38	0.04	0.00	0.42
ANL on EA	Potential ϕ-sep.	3.70	11.30	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.38	0.04	0.00	0.42
ANL on EA	Potential ϕ-sep.	3.70	11.30	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.38	0.04	0.00	0.42
ANL on EA	Potential ϕ-sep.	3.70	11.30	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.38	0.04	0.00	0.42
ANL on EA	Potential ϕ-sep.	3.70	11.30	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.38	0.04	0.00	0.42
ANL on EA	Potential ϕ-sep.	3.70	11.30	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.38	0.04	0.00	0.42
ANL on EA	Potential ϕ-sep.	3.70	11.30	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.38	0.04	0.00	0.42
ANL on EA	Potential ϕ-sep.	3.70	11.30	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.38	0.04	0.00	0.42
ANL on EA	Potential ϕ-sep.	3.70	11.30	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.38	0.04	0.00	0.42
ANL on EA	Potential ϕ-sep.	3.70	11.30	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.38	0.04	0.00	0.42
ANL on EA	Potential ϕ-sep.	3.70	11.30	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.38	0.04	0.00	0.42
ANL on EA	Potential ϕ-sep.	3.70	11.30	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.38	0.04	0.00	0.42
ANL on EA	Potential ϕ-sep.	3.70	11.30	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.38	0.04	0.00	0.42
ANL on EA	Potential ϕ-sep.	3.70	11.30	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.38	0.04	0.00	0.42
ANL on EA	Potential ϕ-sep.	3.70	11.30	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.38	0.04	0.00	0.42
ANL on EA	Potential ϕ-sep.	3.70	11.30	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.38	0.04	0.00	0.42
ANL on EA	Potential ϕ-sep.	3.70	11.30	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.38	0.04	0.00	0.42
ANL on EA	Potential ϕ-sep.	3.70	11.30	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.38	0.04	0.00	0.42
ANL on EA	Potential ϕ-sep.	3.70	11.30	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.38	0.04	0.00	0.42
ANL on EA	Potential ϕ-sep.	3.70	11.30	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.38	0.04	0.00	0.42
M-Area HSi-5-A	HOMOGENEOUS	19.36	11.95	0.01	0.38	0.00	0.02	0.08	0.00	0.03	0.00	0.00	1.68	1.83	0.00	0.00
M-Area HSi-5-B	HOMOGENEOUS	19.36	11.95	0.01	0.38	0.00	0.02	0.08	0.00	0.03	0.00	0.00	1.68	1.83	0.00	0.00
M-Area HSi-5-E	HOMOGENEOUS	19.36	11.95	0.01	0.38	0.00	0.02	0.08	0.00	0.03	0.00	0.00	1.68	1.83	0.00	0.00
M-Area HSi-5-F	HOMOGENEOUS	19.36	11.95	0.01	0.38	0.00	0.02	0.08	0.00	0.03	0.00	0.00	1.68	1.83	0.00	0.00
M-Area HSi-5-G	HOMOGENEOUS	19.36	11.95	0.01	0.38	0.00	0.02	0.08	0.00	0.03	0.00	0.00	1.68	1.83	0.00	0.00
M-Area HSi-5-H	HOMOGENEOUS	19.36	11.95	0.01	0.38	0.00	0.02	0.08	0.00	0.03	0.00	0.00	1.68	1.83	0.00	0.00
M-Area HSi-5-I	HOMOGENEOUS	19.36	11.95	0.01	0.38	0.00	0.02	0.08	0.00	0.03	0.00	0.00	1.68	1.83	0.00	0.00
M-Area HSi-5J	HOMOGENEOUS	19.36	11.95	0.01	0.38	0.00	0.02	0.08	0.00	0.03	0.00	0.00	1.68	1.83	0.00	0.00
M-Area MN-12-A	HOMOGENEOUS	18.33	14.26	0.00	0.30	0.00	0.02	0.09	0.00	0.01	0.00	0.00	1.56	1.10	0.00	0.00
M-Area MN-12-B	HOMOGENEOUS	18.33	14.26	0.00	0.30	0.00	0.02	0.09	0.00	0.01	0.00	0.00	1.56	1.10	0.00	0.00
M-Area MN-12-E	HOMOGENEOUS	18.33	14.26	0.00	0.30	0.00	0.02	0.09	0.00	0.01	0.00	0.00	1.56	1.10	0.00	0.00
M-Area MN-12-F	HOMOGENEOUS	18.33	14.26	0.00	0.30	0.00	0.02	0.09	0.00	0.01	0.00	0.00	1.56	1.10	0.00	0.00
M-Area MN-12-G	HOMOGENEOUS	18.33	14.26	0.00	0.30	0.00	0.02	0.09	0.00	0.01	0.00	0.00	1.56	1.10	0.00	0.00
M-Area MN-12-H	HOMOGENEOUS	18.33	14.26	0.00	0.30	0.00	0.02	0.09	0.00	0.01	0.00	0.00	1.56	1.10	0.00	0.00
M-Area MN-12-I	HOMOGENEOUS	18.33	14.26	0.00	0.30	0.00	0.02	0.09	0.00	0.01	0.00	0.00	1.56	1.10	0.00	0.00
M-Area MN-12-J	HOMOGENEOUS	18.33	14.26	0.00	0.30	0.00	0.02	0.09	0.00	0.01	0.00	0.00	1.56	1.10	0.00	0.00
M-Area MN-13-A	HOMOGENEOUS	17.52	5.09	0.01	0.35	0.00	0.02	0.08	0.00	0.02	0.00	0.00	1.81	1.40	0.00	0.00
M-Area MN-13-B	HOMOGENEOUS	17.52	5.09	0.01	0.35	0.00	0.02	0.08	0.00	0.02	0.00	0.00	1.81	1.40	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00
TFA-BASE	0.00	1.50	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.07	0.00	0.00	0.00
ANL on EA	4.26	1.72	1.09	0.00	16.80	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	48.70	0.00	0.00	0.00
ANL on EA	4.26	1.72	1.09	0.00	16.80	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	48.70	0.00	0.00	0.00
ANL on EA	4.26	1.72	1.09	0.00	16.80	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	48.70	0.00	0.00	0.00
ANL on EA	4.26	1.72	1.09	0.00	16.80	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	48.70	0.00	0.00	0.00
ANL on EA	4.26	1.72	1.09	0.00	16.80	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	48.70	0.00	0.00	0.00
ANL on EA	4.26	1.72	1.09	0.00	16.80	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	48.70	0.00	0.00	0.00
ANL on EA	4.26	1.72	1.09	0.00	16.80	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	48.70	0.00	0.00	0.00
ANL on EA	4.26	1.72	1.09	0.00	16.80	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	48.70	0.00	0.00	0.00
ANL on EA	4.26	1.72	1.09	0.00	16.80	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	48.70	0.00	0.00	0.00
ANL on EA	4.26	1.72	1.09	0.00	16.80	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	48.70	0.00	0.00	0.00
ANL on EA	4.26	1.72	1.09	0.00	16.80	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	48.70	0.00	0.00	0.00
ANL on EA	4.26	1.72	1.09	0.00	16.80	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	48.70	0.00	0.00	0.00
ANL on EA	4.26	1.72	1.09	0.00	16.80	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	48.70	0.00	0.00	0.00
ANL on EA	4.26	1.72	1.09	0.00	16.80	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	48.70	0.00	0.00	0.00
ANL on EA	4.26	1.72	1.09	0.00	16.80	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	48.70	0.00	0.00	0.00
ANL on EA	4.26	1.72	1.09	0.00	16.80	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	48.70	0.00	0.00	0.00
ANL on EA	4.26	1.72	1.09	0.00	16.80	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	48.70	0.00	0.00	0.00
ANL on EA	4.26	1.72	1.09	0.00	16.80	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	48.70	0.00	0.00	0.00
ANL on EA	4.26	1.72	1.09	0.00	16.80	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	48.70	0.00	0.00	0.00
ANL on EA	4.26	1.72	1.09	0.00	16.80	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	48.70	0.00	0.00	0.00
ANL on EA	4.26	1.72	1.09	0.00	16.80	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	48.70	0.00	0.00	0.00
ANL on EA	4.26	1.72	1.09	0.00	16.80	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	48.70	0.00	0.00	0.00
ANL on EA	4.26	1.72	1.09	0.00	16.80	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	48.70	0.00	0.00	0.00
ANL on EA	4.26	1.72	1.09	0.00	16.80	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	48.70	0.00	0.00	0.00
ANL on EA	4.26	1.72	1.09	0.00	16.80	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	48.70	0.00	0.00	0.00
ANL on EA	4.26	1.72	1.09	0.00	16.80	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	48.70	0.00	0.00	0.00
ANL on EA	4.26	1.72	1.09	0.00	16.80	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	48.70	0.00	0.00	0.00
M-Area HSi-5-A	0.00	0.22	0.04	0.01	13.58	0.01	0.62	0.00	1.82	0.03	0.00	0.00	0.00	44.54	0.00	0.00	0.00
M-Area HSi-5-B	0.00	0.22	0.04	0.01	13.58	0.01	0.62	0.00	1.82	0.03	0.00	0.00	0.00	44.54	0.00	0.00	0.00
M-Area HSi-5-E	0.00	0.22	0.04	0.01	13.58	0.01	0.62	0.00	1.82	0.03	0.00	0.00	0.00	44.54	0.00	0.00	0.00
M-Area HSi-5-F	0.00	0.22	0.04	0.01	13.58	0.01	0.62	0.00	1.82	0.03	0.00	0.00	0.00	44.54	0.00	0.00	0.00
M-Area HSi-5-G	0.00	0.22	0.04	0.01	13.58	0.01	0.62	0.00	1.82	0.03	0.00	0.00	0.00	44.54	0.00	0.00	0.00
M-Area HSi-5-H	0.00	0.22	0.04	0.01	13.58	0.01	0.62	0.00	1.82	0.03	0.00	0.00	0.00	44.54	0.00	0.00	0.00
M-Area HSi-5-I	0.00	0.22	0.04	0.01	13.58	0.01	0.62	0.00	1.82	0.03	0.00	0.00	0.00	44.54	0.00	0.00	0.00
M-Area HSi-5J	0.00	0.22	0.04	0.01	13.58	0.01	0.62	0.00	1.82	0.03	0.00	0.00	0.00	44.54	0.00	0.00	0.00
M-Area MN-12-A	14.67	0.20	0.03	0.01	6.80	0.01	0.47	0.00	1.78	0.02	0.00	0.00	0.00	32.77	0.00	0.00	0.00
M-Area MN-12-B	14.67	0.20	0.03	0.01	6.80	0.01	0.47	0.00	1.78	0.02	0.00	0.00	0.00	32.77	0.00	0.00	0.00
M-Area MN-12-E	14.67	0.20	0.03	0.01	6.80	0.01	0.47	0.00	1.78	0.02	0.00	0.00	0.00	32.77	0.00	0.00	0.00
M-Area MN-12-F	14.67	0.20	0.03	0.01	6.80	0.01	0.47	0.00	1.78	0.02	0.00	0.00	0.00	32.77	0.00	0.00	0.00
M-Area MN-12-G	14.67	0.20	0.03	0.01	6.80	0.01	0.47	0.00	1.78	0.02	0.00	0.00	0.00	32.77	0.00	0.00	0.00
M-Area MN-12-H	14.67	0.20	0.03	0.01	6.80	0.01	0.47	0.00	1.78	0.02	0.00	0.00	0.00	32.77	0.00	0.00	0.00
M-Area MN-12-I	14.67	0.20	0.03	0.01	6.80	0.01	0.47	0.00	1.78	0.02	0.00	0.00	0.00	32.77	0.00	0.00	0.00
M-Area MN-12-J	14.67	0.20	0.03	0.01	6.80	0.01	0.47	0.00	1.78	0.02	0.00	0.00	0.00	32.77	0.00	0.00	0.00
M-Area MN-13-A	11.15	0.25	0.03	0.01	7.87	0.01	0.59	0.00	2.16	0.02	0.00	0.00	0.00	43.00	0.00	0.00	0.08
M-Area MN-13-B	11.15	0.25	0.03	0.01	7.87	0.01	0.59	0.00	2.16	0.02	0.00	0.00	0.00	43.00	0.00	0.00	0.08

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		
TFA-BASE	0.00	0.00	3.00	0.00	0.00	1.50	1.50	0.52	100.00		
ANL on EA	0.00	0.00	0.70	0.00	0.00	0.26	0.46	0.00	99.97		
ANL on EA	0.00	0.00	0.70	0.00	0.00	0.26	0.46	0.00	99.97		
ANL on EA	0.00	0.00	0.70	0.00	0.00	0.26	0.46	0.00	99.97		
ANL on EA	0.00	0.00	0.70	0.00	0.00	0.26	0.46	0.00	99.97		
ANL on EA	0.00	0.00	0.70	0.00	0.00	0.26	0.46	0.00	99.97		
ANL on EA	0.00	0.00	0.70	0.00	0.00	0.26	0.46	0.00	99.97		
ANL on EA	0.00	0.00	0.70	0.00	0.00	0.26	0.46	0.00	99.97		
ANL on EA	0.00	0.00	0.70	0.00	0.00	0.26	0.46	0.00	99.97		
ANL on EA	0.00	0.00	0.70	0.00	0.00	0.26	0.46	0.00	99.97		
ANL on EA	0.00	0.00	0.70	0.00	0.00	0.26	0.46	0.00	99.97		
ANL on EA	0.00	0.00	0.70	0.00	0.00	0.26	0.46	0.00	99.97		
ANL on EA	0.00	0.00	0.70	0.00	0.00	0.26	0.46	0.00	99.97		
ANL on EA	0.00	0.00	0.70	0.00	0.00	0.26	0.46	0.00	99.97		
ANL on EA	0.00	0.00	0.70	0.00	0.00	0.26	0.46	0.00	99.97		
ANL on EA	0.00	0.00	0.70	0.00	0.00	0.26	0.46	0.00	99.97		
ANL on EA	0.00	0.00	0.70	0.00	0.00	0.26	0.46	0.00	99.97		
ANL on EA	0.00	0.00	0.70	0.00	0.00	0.26	0.46	0.00	99.97		
ANL on EA	0.00	0.00	0.70	0.00	0.00	0.26	0.46	0.00	99.97		
ANL on EA	0.00	0.00	0.70	0.00	0.00	0.26	0.46	0.00	99.97		
ANL on EA	0.00	0.00	0.70	0.00	0.00	0.26	0.46	0.00	99.97		
ANL on EA	0.00	0.00	0.70	0.00	0.00	0.26	0.46	0.00	99.97		
ANL on EA	0.00	0.00	0.70	0.00	0.00	0.26	0.46	0.00	99.97		
ANL on EA	0.00	0.00	0.70	0.00	0.00	0.26	0.46	0.00	99.97		
ANL on EA	0.00	0.00	0.70	0.00	0.00	0.26	0.46	0.00	99.97		
ANL on EA	0.00	0.00	0.70	0.00	0.00	0.26	0.46	0.00	99.97		
ANL on EA	0.00	0.00	0.70	0.00	0.00	0.26	0.46	0.00	99.97		
ANL on EA	0.00	0.00	0.70	0.00	0.00	0.26	0.46	0.00	99.97		
M-Area HSi-5-A	0.00	0.00	0.08	3.39	0.00	0.03	0.01	0.00	99.72		
M-Area HSi-5-B	0.00	0.00	0.08	3.39	0.00	0.03	0.01	0.00	99.72		
M-Area HSi-5-E	0.00	0.00	0.08	3.39	0.00	0.03	0.01	0.00	99.72		
M-Area HSi-5-F	0.00	0.00	0.08	3.39	0.00	0.03	0.01	0.00	99.72		
M-Area HSi-5-G	0.00	0.00	0.08	3.39	0.00	0.03	0.01	0.00	99.72		
M-Area HSi-5-H	0.00	0.00	0.08	3.39	0.00	0.03	0.01	0.00	99.72		
M-Area HSi-5-I	0.00	0.00	0.08	3.39	0.00	0.03	0.01	0.00	99.72		
M-Area HSi-5J	0.00	0.00	0.08	3.39	0.00	0.03	0.01	0.00	99.72		
M-Area MN-12-A	0.00	0.00	0.06	3.72	0.00	0.02	0.02	0.00	96.25		
M-Area MN-12-B	0.00	0.00	0.06	3.72	0.00	0.02	0.02	0.00	96.25		
M-Area MN-12-E	0.00	0.00	0.06	3.72	0.00	0.02	0.02	0.00	96.25		
M-Area MN-12-F	0.00	0.00	0.06	3.72	0.00	0.02	0.02	0.00	96.25		
M-Area MN-12-G	0.00	0.00	0.06	3.72	0.00	0.02	0.02	0.00	96.25		
M-Area MN-12-H	0.00	0.00	0.06	3.72	0.00	0.02	0.02	0.00	96.25		
M-Area MN-12-I	0.00	0.00	0.06	3.72	0.00	0.02	0.02	0.00	96.25		
M-Area MN-12-J	0.00	0.00	0.06	3.72	0.00	0.02	0.02	0.00	96.25		
M-Area MN-13-A	0.00	0.00	0.08	4.42	0.00	0.03	0.02	0.00	96.02		
M-Area MN-13-B	0.00	0.00	0.08	4.42	0.00	0.03	0.02	0.00	96.02		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
M-Area MN-13-E	LAW	SRNL-STI-2011-00702 and 1996 Whited Thesis	T	28.00	0.02	1.081	30.265	2.600	2.00	60-80	2.135E-04	0.020	E-Area	25	9.29
M-Area MN-13-F	LAW	SRNL-STI-2011-00702 and 1996 Whited Thesis	T	28.00	0.02	2.162	60.530	2.600	2.00	60-80	2.135E-04	0.010	E-Area	25	9.59
M-Area MN-13-G	LAW	SRNL-STI-2011-00702 and 1996 Whited Thesis	T	28.00	0.04	1.817	50.878	2.600	2.00	100-140	1.270E-04	0.020	E-Area	25	9.65
M-Area MN-13-H	LAW	SRNL-STI-2011-00702 and 1996 Whited Thesis	T	28.00	0.04	3.634	101.757	2.600	2.00	100-140	1.270E-04	0.010	E-Area	25	10.28
M-Area MN-13-I	LAW	SRNL-STI-2011-00702 and 1996 Whited Thesis	T	42.00	0.10	5.128	215.385	2.600	2.00	270-400	4.500E-05	0.020	E-Area	25	10.54
M-Area MN-13-J	LAW	SRNL-STI-2011-00702 and 1996 Whited Thesis	T	42.00	0.10	10.256	430.769	2.600	2.00	270-400	4.500E-05	0.010	E-Area	25	10.33
PUREX AVG	HLW	SRNL Crawford FY14	SS	7.00	0.02	2.019	14.134	**2.665**	1.00	100-200	1.125E-04	0.010	ASTM I	90	10.55
PUREX AVG	HLW	SRNL Crawford FY14	SS	28.00	0.04	4.038	113.075	**2.665**	2.00	100-200	1.125E-04	0.010	ASTM I	90	11.27
PUREX AVG	HLW	SRNL Crawford FY14	SS	60.00	0.10	10.096	605.760	**2.665**	5.00	100-200	1.125E-04	0.010	ASTM I	90	11.97
PUREX AVG	HLW	SRNL Crawford FY14	SS	90.00	0.12	20.192	1,817.279	**2.665**	6.00	100-200	1.125E-04	0.006	ASTM I	90	12.41
BATCH 1 AVG	HLW	SRNL Crawford FY14	SS	7.00	0.02	2.066	14.460	**2.605**	1.00	100-200	1.125E-04	0.010	ASTM I	90	10.23
BATCH 1 AVG	HLW	SRNL Crawford FY14	SS	28.00	0.04	4.131	115.680	**2.605**	2.00	100-200	1.125E-04	0.010	ASTM I	90	10.91
BATCH 1 AVG	HLW	SRNL Crawford FY14	SS	60.00	0.10	10.329	619.712	**2.605**	5.00	100-200	1.125E-04	0.010	ASTM I	90	11.41
BATCH 1 AVG	HLW	SRNL Crawford FY14	SS	90.00	0.12	20.657	1,859.136	**2.605**	6.00	100-200	1.125E-04	0.006	ASTM I	90	11.52
BLEND 1 AVG	HLW	SRNL Crawford FY14	SS	7.00	0.02	2.066	14.460	**2.605**	1.00	100-200	1.125E-04	0.010	ASTM I	90	10.17
BLEND 1 AVG	HLW	SRNL Crawford FY14	SS	28.00	0.04	4.131	115.680	**2.605**	2.00	100-200	1.125E-04	0.010	ASTM I	90	10.96
BLEND 1 AVG	HLW	SRNL Crawford FY14	SS	60.00	0.10	10.329	619.712	**2.605**	5.00	100-200	1.125E-04	0.010	ASTM I	90	11.30
BLEND 1 AVG	HLW	SRNL Crawford FY14	SS	90.00	0.12	20.657	1,859.136	**2.605**	6.00	100-200	1.125E-04	0.006	ASTM I	90	11.45
HM AVG	HLW	SRNL Crawford FY14	SS	7.00	0.02	2.069	14.482	**2.601**	1.00	100-200	1.125E-04	0.010	ASTM I	90	10.24
HM AVG	HLW	SRNL Crawford FY14	SS	28.00	0.04	4.138	115.857	**2.601**	2.00	100-200	1.125E-04	0.010	ASTM I	90	10.95
HM AVG	HLW	SRNL Crawford FY14	SS	60.00	0.10	10.344	620.665	**2.601**	5.00	100-200	1.125E-04	0.010	ASTM I	90	11.20
HM AVG	HLW	SRNL Crawford FY14	SS	90.00	0.12	20.689	1,861.995	**2.601**	6.00	100-200	1.125E-04	0.006	ASTM I	90	11.36
EA AVG	HLW	SRNL Crawford FY14	SS	7.00	0.02	2.031	14.214	**2.650**	1.00	100-200	1.125E-04	0.010	ASTM I	90	11.66
EA AVG	HLW	SRNL Crawford FY14	SS	28.00	0.04	4.061	113.715	**2.650**	2.00	100-200	1.125E-04	0.010	ASTM I	90	11.94
EA AVG	HLW	SRNL Crawford FY14	SS	60.00	0.10	10.153	609.189	**2.650**	5.00	100-200	1.125E-04	0.010	ASTM I	90	12.45
EA AVG	HLW	SRNL Crawford FY14	SS	90.00	0.12	20.306	1,827.566	**2.650**	6.00	100-200	1.125E-04	0.006	ASTM I	90	12.72
BLP 17 wt% Blend	HLW	NNL-2016		7.00	0.06	1.979	13.852	**2.697**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	
BLP 17 wt% Blend	HLW	NNL-2016		14.00	0.06	1.979	27.704	**2.697**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	9.82
BLP 17 wt% Blend	HLW	NNL-2016		21.00	0.06	1.979	41.555	**2.697**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	
BLP 17 wt% Blend	HLW	NNL-2016		28.00	0.06	1.979	55.407	**2.697**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	
BLP 17 wt% Blend	HLW	NNL-2016		42.00	0.06	1.979	83.111	**2.697**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	9.62
MSP 28 wt% Magnox	HLW	NNL-2016		7.00	0.06	1.987	13.908	**2.686**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	
MSP 28 wt% Magnox	HLW	NNL-2016		14.00	0.06	1.987	27.817	**2.686**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	9.94
MSP 28 wt% Magnox	HLW	NNL-2016		21.00	0.06	1.987	41.725	**2.686**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	
MSP 28 wt% Magnox	HLW	NNL-2016		28.00	0.06	1.987	55.634	**2.686**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	
MSP 28 wt% Magnox	HLW	NNL-2016		42.00	0.06	1.987	83.451	**2.686**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	9.70
G1 25 wt% Magnox 4% Li2O	HLW	NNL-2016		**7.00**	**0.08**	2.006	14.040	**2.659**	**4.00**	**100-200**	1.125E-04	**0.040**	**ASTM I**	**90**	**9.85**
G1 25 wt% Magnox 4% Li2O	HLW	NNL-2016		**14.00**	**0.08**	2.006	28.081	**2.659**	**4.00**	**100-200**	1.125E-04	**0.040**	**ASTM I**	**90**	**9.79**
G1 25 wt% Magnox 4% Li2O	HLW	NNL-2016		**21.00**	**0.08**	2.006	42.121	**2.659**	**4.00**	**100-200**	1.125E-04	**0.040**	**ASTM I**	**90**	**9.86**
G1 25 wt% Magnox 4% Li2O	HLW	NNL-2016		**26.00**	**0.08**	2.006	52.150	**2.659**	**4.00**	**100-200**	1.125E-04	**0.040**	**ASTM I**	**90**	**9.76**
G1 25 wt% Magnox 4% Li2O	HLW	NNL-2016		**28.00**	**0.08**	2.006	56.161	**2.659**	**4.00**	**100-200**	1.125E-04	**0.040**	**ASTM I**	**90**	**9.75**
G1 25 wt% Magnox 4% Li2O	HLW	NNL-2016		**42.00**	**0.08**	2.006	84.242	**2.659**	**4.00**	**100-200**	1.125E-04	**0.040**	**ASTM I**	**90**	**9.75**
G1 25 wt% Magnox 4% Li2O	HLW	NNL-2016		**56.00**	**0.08**	2.006	112.323	**2.659**	**4.00**	**100-200**	1.125E-04	**0.040**	**ASTM I**	**90**	**9.73**
G1 25 wt% Magnox 4% Li2O	HLW	NNL-2016		**84.00**	**0.08**	2.006	168.484	**2.659**	**4.00**	**100-200**	1.125E-04	**0.040**	**ASTM I**	**90**	**9.65**
G4 32 wt% Magnox 4% Li2O	HLW	NNL-2016		7.00	0.08	1.945	13.615	**2.742**	4.00	**100-200**	1.125E-04	0.040	**ASTM I**	**90**	9.91
G4 32 wt% Magnox 4% Li2O	HLW	NNL-2016		14.00	0.08	1.945	27.231	**2.742**	4.00	**100-200**	1.125E-04	0.040	**ASTM I**	**90**	9.87
G4 32 wt% Magnox 4% Li2O	HLW	NNL-2016		21.00	0.08	1.945	40.846	**2.742**	4.00	**100-200**	1.125E-04	0.040	**ASTM I**	**90**	9.87
G4 32 wt% Magnox 4% Li2O	HLW	NNL-2016		28.00	0.08	1.945	54.461	**2.742**	4.00	**100-200**	1.125E-04	0.040	**ASTM I**	**90**	9.77
G4 32 wt% Magnox 4% Li2O	HLW	NNL-2016		42.00	0.08	1.945	81.692	**2.742**	4.00	**100-200**	1.125E-04	0.040	**ASTM I**	**90**	9.77
G4 32 wt% Magnox 4% Li2O	HLW	NNL-2016		56.00	0.08	1.945	108.923	**2.742**	4.00	**100-200**	1.125E-04	0.040	**ASTM I**	**90**	9.78
G4 32 wt% Magnox 4% Li2O	HLW	NNL-2016		84.00	0.08	1.945	163.384	**2.742**	4.00	**100-200**	1.125E-04	0.040	**ASTM I**	**90**	9.76
MMP 38% Magnox MW	HLW	NNL-2016		7.00	0.06	1.912	13.381	**2.790**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	
MMP 38% Magnox MW	HLW	NNL-2016		14.00	0.06	1.912	26.762	**2.790**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	
MMP 38% Magnox MW	HLW	NNL-2016		21.00	0.06	1.912	40.143	**2.790**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	
MMP 38% Magnox MW	HLW	NNL-2016		28.00	0.06	1.912	53.524	**2.790**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	
MMP 38% Magnox MW	HLW	NNL-2016		42.00	0.06	1.912	80.287	**2.790**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	
MCP 38% Magnox Ca/Zn	HLW	NNL-2016		7.00	0.06	1.871	13.099	**2.850**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	
MCP 38% Magnox Ca/Zn	HLW	NNL-2016		14.00	0.06	1.871	26.199	**2.850**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	
MCP 38% Magnox Ca/Zn	HLW	NNL-2016		21.00	0.06	1.871	39.298	**2.850**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	
MCP 38% Magnox Ca/Zn	HLW	NNL-2016		28.00	0.06	1.871	52.398	**2.850**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	
MCP 38% Magnox Ca/Zn	HLW	NNL-2016		42.00	0.06	1.871	78.596	**2.850**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
M-Area MN-13-E	3.30	0.14	2.27		1.90	5.62		0.54	0.02		0.32			
M-Area MN-13-F	3.75	0.21	1.88		2.97	6.22		0.78	0.03		0.29			
M-Area MN-13-G	4.13	0.24	1.94		2.87	6.12		0.93	0.04		0.29			
M-Area MN-13-H	9.83	0.86	0.59		5.48	6.69		4.81	0.08		0.10			
M-Area MN-13-I	11.24	1.10	0.29		9.02	10.41		6.77	0.06		0.05			
M-Area MN-13-J	8.61	0.84	0.46		7.97	9.16		4.61	0.04		0.08			
PUREX AVG	159.14	59.46			24.50	167.50	30.20	3.02	9.45		1.30		0.19	
PUREX AVG	386.41	168.81	1.71		58.22	454.75	79.36	8.64	58.95	1.96	7.86			
PUREX AVG	230.97	2833.33			139.79	7158.33	1332.50	2.29		54.79				
PUREX AVG	2553.38	12256.30			389.05	24590.75	3752.38			228.74				
BATCH 1 AVG	89.15	15.00			13.86	42.82	11.96	5.10	3.31					
BATCH 1 AVG	162.51	33.34			30.99	97.67	22.36	5.52	9.49	0.81				
BATCH 1 AVG	326.51	104.29			69.87	256.06	59.52	10.42	40.79	1.81		0.99		
BATCH 1 AVG	481.13	314.84			108.24	581.29	139.29							
BLEND 1 AVG	93.80	16.33			44.60	46.29	13.95	4.06	2.30					
BLEND 1 AVG	177.32	35.60			33.97	112.02	26.87	4.30	7.04	1.21				
BLEND 1 AVG	349.92	99.93			73.73	273.29	67.29	9.91	40.04	2.63		1.95		
BLEND 1 AVG	485.73	216.63			100.91	478.37	121.10							
HM AVG	75.70	9.13	0.35		11.84	27.62	5.40	8.25	1.32					
HM AVG	126.40	12.14			27.67	53.02	6.98	9.64	3.31	0.96				
HM AVG	238.46	50.77			64.85	117.56	14.82	11.41	12.06	1.88		0.17		
HM AVG	374.01	100.63			104.52	193.12	20.47	22.96	20.58					
EA AVG	879.56	526.30			179.79	1571.37								
EA AVG	1517.78	1372.41			246.37	3834.47								
EA AVG	2110.76	3515.79			369.13	2110.76								
EA AVG	7650.56	16046.25			1641.49	36819.55	45.81							
BLP 17 wt% Blend	239.91	684.85			195.35	633.67				139.06	0.59			
BLP 17 wt% Blend	217.45	718.93			208.29	718.44				146.42	0.06			
BLP 17 wt% Blend	218.22	824.79			237.88	805.13				161.18	0.10			
BLP 17 wt% Blend	220.90	822.51			247.02	810.61				157.97	0.01			
BLP 17 wt% Blend	234.41	871.64			250.83	799.90				167.58	0.00			
MSP 28 wt% Magnox	98.48	442.33			174.52	363.74				100.31	0.05			
MSP 28 wt% Magnox	123.38	675.21			301.69	661.03				121.69	0.01			
MSP 28 wt% Magnox	80.69	982.11			377.56	774.60				227.63	0.03			
MSP 28 wt% Magnox	76.37	1108.39			430.30	876.96				262.75	0.02			
MSP 28 wt% Magnox	88.34	1367.17			491.68	1018.64				343.04	0.00			
G1 25 wt% Magnox 4% Li2O	**113.39**	**541.05**		**13.37**	**173.83**	**435.91**				**88.70**	**0.09**			
G1 25 wt% Magnox 4% Li2O	**132.16**	**1087.71**		**27.63**	**340.63**	**838.98**				**183.18**	**0.03**			
G1 25 wt% Magnox 4% Li2O	**126.65**	**1081.86**		**27.65**	**344.53**	**845.20**				**190.05**	**0.02**			
G1 25 wt% Magnox 4% Li2O	**125.49**	**1374.64**		**35.81**	**436.05**	**1053.40**				**232.79**	**0.04**			
G1 25 wt% Magnox 4% Li2O	**122.07**	**1278.64**		**33.33**	**407.20**	**990.29**				**214.99**	**0.03**			
G1 25 wt% Magnox 4% Li2O	**121.35**	**1584.03**		**41.64**	**488.03**	**1216.36**				**277.83**	**0.02**			
G1 25 wt% Magnox 4% Li2O	**115.38**	**1727.55**		**45.51**	**523.90**	**1337.58**				**304.79**	**0.09**			
G1 25 wt% Magnox 4% Li2O	**140.70**	**1845.80**		**47.22**	**530.74**	**1463.43**				**323.93**	**0.01**			
G4 32 wt% Magnox 4% Li2O	68.61	204.82		4.84	77.79	179.27				42.99	0.06			
G4 32 wt% Magnox 4% Li2O	78.40	333.85		7.96	142.24	322.45				55.64	0.06			
G4 32 wt% Magnox 4% Li2O	63.87	413.45		9.61	146.31	324.31				86.26	0.03			
G4 32 wt% Magnox 4% Li2O	63.24	436.86		10.31	154.42	342.52				90.74	0.01			
G4 32 wt% Magnox 4% Li2O	62.77	559.55		13.30	189.19	434.85				117.10	0.03			
G4 32 wt% Magnox 4% Li2O	60.21	517.55		12.39	177.96	405.61				110.24	0.06			
G4 32 wt% Magnox 4% Li2O	59.90	605.77		14.20	199.30	475.95				122.17	0.01			
MMP 38% Magnox MW	36.96	40.05	0.07		13.58	42.60				12.43	0.30		0.01	
MMP 38% Magnox MW	39.54	56.63	0.04		19.08	58.01				15.76	0.04		0.00	
MMP 38% Magnox MW	35.54	63.11	0.00		21.13	64.32				16.03	0.00		0.00	
MMP 38% Magnox MW	37.30	82.12	0.01		26.95	81.10				19.93	0.04		0.00	
MMP 38% Magnox MW	31.34	93.66	0.04		30.24	90.19				21.45	0.04		0.00	
MCP 38% Magnox Ca/Zn	42.64	195.52	0.25		67.85	195.13				70.93	0.06		0.00	
MCP 38% Magnox Ca/Zn	43.26	405.49	0.72		144.10	382.34				148.15	0.02		0.00	
MCP 38% Magnox Ca/Zn	34.30	533.38	0.02		174.50	458.26				177.98	0.00		0.00	
MCP 38% Magnox Ca/Zn	35.06	694.45	1.28		252.17	652.50				251.30	0.09		0.00	
MCP 38% Magnox Ca/Zn	25.82	912.23	3.87		317.85	822.23				316.70	0.21		0.00	

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
M-Area MN-13-E	0.25	Not Studied		68.51	19.72	-10.310101	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
M-Area MN-13-F	0.43	Not Studied		68.51	19.72	-10.310101	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
M-Area MN-13-G	0.40	Not Studied		68.51	19.72	-10.310101	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
M-Area MN-13-H	1.14	Not Studied		68.51	19.72	-10.310101	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
M-Area MN-13-I	1.15	Not Studied		68.51	19.72	-10.310101	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
M-Area MN-13-J	1.10	Not Studied		68.51	19.72	-10.310101	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
PUREX AVG				76.14	17.47	-9.837256	HOMOGENEOUS	High alkali	Low Al	Potential ϕ-sep.	Low Ti
PUREX AVG				76.14	17.47	-9.837256	HOMOGENEOUS	High alkali	Low Al	Potential ϕ-sep.	Low Ti
PUREX AVG				76.14	17.47	-9.837256	HOMOGENEOUS	High alkali	Low Al	Potential ϕ-sep.	Low Ti
PUREX AVG				76.14	17.47	-9.837256	HOMOGENEOUS	High alkali	Low Al	Potential ϕ-sep.	Low Ti
BATCH 1 AVG				74.80	19.2	-17.45926	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
BATCH 1 AVG				74.80	19.2	-17.45926	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
BATCH 1 AVG				74.80	19.2	-17.45926	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
BATCH 1 AVG				74.80	19.2	-17.45926	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
BLEND 1 AVG				77.28	16.47	-6.017446	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
BLEND 1 AVG				77.28	16.47	-6.017446	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
BLEND 1 AVG				77.28	16.47	-6.017446	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
BLEND 1 AVG				77.28	16.47	-6.017446	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
HM AVG				78.28	16.71	-8.976418	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
HM AVG				78.28	16.71	-8.976418	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
HM AVG				78.28	16.71	-8.976418	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
HM AVG				78.28	16.71	-8.976418	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
EA AVG				81.13	14.231385	0.452328797	Indeterminate	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
EA AVG				81.13	14.231385	0.452328797	Indeterminate	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
EA AVG				81.13	14.231385	0.452328797	Indeterminate	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
EA AVG				81.13	14.231385	0.452328797	Indeterminate	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
BLP 17 wt% Blend				83.06	8.1642	**31.62761659**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
BLP 17 wt% Blend				83.06	8.1642	**31.62761659**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
BLP 17 wt% Blend				83.06	8.1642	**31.62761659**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
BLP 17 wt% Blend				83.06	8.1642	**31.62761659**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
BLP 17 wt% Blend				83.06	8.1642	**31.62761659**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
MSP 28 wt% Magnox				72.00	15.03955	**10.52792951**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
MSP 28 wt% Magnox				72.00	15.03955	**10.52792951**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
MSP 28 wt% Magnox				72.00	15.03955	**10.52792951**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
MSP 28 wt% Magnox				72.00	15.03955	**10.52792951**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
MSP 28 wt% Magnox				72.00	15.03955	**10.52792951**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G1 25 wt% Magnox 4% Li2O				75.96	13.57192332	**12.46918609**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G1 25 wt% Magnox 4% Li2O				75.96	13.57192332	**12.46918609**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G1 25 wt% Magnox 4% Li2O				75.96	13.57192332	**12.46918609**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G1 25 wt% Magnox 4% Li2O				75.96	13.57192332	**12.46918609**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G1 25 wt% Magnox 4% Li2O				75.96	13.57192332	**12.46918609**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G1 25 wt% Magnox 4% Li2O				75.96	13.57192332	**12.46918609**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G1 25 wt% Magnox 4% Li2O				75.96	13.57192332	**12.46918609**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G1 25 wt% Magnox 4% Li2O				75.96	13.57192332	**12.46918609**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G4 32 wt% Magnox 4% Li2O				69.27	17.37206186	**1.73703574**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G4 32 wt% Magnox 4% Li2O				69.27	17.37206186	**1.73703574**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G4 32 wt% Magnox 4% Li2O				69.27	17.37206186	**1.73703574**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G4 32 wt% Magnox 4% Li2O				69.27	17.37206186	**1.73703574**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G4 32 wt% Magnox 4% Li2O				69.27	17.37206186	**1.73703574**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G4 32 wt% Magnox 4% Li2O				69.27	17.37206186	**1.73703574**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G4 32 wt% Magnox 4% Li2O				69.27	17.37206186	**1.73703574**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
MMP 38% Magnox MW				64.20	20.2263	**-6.25849714**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MMP 38% Magnox MW				64.20	20.2263	**-6.25849714**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MMP 38% Magnox MW				64.20	20.2263	**-6.25849714**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MMP 38% Magnox MW				64.20	20.2263	**-6.25849714**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MMP 38% Magnox MW				64.20	20.2263	**-6.25849714**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MCP 38% Magnox Ca/Zn				58.50	21.9563	**-6.88924114**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MCP 38% Magnox Ca/Zn				58.50	21.9563	**-6.88924114**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MCP 38% Magnox Ca/Zn				58.50	21.9563	**-6.88924114**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MCP 38% Magnox Ca/Zn				58.50	21.9563	**-6.88924114**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
MCP 38% Magnox Ca/Zn				58.50	21.9563	**-6.88924114**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
M-Area MN-13-E	HOMOGENEOUS	17.52	5.09	0.01	0.35	0.00	0.02	0.08	0.00	0.02	0.00	0.00	1.81	1.40	0.00	0.00
M-Area MN-13-F	HOMOGENEOUS	17.52	5.09	0.01	0.35	0.00	0.02	0.08	0.00	0.02	0.00	0.00	1.81	1.40	0.00	0.00
M-Area MN-13-G	HOMOGENEOUS	17.52	5.09	0.01	0.35	0.00	0.02	0.08	0.00	0.02	0.00	0.00	1.81	1.40	0.00	0.00
M-Area MN-13-H	HOMOGENEOUS	17.52	5.09	0.01	0.35	0.00	0.02	0.08	0.00	0.02	0.00	0.00	1.81	1.40	0.00	0.00
M-Area MN-13-I	HOMOGENEOUS	17.52	5.09	0.01	0.35	0.00	0.02	0.08	0.00	0.02	0.00	0.00	1.81	1.40	0.00	0.00
M-Area MN-13-J	HOMOGENEOUS	17.52	5.09	0.01	0.35	0.00	0.02	0.08	0.00	0.02	0.00	0.00	1.81	1.40	0.00	0.00
PUREX AVG	Potential ϕ-sep.	2.99	10.33	0.20	1.09	0.00	0.00	0.15	0.06	0.21	0.19	0.00	13.25	3.41	0.00	0.00
PUREX AVG	Potential ϕ-sep.	2.99	10.33	0.20	1.09	0.00	0.00	0.15	0.06	0.21	0.19	0.00	13.25	3.41	0.00	0.00
PUREX AVG	Potential ϕ-sep.	2.99	10.33	0.20	1.09	0.00	0.00	0.15	0.06	0.21	0.19	0.00	13.25	3.41	0.00	0.00
PUREX AVG	Potential ϕ-sep.	2.99	10.33	0.20	1.09	0.00	0.00	0.15	0.06	0.21	0.19	0.00	13.25	3.41	0.00	0.00
BATCH 1 AVG	HOMOGENEOUS	4.88	7.78	0.15	1.22	0.00	0.00	0.11	0.06	0.20	0.18	0.00	12.84	3.33	0.00	0.00
BATCH 1 AVG	HOMOGENEOUS	4.88	7.78	0.15	1.22	0.00	0.00	0.11	0.06	0.20	0.18	0.00	12.84	3.33	0.00	0.00
BATCH 1 AVG	HOMOGENEOUS	4.88	7.78	0.15	1.22	0.00	0.00	0.11	0.06	0.20	0.18	0.00	12.84	3.33	0.00	0.00
BATCH 1 AVG	HOMOGENEOUS	4.88	7.78	0.15	1.22	0.00	0.00	0.11	0.06	0.20	0.18	0.00	12.84	3.33	0.00	0.00
BLEND 1 AVG	HOMOGENEOUS	4.16	8.05	0.18	1.03	0.00	0.00	0.13	0.08	0.22	0.20	0.00	10.91	3.68	0.00	0.00
BLEND 1 AVG	HOMOGENEOUS	4.16	8.05	0.18	1.03	0.00	0.00	0.13	0.08	0.22	0.20	0.00	10.91	3.68	0.00	0.00
BLEND 1 AVG	HOMOGENEOUS	4.16	8.05	0.18	1.03	0.00	0.00	0.13	0.08	0.22	0.20	0.00	10.91	3.68	0.00	0.00
BLEND 1 AVG	HOMOGENEOUS	4.16	8.05	0.18	1.03	0.00	0.00	0.13	0.08	0.22	0.20	0.00	10.91	3.68	0.00	0.00
HM AVG	HOMOGENEOUS	7.15	7.03	0.11	1.01	0.00	0.00	0.09	0.06	0.13	0.11	0.00	7.78	2.21	0.00	0.00
HM AVG	HOMOGENEOUS	7.15	7.03	0.11	1.01	0.00	0.00	0.09	0.06	0.13	0.11	0.00	7.78	2.21	0.00	0.00
HM AVG	HOMOGENEOUS	7.15	7.03	0.11	1.01	0.00	0.00	0.09	0.06	0.13	0.11	0.00	7.78	2.21	0.00	0.00
HM AVG	HOMOGENEOUS	7.15	7.03	0.11	1.01	0.00	0.00	0.09	0.06	0.13	0.11	0.00	7.78	2.21	0.00	0.00
EA AVG	Potential ϕ-sep.	3.70	11.30	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.38	0.04	0.00	0.42
EA AVG	Potential ϕ-sep.	3.70	11.30	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.38	0.04	0.00	0.42
EA AVG	Potential ϕ-sep.	3.70	11.30	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.38	0.04	0.00	0.42
EA AVG	Potential ϕ-sep.	3.70	11.30	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.38	0.04	0.00	0.42
BLP 17 wt% Blend	Potential ϕ-sep.	1.10	18.48	0.85	0.00	1.20	0.00	0.23	1.25	0.00	0.00	0.00	0.99	0.00	2.20	0.66
BLP 17 wt% Blend	Potential ϕ-sep.	1.10	18.48	0.85	0.00	1.20	0.00	0.23	1.25	0.00	0.00	0.00	0.99	0.00	2.20	0.66
BLP 17 wt% Blend	Potential ϕ-sep.	1.10	18.48	0.85	0.00	1.20	0.00	0.23	1.25	0.00	0.00	0.00	0.99	0.00	2.20	0.66
BLP 17 wt% Blend	Potential ϕ-sep.	1.10	18.48	0.85	0.00	1.20	0.00	0.23	1.25	0.00	0.00	0.00	0.99	0.00	2.20	0.66
BLP 17 wt% Blend	Potential ϕ-sep.	1.10	18.48	0.85	0.00	1.20	0.00	0.23	1.25	0.00	0.00	0.00	0.99	0.00	2.20	0.66
MSP 28 wt% Magnox	HOMOGENEOUS	5.40	15.60	0.59	0.00	1.30	0.00	0.76	1.30	0.00	0.00	0.00	3.60	0.00	0.13	0.69
MSP 28 wt% Magnox	HOMOGENEOUS	5.40	15.60	0.59	0.00	1.30	0.00	0.76	1.30	0.00	0.00	0.00	3.60	0.00	0.13	0.69
MSP 28 wt% Magnox	HOMOGENEOUS	5.40	15.60	0.59	0.00	1.30	0.00	0.76	1.30	0.00	0.00	0.00	3.60	0.00	0.13	0.69
MSP 28 wt% Magnox	HOMOGENEOUS	5.40	15.60	0.59	0.00	1.30	0.00	0.76	1.30	0.00	0.00	0.00	3.60	0.00	0.13	0.69
MSP 28 wt% Magnox	HOMOGENEOUS	5.40	15.60	0.59	0.00	1.30	0.00	0.76	1.30	0.00	0.00	0.00	3.60	0.00	0.13	0.69
G1 25 wt% Magnox 4% Li2O	HOMOGENEOUS	**4.93**	**16.93**	**0.52**	**0.00**	**1.13**	0.00	**0.74**	**1.06**	0.00	0.00	0.00	**3.32**	0.00	**0.07**	**0.61**
G1 25 wt% Magnox 4% Li2O	HOMOGENEOUS	**4.93**	**16.93**	**0.52**	**0.00**	**1.13**	0.00	**0.74**	**1.06**	0.00	0.00	0.00	**3.32**	0.00	**0.07**	**0.61**
G1 25 wt% Magnox 4% Li2O	HOMOGENEOUS	**4.93**	**16.93**	**0.52**	**0.00**	**1.13**	0.00	**0.74**	**1.06**	0.00	0.00	0.00	**3.32**	0.00	**0.07**	**0.61**
G1 25 wt% Magnox 4% Li2O	HOMOGENEOUS	**4.93**	**16.93**	**0.52**	**0.00**	**1.13**	0.00	**0.74**	**1.06**	0.00	0.00	0.00	**3.32**	0.00	**0.07**	**0.61**
G1 25 wt% Magnox 4% Li2O	HOMOGENEOUS	**4.93**	**16.93**	**0.52**	**0.00**	**1.13**	0.00	**0.74**	**1.06**	0.00	0.00	0.00	**3.32**	0.00	**0.07**	**0.61**
G1 25 wt% Magnox 4% Li2O	HOMOGENEOUS	**4.93**	**16.93**	**0.52**	**0.00**	**1.13**	0.00	**0.74**	**1.06**	0.00	0.00	0.00	**3.32**	0.00	**0.07**	**0.61**
G1 25 wt% Magnox 4% Li2O	HOMOGENEOUS	**4.93**	**16.93**	**0.52**	**0.00**	**1.13**	0.00	**0.74**	**1.06**	0.00	0.00	0.00	**3.32**	0.00	**0.07**	**0.61**
G1 25 wt% Magnox 4% Li2O	HOMOGENEOUS	**4.93**	**16.93**	**0.52**	**0.00**	**1.13**	0.00	**0.74**	**1.06**	0.00	0.00	0.00	**3.32**	0.00	**0.07**	**0.61**
G4 32 wt% Magnox 4% Li2O	HOMOGENEOUS	6.31	15.26	0.66	0.00	1.44	0.00	0.95	1.36	0.00	0.00	0.00	4.25	0.00	0.09	0.78
G4 32 wt% Magnox 4% Li2O	HOMOGENEOUS	6.31	15.26	0.66	0.00	1.44	0.00	0.95	1.36	0.00	0.00	0.00	4.25	0.00	0.09	0.78
G4 32 wt% Magnox 4% Li2O	HOMOGENEOUS	6.31	15.26	0.66	0.00	1.44	0.00	0.95	1.36	0.00	0.00	0.00	4.25	0.00	0.09	0.78
G4 32 wt% Magnox 4% Li2O	HOMOGENEOUS	6.31	15.26	0.66	0.00	1.44	0.00	0.95	1.36	0.00	0.00	0.00	4.25	0.00	0.09	0.78
G4 32 wt% Magnox 4% Li2O	HOMOGENEOUS	6.31	15.26	0.66	0.00	1.44	0.00	0.95	1.36	0.00	0.00	0.00	4.25	0.00	0.09	0.78
G4 32 wt% Magnox 4% Li2O	HOMOGENEOUS	6.31	15.26	0.66	0.00	1.44	0.00	0.95	1.36	0.00	0.00	0.00	4.25	0.00	0.09	0.78
G4 32 wt% Magnox 4% Li2O	HOMOGENEOUS	6.31	15.26	0.66	0.00	1.44	0.00	0.95	1.36	0.00	0.00	0.00	4.25	0.00	0.09	0.78
MMP 38% Magnox MW	HOMOGENEOUS	7.2	13.9	0.79	0	1.8	0.00	1.1	1.7	0.00	0.00	0.00	5	0.00	0.14	0.94
MMP 38% Magnox MW	HOMOGENEOUS	7.2	13.9	0.79	0	1.8	0.00	1.1	1.7	0.00	0.00	0.00	5	0.00	0.14	0.94
MMP 38% Magnox MW	HOMOGENEOUS	7.2	13.9	0.79	0	1.8	0.00	1.1	1.7	0.00	0.00	0.00	5	0.00	0.14	0.94
MMP 38% Magnox MW	HOMOGENEOUS	7.2	13.9	0.79	0	1.8	0.00	1.1	1.7	0.00	0.00	0.00	5	0.00	0.14	0.94
MMP 38% Magnox MW	HOMOGENEOUS	7.2	13.9	0.79	0	1.8	0.00	1.1	1.7	0.00	0.00	0.00	5	0.00	0.14	0.94
MCP 38% Magnox Ca/Zn	HOMOGENEOUS	7.4	13.2	0.77	1.2	1.8	0.00	1.1	1.6	0.00	0.00	0.00	5.1	0.00	0.14	0.96
MCP 38% Magnox Ca/Zn	HOMOGENEOUS	7.4	13.2	0.77	1.2	1.8	0.00	1.1	1.6	0.00	0.00	0.00	5.1	0.00	0.14	0.96
MCP 38% Magnox Ca/Zn	HOMOGENEOUS	7.4	13.2	0.77	1.2	1.8	0.00	1.1	1.6	0.00	0.00	0.00	5.1	0.00	0.14	0.96
MCP 38% Magnox Ca/Zn	HOMOGENEOUS	7.4	13.2	0.77	1.2	1.8	0.00	1.1	1.6	0.00	0.00	0.00	5.1	0.00	0.14	0.96
MCP 38% Magnox Ca/Zn	HOMOGENEOUS	7.4	13.2	0.77	1.2	1.8	0.00	1.1	1.6	0.00	0.00	0.00	5.1	0.00	0.14	0.96

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
M-Area MN-13-E	11.15	0.25	0.03	0.01	7.87	0.01	0.59	0.00	2.16	0.02	0.00	0.00	0.00	43.00	0.00	0.00	0.08
M-Area MN-13-F	11.15	0.25	0.03	0.01	7.87	0.01	0.59	0.00	2.16	0.02	0.00	0.00	0.00	43.00	0.00	0.00	0.08
M-Area MN-13-G	11.15	0.25	0.03	0.01	7.87	0.01	0.59	0.00	2.16	0.02	0.00	0.00	0.00	43.00	0.00	0.00	0.08
M-Area MN-13-H	11.15	0.25	0.03	0.01	7.87	0.01	0.59	0.00	2.16	0.02	0.00	0.00	0.00	43.00	0.00	0.00	0.08
M-Area MN-13-I	11.15	0.25	0.03	0.01	7.87	0.01	0.59	0.00	2.16	0.02	0.00	0.00	0.00	43.00	0.00	0.00	0.08
M-Area MN-13-J	11.15	0.25	0.03	0.01	7.87	0.01	0.59	0.00	2.16	0.02	0.00	0.00	0.00	43.00	0.00	0.00	0.08
PUREX AVG	3.22	1.41	1.69	0.08	12.62	0.06	1.19	0.00	0.00	0.00	0.00	0.00	0.00	46.50	0.00	0.00	0.00
PUREX AVG	3.22	1.41	1.69	0.08	12.62	0.06	1.19	0.00	0.00	0.00	0.00	0.00	0.00	46.50	0.00	0.00	0.00
PUREX AVG	3.22	1.41	1.69	0.08	12.62	0.06	1.19	0.00	0.00	0.00	0.00	0.00	0.00	46.50	0.00	0.00	0.00
PUREX AVG	3.22	1.41	1.69	0.08	12.62	0.06	1.19	0.00	0.00	0.00	0.00	0.00	0.00	46.50	0.00	0.00	0.00
BATCH 1 AVG	4.43	1.42	1.72	0.11	9.00	0.15	0.75	0.00	0.00	0.00	0.00	0.00	0.00	50.20	0.00	0.00	0.00
BATCH 1 AVG	4.43	1.42	1.72	0.11	9.00	0.15	0.75	0.00	0.00	0.00	0.00	0.00	0.00	50.20	0.00	0.00	0.00
BATCH 1 AVG	4.43	1.42	1.72	0.11	9.00	0.15	0.75	0.00	0.00	0.00	0.00	0.00	0.00	50.20	0.00	0.00	0.00
BATCH 1 AVG	4.43	1.42	1.72	0.11	9.00	0.15	0.75	0.00	0.00	0.00	0.00	0.00	0.00	50.20	0.00	0.00	0.00
BLEND 1 AVG	4.44	1.41	1.67	0.15	9.13	0.22	0.89	0.00	0.00	0.00	0.00	0.00	0.00	51.90	0.00	0.00	0.00
BLEND 1 AVG	4.44	1.41	1.67	0.15	9.13	0.22	0.89	0.00	0.00	0.00	0.00	0.00	0.00	51.90	0.00	0.00	0.00
BLEND 1 AVG	4.44	1.41	1.67	0.15	9.13	0.22	0.89	0.00	0.00	0.00	0.00	0.00	0.00	51.90	0.00	0.00	0.00
BLEND 1 AVG	4.44	1.41	1.67	0.15	9.13	0.22	0.89	0.00	0.00	0.00	0.00	0.00	0.00	51.90	0.00	0.00	0.00
HM AVG	4.62	1.49	1.75	0.22	8.56	0.55	0.41	0.00	0.00	0.00	0.00	0.00	0.00	55.80	0.00	0.00	0.00
HM AVG	4.62	1.49	1.75	0.22	8.56	0.55	0.41	0.00	0.00	0.00	0.00	0.00	0.00	55.80	0.00	0.00	0.00
HM AVG	4.62	1.49	1.75	0.22	8.56	0.55	0.41	0.00	0.00	0.00	0.00	0.00	0.00	55.80	0.00	0.00	0.00
HM AVG	4.62	1.49	1.75	0.22	8.56	0.55	0.41	0.00	0.00	0.00	0.00	0.00	0.00	55.80	0.00	0.00	0.00
EA AVG	4.26	1.72	1.34	0.00	16.80	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	48.73	0.00	0.00	0.00
EA AVG	4.26	1.72	1.34	0.00	16.80	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	48.73	0.00	0.00	0.00
EA AVG	4.26	1.72	1.34	0.00	16.80	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	48.73	0.00	0.00	0.00
EA AVG	4.26	1.72	1.34	0.00	16.80	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	48.73	0.00	0.00	0.00
BLP 17 wt% Blend	4.00	1.10	0.00	2.10	9.05	1.90	0.21	0.00	0.00	0.00	0.00	0.61	0.44	50.28	0.40	0.00	0.44
BLP 17 wt% Blend	4.00	1.10	0.00	2.10	9.05	1.90	0.21	0.00	0.00	0.00	0.00	0.61	0.44	50.28	0.40	0.00	0.44
BLP 17 wt% Blend	4.00	1.10	0.00	2.10	9.05	1.90	0.21	0.00	0.00	0.00	0.00	0.61	0.44	50.28	0.40	0.00	0.44
BLP 17 wt% Blend	4.00	1.10	0.00	2.10	9.05	1.90	0.21	0.00	0.00	0.00	0.00	0.61	0.44	50.28	0.40	0.00	0.44
BLP 17 wt% Blend	4.00	1.10	0.00	2.10	9.05	1.90	0.21	0.00	0.00	0.00	0.00	0.61	0.44	50.28	0.40	0.00	0.44
MSP 28 wt% Magnox	4.80	5.70	0.00	1.80	7.40	2.10	0.48	0.00	0.00	0.00	0.00	0.64	0.78	42.90	0.45	0.00	0.31
MSP 28 wt% Magnox	4.80	5.70	0.00	1.80	7.40	2.10	0.48	0.00	0.00	0.00	0.00	0.64	0.78	42.90	0.45	0.00	0.31
MSP 28 wt% Magnox	4.80	5.70	0.00	1.80	7.40	2.10	0.48	0.00	0.00	0.00	0.00	0.64	0.78	42.90	0.45	0.00	0.31
MSP 28 wt% Magnox	4.80	5.70	0.00	1.80	7.40	2.10	0.48	0.00	0.00	0.00	0.00	0.64	0.78	42.90	0.45	0.00	0.31
MSP 28 wt% Magnox	4.80	5.70	0.00	1.80	7.40	2.10	0.48	0.00	0.00	0.00	0.00	0.64	0.78	42.90	0.45	0.00	0.31
G1 25 wt% Magnox 4% Li2O	**4.00**	**4.90**	0.00	**1.61**	**8.23**	**1.84**	**0.48**	0.00	0.00	0.00	0.00	**0.61**	**0.64**	**45.74**	**0.39**	0.00	**0.30**
G1 25 wt% Magnox 4% Li2O	**4.00**	**4.90**	0.00	**1.61**	**8.23**	**1.84**	**0.48**	0.00	0.00	0.00	0.00	**0.61**	**0.64**	**45.74**	**0.39**	0.00	**0.30**
G1 25 wt% Magnox 4% Li2O	**4.00**	**4.90**	0.00	**1.61**	**8.23**	**1.84**	**0.48**	0.00	0.00	0.00	0.00	**0.61**	**0.64**	**45.74**	**0.39**	0.00	**0.30**
G1 25 wt% Magnox 4% Li2O	**4.00**	**4.90**	0.00	**1.61**	**8.23**	**1.84**	**0.48**	0.00	0.00	0.00	0.00	**0.61**	**0.64**	**45.74**	**0.39**	0.00	**0.30**
G1 25 wt% Magnox 4% Li2O	**4.00**	**4.90**	0.00	**1.61**	**8.23**	**1.84**	**0.48**	0.00	0.00	0.00	0.00	**0.61**	**0.64**	**45.74**	**0.39**	0.00	**0.30**
G1 25 wt% Magnox 4% Li2O	**4.00**	**4.90**	0.00	**1.61**	**8.23**	**1.84**	**0.48**	0.00	0.00	0.00	0.00	**0.61**	**0.64**	**45.74**	**0.39**	0.00	**0.30**
G1 25 wt% Magnox 4% Li2O	**4.00**	**4.90**	0.00	**1.61**	**8.23**	**1.84**	**0.48**	0.00	0.00	0.00	0.00	**0.61**	**0.64**	**45.74**	**0.39**	0.00	**0.30**
G1 25 wt% Magnox 4% Li2O	**4.00**	**4.90**	0.00	**1.61**	**8.23**	**1.84**	**0.48**	0.00	0.00	0.00	0.00	**0.61**	**0.64**	**45.74**	**0.39**	0.00	**0.30**
G4 32 wt% Magnox 4% Li2O	4.00	6.27	0.00	2.06	7.42	2.35	0.62	0.00	0.00	0.00	0.00	0.78	0.82	41.23	0.49	0.00	0.38
G4 32 wt% Magnox 4% Li2O	4.00	6.27	0.00	2.06	7.42	2.35	0.62	0.00	0.00	0.00	0.00	0.78	0.82	41.23	0.49	0.00	0.38
G4 32 wt% Magnox 4% Li2O	4.00	6.27	0.00	2.06	7.42	2.35	0.62	0.00	0.00	0.00	0.00	0.78	0.82	41.23	0.49	0.00	0.38
G4 32 wt% Magnox 4% Li2O	4.00	6.27	0.00	2.06	7.42	2.35	0.62	0.00	0.00	0.00	0.00	0.78	0.82	41.23	0.49	0.00	0.38
G4 32 wt% Magnox 4% Li2O	4.00	6.27	0.00	2.06	7.42	2.35	0.62	0.00	0.00	0.00	0.00	0.78	0.82	41.23	0.49	0.00	0.38
G4 32 wt% Magnox 4% Li2O	4.00	6.27	0.00	2.06	7.42	2.35	0.62	0.00	0.00	0.00	0.00	0.78	0.82	41.23	0.49	0.00	0.38
G4 32 wt% Magnox 4% Li2O	4.00	6.27	0.00	2.06	7.42	2.35	0.62	0.00	0.00	0.00	0.00	0.78	0.82	41.23	0.49	0.00	0.38
MMP 38% Magnox MW	3.3	7.5	0.00	2.4	7.3	2.7	0.69	0.00	0.00	0.00	0.00	0.86	0.95	38	0.58	0.00	0.43
MMP 38% Magnox MW	3.3	7.5	0.00	2.4	7.3	2.7	0.69	0.00	0.00	0.00	0.00	0.86	0.95	38	0.58	0.00	0.43
MMP 38% Magnox MW	3.3	7.5	0.00	2.4	7.3	2.7	0.69	0.00	0.00	0.00	0.00	0.86	0.95	38	0.58	0.00	0.43
MMP 38% Magnox MW	3.3	7.5	0.00	2.4	7.3	2.7	0.69	0.00	0.00	0.00	0.00	0.86	0.95	38	0.58	0.00	0.43
MMP 38% Magnox MW	3.3	7.5	0.00	2.4	7.3	2.7	0.69	0.00	0.00	0.00	0.00	0.86	0.95	38	0.58	0.00	0.43
MCP 38% Magnox Ca/Zn	3.7	7.7	0.00	2.5	6.9	2.8	0.72	0.00	0.00	0.00	0.00	0.88	0.98	33.1	0.6	0.00	0.45
MCP 38% Magnox Ca/Zn	3.7	7.7	0.00	2.5	6.9	2.8	0.72	0.00	0.00	0.00	0.00	0.88	0.98	33.1	0.6	0.00	0.45
MCP 38% Magnox Ca/Zn	3.7	7.7	0.00	2.5	6.9	2.8	0.72	0.00	0.00	0.00	0.00	0.88	0.98	33.1	0.6	0.00	0.45
MCP 38% Magnox Ca/Zn	3.7	7.7	0.00	2.5	6.9	2.8	0.72	0.00	0.00	0.00	0.00	0.88	0.98	33.1	0.6	0.00	0.45
MCP 38% Magnox Ca/Zn	3.7	7.7	0.00	2.5	6.9	2.8	0.72	0.00	0.00	0.00	0.00	0.88	0.98	33.1	0.6	0.00	0.45

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
M-Area MN-13-E	0.00	0.00	0.08	4.42	0.00	0.03	0.02	0.00	96.02		
M-Area MN-13-F	0.00	0.00	0.08	4.42	0.00	0.03	0.02	0.00	96.02		
M-Area MN-13-G	0.00	0.00	0.08	4.42	0.00	0.03	0.02	0.00	96.02		
M-Area MN-13-H	0.00	0.00	0.08	4.42	0.00	0.03	0.02	0.00	96.02		
M-Area MN-13-I	0.00	0.00	0.08	4.42	0.00	0.03	0.02	0.00	96.02		
M-Area MN-13-J	0.00	0.00	0.08	4.42	0.00	0.03	0.02	0.00	96.02		
PUREX AVG	0.00	0.00	0.68	0.00	0.00	0.00	0.05	0.00	99.38		
PUREX AVG	0.00	0.00	0.68	0.00	0.00	0.00	0.05	0.00	99.38		
PUREX AVG	0.00	0.00	0.68	0.00	0.00	0.00	0.05	0.00	99.38		
PUREX AVG	0.00	0.00	0.68	0.00	0.00	0.00	0.05	0.00	99.38		
BATCH 1 AVG	0.00	0.00	0.68	0.00	0.00	0.00	0.10	0.00	99.31		
BATCH 1 AVG	0.00	0.00	0.68	0.00	0.00	0.00	0.10	0.00	99.31		
BATCH 1 AVG	0.00	0.00	0.68	0.00	0.00	0.00	0.10	0.00	99.31		
BATCH 1 AVG	0.00	0.00	0.68	0.00	0.00	0.00	0.10	0.00	99.31		
BLEND 1 AVG	0.00	0.00	0.89	0.00	0.00	0.00	0.14	0.00	99.48		
BLEND 1 AVG	0.00	0.00	0.89	0.00	0.00	0.00	0.14	0.00	99.48		
BLEND 1 AVG	0.00	0.00	0.89	0.00	0.00	0.00	0.14	0.00	99.48		
BLEND 1 AVG	0.00	0.00	0.89	0.00	0.00	0.00	0.14	0.00	99.48		
HM AVG	0.00	0.00	0.56	0.00	0.00	0.00	0.33	0.00	99.97		
HM AVG	0.00	0.00	0.56	0.00	0.00	0.00	0.33	0.00	99.97		
HM AVG	0.00	0.00	0.56	0.00	0.00	0.00	0.33	0.00	99.97		
HM AVG	0.00	0.00	0.56	0.00	0.00	0.00	0.33	0.00	99.97		
EA AVG	0.00	0.00	0.70	0.00	0.00	0.00	0.46	0.00	99.99		
EA AVG	0.00	0.00	0.70	0.00	0.00	0.00	0.46	0.00	99.99		
EA AVG	0.00	0.00	0.70	0.00	0.00	0.00	0.46	0.00	99.99		
EA AVG	0.00	0.00	0.70	0.00	0.00	0.00	0.46	0.00	99.99		
BLP 17 wt% Blend	0.26	0.00	0.00	0.00	0.27	0.00	2.20	0.00	100.22		
BLP 17 wt% Blend	0.26	0.00	0.00	0.00	0.27	0.00	2.20	0.00	100.22		
BLP 17 wt% Blend	0.26	0.00	0.00	0.00	0.27	0.00	2.20	0.00	100.22		
BLP 17 wt% Blend	0.26	0.00	0.00	0.00	0.27	0.00	2.20	0.00	100.22		
BLP 17 wt% Blend	0.26	0.00	0.00	0.00	0.27	0.00	2.20	0.00	100.22		
MSP 28 wt% Magnox	0.20	0.00	0.00	0.00	0.21	0.00	1.80	0.00	98.94		
MSP 28 wt% Magnox	0.20	0.00	0.00	0.00	0.21	0.00	1.80	0.00	98.94		
MSP 28 wt% Magnox	0.20	0.00	0.00	0.00	0.21	0.00	1.80	0.00	98.94		
MSP 28 wt% Magnox	0.20	0.00	0.00	0.00	0.21	0.00	1.80	0.00	98.94		
MSP 28 wt% Magnox	0.20	0.00	0.00	0.00	0.21	0.00	1.80	0.00	98.94		
G1 25 wt% Magnox 4% Li2O	**0.18**	0.00	0.00	0.00	**0.19**	**0.00**	**1.48**	0.00	**99.90**		
G1 25 wt% Magnox 4% Li2O	**0.18**	0.00	0.00	0.00	**0.19**	**0.00**	**1.48**	0.00	**99.90**		
G1 25 wt% Magnox 4% Li2O	**0.18**	0.00	0.00	0.00	**0.19**	**0.00**	**1.48**	0.00	**99.90**		
G1 25 wt% Magnox 4% Li2O	**0.18**	0.00	0.00	0.00	**0.19**	**0.00**	**1.48**	0.00	**99.90**		
G1 25 wt% Magnox 4% Li2O	**0.18**	0.00	0.00	0.00	**0.19**	**0.00**	**1.48**	0.00	**99.90**		
G1 25 wt% Magnox 4% Li2O	**0.18**	0.00	0.00	0.00	**0.19**	**0.00**	**1.48**	0.00	**99.90**		
G1 25 wt% Magnox 4% Li2O	**0.18**	0.00	0.00	0.00	**0.19**	**0.00**	**1.48**	0.00	**99.90**		
G1 25 wt% Magnox 4% Li2O	**0.18**	0.00	0.00	0.00	**0.19**	**0.00**	**1.48**	0.00	**99.90**		
G4 32 wt% Magnox 4% Li2O	0.23	0.00	0.00	0.00	0.24	0.00	1.90	0.00	99.91		
G4 32 wt% Magnox 4% Li2O	0.23	0.00	0.00	0.00	0.24	0.00	1.90	0.00	99.91		
G4 32 wt% Magnox 4% Li2O	0.23	0.00	0.00	0.00	0.24	0.00	1.90	0.00	99.91		
G4 32 wt% Magnox 4% Li2O	0.23	0.00	0.00	0.00	0.24	0.00	1.90	0.00	99.91		
G4 32 wt% Magnox 4% Li2O	0.23	0.00	0.00	0.00	0.24	0.00	1.90	0.00	99.91		
G4 32 wt% Magnox 4% Li2O	0.23	0.00	0.00	0.00	0.24	0.00	1.90	0.00	99.91		
G4 32 wt% Magnox 4% Li2O	0.23	0.00	0.00	0.00	0.24	0.00	1.90	0.00	99.91		
MMP 38% Magnox MW	0.25	0.00	0.00	0.00	0.27	0	2.2	0.00	100.00		
MMP 38% Magnox MW	0.25	0.00	0.00	0.00	0.27	0	2.2	0.00	100.00		
MMP 38% Magnox MW	0.25	0.00	0.00	0.00	0.27	0	2.2	0.00	100.00		
MMP 38% Magnox MW	0.25	0.00	0.00	0.00	0.27	0	2.2	0.00	100.00		
MMP 38% Magnox MW	0.25	0.00	0.00	0.00	0.27	0	2.2	0.00	100.00		
MCP 38% Magnox Ca/Zn	0.26	0.00	0.00	0.00	0.28	3.5	2.3	0.00	99.94		
MCP 38% Magnox Ca/Zn	0.26	0.00	0.00	0.00	0.28	3.5	2.3	0.00	99.94		
MCP 38% Magnox Ca/Zn	0.26	0.00	0.00	0.00	0.28	3.5	2.3	0.00	99.94		
MCP 38% Magnox Ca/Zn	0.26	0.00	0.00	0.00	0.28	3.5	2.3	0.00	99.94		
MCP 38% Magnox Ca/Zn	0.26	0.00	0.00	0.00	0.28	3.5	2.3	0.00	99.94		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
MCP 38% Magnox Ca/Zn	HLW	NNL-2016		56.00	0.06	1.871	104.795	**2.850**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	
M28R 28 wt% Magnox	HLW	NNL-2016		7.00	0.06	1.990	13.930	**2.680**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	9.693
M28R 28 wt% Magnox	HLW	NNL-2016		14.00	0.06	1.990	27.861	**2.680**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	9.723
M28R 28 wt% Magnox	HLW	NNL-2016		21.00	0.06	1.990	41.791	**2.680**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	
M28R 28 wt% Magnox	HLW	NNL-2016		28.00	0.06	1.990	55.721	**2.680**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	9.597
M28R 28 wt% Magnox	HLW	NNL-2016		42.00	0.06	1.990	83.582	**2.680**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	9.687
M28R 28 wt% Magnox	HLW	NNL-2016		112.00	0.06	1.990	222.886	**2.680**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	9.817
M32 32 wt% Magnox	HLW	NNL-2016		7.00	0.06	2.018	14.125	**2.643**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	9.810
M32 32 wt% Magnox	HLW	NNL-2016		14.00	0.06	2.018	28.251	**2.643**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	9.810
M32 32 wt% Magnox	HLW	NNL-2016		21.00	0.06	2.018	42.376	**2.643**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	
M32 32 wt% Magnox	HLW	NNL-2016		28.00	0.06	2.018	56.501	**2.643**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	9.707
M32 32 wt% Magnox	HLW	NNL-2016		42.00	0.06	2.018	84.752	**2.643**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	9.773
M32 32 wt% Magnox	HLW	NNL-2016		56.00	0.06	2.018	113.003	**2.643**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	9.90
G3 25 wt% Magnox 5.0% Li2O	HLW	NNL-2016		7.00	0.08	2.003	14.019	**2.663**	4.00	**100-200**	1.125E-04	0.040	**ASTM I**	**90**	10.09
G3 25 wt% Magnox 5.0% Li2O	HLW	NNL-2016		14.00	0.08	2.003	28.039	**2.663**	4.00	**100-200**	1.125E-04	0.040	**ASTM I**	**90**	10.07
G3 25 wt% Magnox 5.0% Li2O	HLW	NNL-2016		21.00	0.08	2.003	42.058	**2.663**	4.00	**100-200**	1.125E-04	0.040	**ASTM I**	**90**	10.11
G3 25 wt% Magnox 5.0% Li2O	HLW	NNL-2016		28.00	0.08	2.003	56.077	**2.663**	4.00	**100-200**	1.125E-04	0.040	**ASTM I**	**90**	10.03
G3 25 wt% Magnox 5.0% Li2O	HLW	NNL-2016		42.00	0.08	2.003	84.116	**2.663**	4.00	**100-200**	1.125E-04	0.040	**ASTM I**	**90**	10.05
G3 25 wt% Magnox 5.0% Li2O	HLW	NNL-2016		56.00	0.08	2.003	112.154	**2.663**	4.00	**100-200**	1.125E-04	0.040	**ASTM I**	**90**	10.02
G6 32 wt% Magnox 5.0% Li2O	HLW	NNL-2016		**7.00**	**0.08**	1.938	13.566	**2.752**	**4.00**	**100-200**	1.125E-04	**0.040**	**ASTM I**	**90**	**10.25**
G6 32 wt% Magnox 5.0% Li2O	HLW	NNL-2016		**14.00**	**0.08**	1.938	27.132	**2.752**	**4.00**	**100-200**	1.125E-04	**0.040**	**ASTM I**	**90**	**10.24**
G6 32 wt% Magnox 5.0% Li2O	HLW	NNL-2016		**21.00**	**0.08**	1.938	40.698	**2.752**	**4.00**	**100-200**	1.125E-04	**0.040**	**ASTM I**	**90**	**10.20**
G6 32 wt% Magnox 5.0% Li2O	HLW	NNL-2016		**28.00**	**0.08**	1.938	54.264	**2.752**	**4.00**	**100-200**	1.125E-04	**0.040**	**ASTM I**	**90**	**10.16**
G6 32 wt% Magnox 5.0% Li2O	HLW	NNL-2016		**42.00**	**0.08**	1.938	81.395	**2.752**	**4.00**	**100-200**	1.125E-04	**0.040**	**ASTM I**	**90**	**10.10**
G6 32 wt% Magnox 5.0% Li2O	HLW	NNL-2016		**56.00**	**0.08**	1.938	108.527	**2.752**	**4.00**	**100-200**	1.125E-04	**0.040**	**ASTM I**	**90**	**10.04**
G6 32 wt% Magnox 5.0% Li2O	HLW	NNL-2016		**84.00**	**0.08**	1.938	162.791	**2.752**	**4.00**	**100-200**	1.125E-04	**0.040**	**ASTM I**	**90**	**10.03**
MP 35 wt% Magnox	HLW	NNL-2016		28.00	0.06	1.939	54.303	**2.750**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	
BP 31 wt% Blend HP	HLW	NNL-2016		28.00	0.06	1.858	52.033	**2.870**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	
BP 31 wt% Blend HP	HLW	NNL-2016		42.00	0.06	1.858	78.049	**2.870**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	
M25 25 wt% Magnox	HLW	NNL-2016		7.00	0.06	2.013	14.088	**2.650**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	
M25 25 wt% Magnox	HLW	NNL-2016		14.00	0.06	2.013	28.176	**2.650**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	9.89
M25 25 wt% Magnox	HLW	NNL-2016		21.00	0.06	2.013	42.264	**2.650**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	9.41
M25 25 wt% Magnox	HLW	NNL-2016		28.00	0.06	2.013	56.352	**2.650**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	9.60
M25 25 wt% Magnox	HLW	NNL-2016		42.00	0.06	2.013	84.528	**2.650**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	9.65
M25 25 wt% Magnox	HLW	NNL-2016		56.00	0.06	2.013	112.704	**2.650**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	9.60
M25 25 wt% Magnox	HLW	NNL-2016		89.00	0.06	2.013	179.119	**2.650**	3.00	**100-200**	1.125E-04	0.030	**ASTM I**	**90**	9.61
G2 25 wt% Magnox 4.5% Li2O	HLW	NNL-2016		7.00	0.08	2.004	14.030	**2.661**	4.00	**100-200**	1.125E-04	0.040	**ASTM I**	**90**	9.95
G2 25 wt% Magnox 4.5% Li2O	HLW	NNL-2016		14.00	0.08	2.004	28.060	**2.661**	4.00	**100-200**	1.125E-04	0.040	**ASTM I**	**90**	9.94
G2 25 wt% Magnox 4.5% Li2O	HLW	NNL-2016		21.00	0.08	2.004	42.089	**2.661**	4.00	**100-200**	1.125E-04	0.040	**ASTM I**	**90**	9.88
G2 25 wt% Magnox 4.5% Li2O	HLW	NNL-2016		28.00	0.08	2.004	56.119	**2.661**	4.00	**100-200**	1.125E-04	0.040	**ASTM I**	**90**	9.89
G2 25 wt% Magnox 4.5% Li2O	HLW	NNL-2016		42.00	0.08	2.004	84.179	**2.661**	4.00	**100-200**	1.125E-04	0.040	**ASTM I**	**90**	9.90
G2 25 wt% Magnox 4.5% Li2O	HLW	NNL-2016		56.00	0.08	2.004	112.239	**2.661**	4.00	**100-200**	1.125E-04	0.040	**ASTM I**	**90**	9.90
G5 32 wt% Magnox 4.5% Li2O	HLW	NNL-2016		7.00	0.08	1.941	13.586	**2.748**	4.00	**100-200**	1.125E-04	0.040	**ASTM I**	**90**	10.07
G5 32 wt% Magnox 4.5% Li2O	HLW	NNL-2016		14.00	0.08	1.941	27.171	**2.748**	4.00	**100-200**	1.125E-04	0.040	**ASTM I**	**90**	10.00
G5 32 wt% Magnox 4.5% Li2O	HLW	NNL-2016		21.00	0.08	1.941	40.757	**2.748**	4.00	**100-200**	1.125E-04	0.040	**ASTM I**	**90**	10.01
G5 32 wt% Magnox 4.5% Li2O	HLW	NNL-2016		28.00	0.08	1.941	54.343	**2.748**	4.00	**100-200**	1.125E-04	0.040	**ASTM I**	**90**	9.98
G5 32 wt% Magnox 4.5% Li2O	HLW	NNL-2016		42.00	0.08	1.941	81.514	**2.748**	4.00	**100-200**	1.125E-04	0.040	**ASTM I**	**90**	9.94
G5 32 wt% Magnox 4.5% Li2O	HLW	NNL-2016		56.00	0.08	1.941	108.685	**2.748**	4.00	**100-200**	1.125E-04	0.040	**ASTM I**	**90**	9.90
G5 32 wt% Magnox 4.5% Li2O	HLW	NNL-2016		112.00	0.08	1.941	217.370	**2.748**	4.00	**100-200**	1.125E-04	0.040	**ASTM I**	**90**	9.90
25 wt% NDA VTR Glass	HLW	NNL-2016		**7.00**	**0.08**	2.018	14.123	**2.644**	**4.00**	**100-200**	1.125E-04	**0.040**	**ASTM I**	**90**	**9.68**
25 wt% NDA VTR Glass	HLW	NNL-2016		**14.00**	**0.08**	2.018	28.245	**2.644**	**4.00**	**100-200**	1.125E-04	**0.040**	**ASTM I**	**90**	**9.70**
25 wt% NDA VTR Glass	HLW	NNL-2016		**21.00**	**0.08**	2.018	42.368	**2.644**	**4.00**	**100-200**	1.125E-04	**0.040**	**ASTM I**	**90**	**9.69**
25 wt% NDA VTR Glass	HLW	NNL-2016		**28.00**	**0.08**	2.018	56.491	**2.644**	**4.00**	**100-200**	1.125E-04	**0.040**	**ASTM I**	**90**	**9.74**
25 wt% NDA VTR Glass	HLW	NNL-2016		**42.00**	**0.08**	2.018	84.736	**2.644**	**4.00**	**100-200**	1.125E-04	**0.040**	**ASTM I**	**90**	**9.73**
25 wt% NDA VTR Glass	HLW	NNL-2016		**56.00**	**0.08**	2.018	112.982	**2.644**	**4.00**	**100-200**	1.125E-04	**0.040**	**ASTM I**	**90**	**9.71**
G7 38 wt% Magnox 4% Li2O	HLW	NNL-2016		**7.00**	**0.08**	1.921	13.449	**2.776**	**4.00**	**100-200**	1.125E-04	**0.040**	**ASTM I**	**90**	**9.97**
G7 38 wt% Magnox 4% Li2O	HLW	NNL-2016		**14.00**	**0.08**	1.921	26.897	**2.776**	**4.00**	**100-200**	1.125E-04	**0.040**	**ASTM I**	**90**	**9.95**
G7 38 wt% Magnox 4% Li2O	HLW	NNL-2016		**21.00**	**0.08**	1.921	40.346	**2.776**	**4.00**	**100-200**	1.125E-04	**0.040**	**ASTM I**	**90**	**9.93**
G7 38 wt% Magnox 4% Li2O	HLW	NNL-2016		**28.00**	**0.08**	1.921	53.794	**2.776**	**4.00**	**100-200**	1.125E-04	**0.040**	**ASTM I**	**90**	**9.90**
G7 38 wt% Magnox 4% Li2O	HLW	NNL-2016		**42.00**	**0.08**	1.921	80.692	**2.776**	**4.00**	**100-200**	1.125E-04	**0.040**	**ASTM I**	**90**	**9.92**
G7 38 wt% Magnox 4% Li2O	HLW	NNL-2016		**56.00**	**0.08**	1.921	107.589	**2.776**	**4.00**	**100-200**	1.125E-04	**0.040**	**ASTM I**	**90**	**9.91**
G7 38 wt% Magnox 4% Li2O	HLW	NNL-2016		**84.00**	**0.08**	1.921	161.383	**2.776**	**4.00**	**100-200**	1.125E-04	**0.040**	**ASTM I**	**90**	**9.86**
G8 38 wt% Magnox 4.65% Li2O	HLW	NNL-2016		7.00	0.08	1.893	13.248	**2.818**	4.00	**100-200**	1.125E-04	0.040	**ASTM I**	**90**	10.25
G8 38 wt% Magnox 4.65% Li2O	HLW	NNL-2016		14.00	0.08	1.893	26.496	**2.818**	4.00	**100-200**	1.125E-04	0.040	**ASTM I**	**90**	10.20
G8 38 wt% Magnox 4.65% Li2O	HLW	NNL-2016		21.00	0.08	1.893	39.744	**2.818**	4.00	**100-200**	1.125E-04	0.040	**ASTM I**	**90**	10.21
G8 38 wt% Magnox 4.65% Li2O	HLW	NNL-2016		28.00	0.08	1.893	52.993	**2.818**	4.00	**100-200**	1.125E-04	0.040	**ASTM I**	**90**	10.14
G8 38 wt% Magnox 4.65% Li2O	HLW	NNL-2016		42.00	0.08	1.893	79.489	**2.818**	4.00	**100-200**	1.125E-04	0.040	**ASTM I**	**90**	10.15

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
MCP 38% Magnox Ca/Zn	16.38	996.15	3.22		358.78	901.51				383.20	0.05		0.00	
M28R 28 wt% Magnox	46.80	179.42		1.40	59.56	157.97			0.06	39.66	0.12			
M28R 28 wt% Magnox	71.67	313.30		2.20	89.66	246.06			0.02	63.64	0.18			
M28R 28 wt% Magnox	62.12	461.06		3.29	140.60	330.23			0.00	90.43	0.42			
M28R 28 wt% Magnox	55.12	483.89		3.35	151.50	378.07			0.05	96.78	0.00			
M28R 28 wt% Magnox	78.68	607.23		4.18	162.45	440.87			0.02	118.08	0.00			
M28R 28 wt% Magnox	44.16	744.02		5.16	200.41	563.39			0.06	137.95	0.15			
M32 32 wt% Magnox	32.59	68.55		0.40	25.47	67.65			0.13	16.35	0.10			
M32 32 wt% Magnox	71.64	137.86		0.59	50.86	136.50			0.01	25.07	0.10			
M32 32 wt% Magnox	47.87	203.70		0.77	65.46	140.20			0.00	43.94	0.11			
M32 32 wt% Magnox	42.17	245.44		0.97	85.15	201.71			0.05	52.01	0.00			
M32 32 wt% Magnox	62.50	325.00		1.19	95.91	247.54			0.00	65.57	0.00			
M32 32 wt% Magnox	63.08	345.07		1.02	102.33	272.67			0.00	68.53	0.08			
G3 25 wt% Magnox 5.0% Li2O	201.69	810.34		22.22	315.01	637.46				135.48	0.00			
G3 25 wt% Magnox 5.0% Li2O	221.02	1538.37		43.37	576.64	1160.26				272.37	0.00			
G3 25 wt% Magnox 5.0% Li2O	192.81	1909.75		54.01	704.09	1401.06				352.63	0.00			
G3 25 wt% Magnox 5.0% Li2O	172.65	1997.79		57.91	768.26	1527.47				391.29	0.00000000000			
G3 25 wt% Magnox 5.0% Li2O	174.99	2611.70		79.59	908.38	1995.45				516.52	0.00000000000			
G3 25 wt% Magnox 5.0% Li2O	214.34	2736.73		89.21	980.40	2088.75				532.95	0.00			
G6 32 wt% Magnox 5.0% Li2O	**101.56**	**330.10**		**10.03**	**145.53**	**264.84**				**82.01**	**0.29**			
G6 32 wt% Magnox 5.0% Li2O	**104.42**	**668.71**		**20.37**	**288.77**	**496.83**				**110.61**	**0.00**			
G6 32 wt% Magnox 5.0% Li2O	**97.56**	**1155.66**		**35.82**	**490.13**	**832.00**				**296.58**	**0.00**			
G6 32 wt% Magnox 5.0% Li2O	**81.08**	**1176.41**		**38.66**	**485.80**	**838.79**				**304.38**	**0.01**			
G6 32 wt% Magnox 5.0% Li2O	**71.17**	**1764.64**		**59.36**	**694.41**	**1284.19**				**469.54**	**0.00**			
G6 32 wt% Magnox 5.0% Li2O	**84.35**	**2809.84**		**102.57**	**967.69**	**2279.23**				**823.88**	**0.00**			
G6 32 wt% Magnox 5.0% Li2O	**82.50**	**3870.36**		**144.73**	**1177.23**	**3483.77**				**1192.73**	**0.00**			
MP 35 wt% Magnox	48.95	124.11			37.72	115.18				21.39	0.06			
BP 31 wt% Blend HP	119.63	397.82			128.79	353.58				142.07	0.00			
BP 31 wt% Blend HP	149.64	459.32			146.59	405.07				153.60	0.07			
M25 25 wt% Magnox	71.04	380.96			117.33	325.03				68.22	0.07			
M25 25 wt% Magnox	123.34	568.03			165.08	454.52				102.14	0.02			
M25 25 wt% Magnox	106.13	632.44			186.29	503.53				114.53	0.00			
M25 25 wt% Magnox	116.68	828.70			235.43	638.00				147.47	0.01			
M25 25 wt% Magnox	123.46	917.81			260.40	748.04				151.41	0.37			
M25 25 wt% Magnox	77.30	927.63			259.59	753.56				156.38	0.93			
M25 25 wt% Magnox	101.76	1052.84			310.97	807.95				172.57	0.10			
G2 25 wt% Magnox 4.5% Li2O	168.81	701.14		22.57	244.56	557.61				118.94	0.00			
G2 25 wt% Magnox 4.5% Li2O	176.62	1319.08		43.66	450.52	998.81				230.91	0.00			
G2 25 wt% Magnox 4.5% Li2O	185.53	1667.74		61.82	585.70	1253.69				275.76	0.00			
G2 25 wt% Magnox 4.5% Li2O	150.41	1805.20		60.44	634.25	1389.71				339.16	0.00			
G2 25 wt% Magnox 4.5% Li2O	148.43	2337.51		80.94	750.12	1763.08				441.09	0.00			
G2 25 wt% Magnox 4.5% Li2O	175.62	2282.91		85.27	769.94	1714.13				430.87	0.00			
G5 32 wt% Magnox 4.5% Li2O	97.40	277.11		6.24	114.27	234.96				67.43	0.05			
G5 32 wt% Magnox 4.5% Li2O	98.77	728.37		16.67	281.19	546.92				115.85	0.00			
G5 32 wt% Magnox 4.5% Li2O	92.47	1077.36		24.84	408.73	784.43				269.20	0.00			
G5 32 wt% Magnox 4.5% Li2O	76.46	895.82		22.04	345.69	665.59				226.08	0.01			
G5 32 wt% Magnox 4.5% Li2O	66.95	1580.71		38.87	579.35	1159.84				410.92	0.00			
G5 32 wt% Magnox 4.5% Li2O	85.58	2470.11		65.62	798.21	1953.63				701.50	0.02			
G5 32 wt% Magnox 4.5% Li2O	79.23	4434.57		108.75	1086.92	4045.09				1327.11	0.00			
25 wt% NDA VTR Glass	**135.35**	**580.55**		**0.43**	**175.26**	**479.46**				**74.39**	**0.85**			
25 wt% NDA VTR Glass	**140.61**	**842.38**		**0.67**	**253.24**	**680.93**				**115.66**	**0.70**			
25 wt% NDA VTR Glass	**140.29**	**953.09**		**0.88**	**286.36**	**766.33**				**136.86**	**0.50**			
25 wt% NDA VTR Glass	**100.80**	**1010.59**		**0.94**	**310.86**	**803.52**				**153.21**	**0.81**			
25 wt% NDA VTR Glass	**108.67**	**1200.89**		**2.09**	**349.61**	**923.38**				**158.03**	**0.52**			
25 wt% NDA VTR Glass	**144.32**	**1340.87**		**2.02**	**384.83**	**1019.56**				**179.27**	**0.06**			
G7 38 wt% Magnox 4% Li2O	**39.14**	**88.79**		**1.09**	**34.81**	**85.31**				**25.24**	**0.03**			
G7 38 wt% Magnox 4% Li2O	**43.52**	**212.28**		**2.39**	**82.41**	**179.21**				**61.30**	**0.01**			
G7 38 wt% Magnox 4% Li2O	**43.96**	**227.36**		**2.45**	**86.75**	**189.70**				**62.46**	**0.00**			
G7 38 wt% Magnox 4% Li2O	**36.04**	**241.34**		**2.67**	**90.21**	**199.01**				**64.41**	**0.03**			
G7 38 wt% Magnox 4% Li2O	**54.11**	**263.11**		**2.72**	**99.46**	**216.00**				**74.02**	**0.01**			
G7 38 wt% Magnox 4% Li2O	**50.29**	**306.86**		**3.28**	**115.73**	**250.32**				**88.96**	**0.00**			
G7 38 wt% Magnox 4% Li2O	**39.34**	**333.53**		**3.58**	**121.49**	**273.05**				**91.55**	**0.01**			
G8 38 wt% Magnox 4.65% Li2O	45.82	129.36		2.91	59.74	117.09				35.30	0.07			
G8 38 wt% Magnox 4.65% Li2O	49.06	298.26		6.29	132.45	241.27				82.95	0.01			
G8 38 wt% Magnox 4.65% Li2O	48.05	421.71		8.58	183.53	331.58				119.66	0.01			
G8 38 wt% Magnox 4.65% Li2O	39.71	518.92		10.58	219.68	399.04				153.59	0.00			
G8 38 wt% Magnox 4.65% Li2O	61.55	557.89		11.02	238.80	435.24				171.19	0.02			

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
MCP 38% Magnox Ca/Zn				58.50	21.9563	**-6.88924114**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
M28R 28 wt% Magnox				72.00	15.15955	**9.85019351**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
M28R 28 wt% Magnox				72.00	15.15955	**9.85019351**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
M28R 28 wt% Magnox				72.00	15.15955	**9.85019351**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
M28R 28 wt% Magnox				72.00	15.15955	**9.85019351**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
M28R 28 wt% Magnox				72.00	15.15955	**9.85019351**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
M28R 28 wt% Magnox				72.00	15.15955	**9.85019351**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
M32 32 wt% Magnox				67.80	17.6156	**2.71361432**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
M32 32 wt% Magnox				67.80	17.6156	**2.71361432**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
M32 32 wt% Magnox				67.80	17.6156	**2.71361432**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
M32 32 wt% Magnox				67.80	17.6156	**2.71361432**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
M32 32 wt% Magnox				67.80	17.6156	**2.71361432**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
M32 32 wt% Magnox				67.80	17.6156	**2.71361432**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G3 25 wt% Magnox 5.0% Li2O				75.96	13.57192332	**12.46642141**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G3 25 wt% Magnox 5.0% Li2O				75.96	13.57192332	**12.46642141**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G3 25 wt% Magnox 5.0% Li2O				75.96	13.57192332	**12.46642141**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G3 25 wt% Magnox 5.0% Li2O				75.96	13.57192332	**12.46642141**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G3 25 wt% Magnox 5.0% Li2O				75.96	13.57192332	**12.46642141**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G3 25 wt% Magnox 5.0% Li2O				75.96	13.57192332	**12.46642141**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G6 32 wt% Magnox 5.0% Li2O				67.40	17.0349	**6.63469178**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G6 32 wt% Magnox 5.0% Li2O				67.40	17.0349	**6.63469178**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G6 32 wt% Magnox 5.0% Li2O				67.40	17.0349	**6.63469178**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G6 32 wt% Magnox 5.0% Li2O				67.40	17.0349	**6.63469178**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G6 32 wt% Magnox 5.0% Li2O				67.40	17.0349	**6.63469178**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G6 32 wt% Magnox 5.0% Li2O				67.40	17.0349	**6.63469178**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G6 32 wt% Magnox 5.0% Li2O				67.40	17.0349	**6.63469178**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
MP 35 wt% Magnox				65.90	19.5263	**-5.03098714**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
BP 31 wt% Blend HP				70.50	13.15095	**23.59961459**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
BP 31 wt% Blend HP				70.50	13.15095	**23.59961459**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
M25 25 wt% Magnox				76.03	13.57466348	**12.3328125**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
M25 25 wt% Magnox				76.03	13.57466348	**12.3328125**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
M25 25 wt% Magnox				76.03	13.57466348	**12.3328125**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
M25 25 wt% Magnox				76.03	13.57466348	**12.3328125**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
M25 25 wt% Magnox				76.03	13.57466348	**12.3328125**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
M25 25 wt% Magnox				76.03	13.57466348	**12.3328125**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
M25 25 wt% Magnox				76.03	13.57466348	**12.3328125**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G2 25 wt% Magnox 4.5% Li2O				75.96	13.57192332	**12.46759914**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G2 25 wt% Magnox 4.5% Li2O				75.96	13.57192332	**12.46759914**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G2 25 wt% Magnox 4.5% Li2O				75.96	13.57192332	**12.46759914**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G2 25 wt% Magnox 4.5% Li2O				75.96	13.57192332	**12.46759914**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G2 25 wt% Magnox 4.5% Li2O				75.96	13.57192332	**12.46759914**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G2 25 wt% Magnox 4.5% Li2O				75.96	13.57192332	**12.46759914**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G5 32 wt% Magnox 4.5% Li2O				69.27	17.37206186	**1.735858012**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G5 32 wt% Magnox 4.5% Li2O				69.27	17.37206186	**1.735858012**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G5 32 wt% Magnox 4.5% Li2O				69.27	17.37206186	**1.735858012**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G5 32 wt% Magnox 4.5% Li2O				69.27	17.37206186	**1.735858012**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G5 32 wt% Magnox 4.5% Li2O				69.27	17.37206186	**1.735858012**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G5 32 wt% Magnox 4.5% Li2O				69.27	17.37206186	**1.735858012**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G5 32 wt% Magnox 4.5% Li2O				69.27	17.37206186	**1.735858012**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
25 wt% NDA VTR Glass				74.50	13.58885	**14.71244297**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
25 wt% NDA VTR Glass				74.50	13.58885	**14.71244297**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
25 wt% NDA VTR Glass				74.50	13.58885	**14.71244297**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
25 wt% NDA VTR Glass				74.50	13.58885	**14.71244297**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
25 wt% NDA VTR Glass				74.50	13.58885	**14.71244297**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
25 wt% NDA VTR Glass				74.50	13.58885	**14.71244297**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G7 38 wt% Magnox 4% Li2O				62.10	20.31095	**-3.36923341**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
G7 38 wt% Magnox 4% Li2O				62.10	20.31095	**-3.36923341**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
G7 38 wt% Magnox 4% Li2O				62.10	20.31095	**-3.36923341**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
G7 38 wt% Magnox 4% Li2O				62.10	20.31095	**-3.36923341**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
G7 38 wt% Magnox 4% Li2O				62.10	20.31095	**-3.36923341**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
G7 38 wt% Magnox 4% Li2O				62.10	20.31095	**-3.36923341**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
G7 38 wt% Magnox 4% Li2O				62.10	20.31095	**-3.36923341**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
G8 38 wt% Magnox 4.65% Li2O				63.54	20.67407665	**-7.722042272**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
G8 38 wt% Magnox 4.65% Li2O				63.54	20.67407665	**-7.722042272**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
G8 38 wt% Magnox 4.65% Li2O				63.54	20.67407665	**-7.722042272**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
G8 38 wt% Magnox 4.65% Li2O				63.54	20.67407665	**-7.722042272**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
G8 38 wt% Magnox 4.65% Li2O				63.54	20.67407665	**-7.722042272**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
MCP 38% Magnox Ca/Zn	HOMOGENEOUS	7.4	13.2	0.77	1.2	1.8	0.00	1.1	1.6	0.00	0.00	0.00	5.1	0.00	0.14	0.96
M28R 28 wt% Magnox	HOMOGENEOUS	5.40	15.70	0.70	0.0	1.30	0.00	0.76	1.30	0.00	0.00	0.00	3.70	0.00	0.14	0.70
M28R 28 wt% Magnox	HOMOGENEOUS	5.40	15.70	0.70	0.0	1.30	0.00	0.76	1.30	0.00	0.00	0.00	3.70	0.00	0.14	0.70
M28R 28 wt% Magnox	HOMOGENEOUS	5.40	15.70	0.70	0.0	1.30	0.00	0.76	1.30	0.00	0.00	0.00	3.70	0.00	0.14	0.70
M28R 28 wt% Magnox	HOMOGENEOUS	5.40	15.70	0.70	0.0	1.30	0.00	0.76	1.30	0.00	0.00	0.00	3.70	0.00	0.14	0.70
M28R 28 wt% Magnox	HOMOGENEOUS	5.40	15.70	0.70	0.0	1.30	0.00	0.76	1.30	0.00	0.00	0.00	3.70	0.00	0.14	0.70
M28R 28 wt% Magnox	HOMOGENEOUS	5.40	15.70	0.70	0.0	1.30	0.00	0.76	1.30	0.00	0.00	0.00	3.70	0.00	0.14	0.70
M32 32 wt% Magnox	HOMOGENEOUS	6.10	14.20	0.65	0.0	1.60	0.00	0.87	1.50	0.00	0.00	0.00	4.30	0.00	0.10	0.83
M32 32 wt% Magnox	HOMOGENEOUS	6.10	14.20	0.65	0.0	1.60	0.00	0.87	1.50	0.00	0.00	0.00	4.30	0.00	0.10	0.83
M32 32 wt% Magnox	HOMOGENEOUS	6.10	14.20	0.65	0.0	1.60	0.00	0.87	1.50	0.00	0.00	0.00	4.30	0.00	0.10	0.83
M32 32 wt% Magnox	HOMOGENEOUS	6.10	14.20	0.65	0.0	1.60	0.00	0.87	1.50	0.00	0.00	0.00	4.30	0.00	0.10	0.83
M32 32 wt% Magnox	HOMOGENEOUS	6.10	14.20	0.65	0.0	1.60	0.00	0.87	1.50	0.00	0.00	0.00	4.30	0.00	0.10	0.83
M32 32 wt% Magnox	HOMOGENEOUS	6.10	14.20	0.65	0.0	1.60	0.00	0.87	1.50	0.00	0.00	0.00	4.30	0.00	0.10	0.83
G3 25 wt% Magnox 5.0% Li2O	HOMOGENEOUS	4.93	16.69	0.52	0.00	1.13	0.00	0.74	1.06	0.00	0.00	0.00	3.32	0.00	0.07	0.61
G3 25 wt% Magnox 5.0% Li2O	HOMOGENEOUS	4.93	16.69	0.52	0.00	1.13	0.00	0.74	1.06	0.00	0.00	0.00	3.32	0.00	0.07	0.61
G3 25 wt% Magnox 5.0% Li2O	HOMOGENEOUS	4.93	16.69	0.52	0.00	1.13	0.00	0.74	1.06	0.00	0.00	0.00	3.32	0.00	0.07	0.61
G3 25 wt% Magnox 5.0% Li2O	HOMOGENEOUS	4.93	16.69	0.52	0.00	1.13	0.00	0.74	1.06	0.00	0.00	0.00	3.32	0.00	0.07	0.61
G3 25 wt% Magnox 5.0% Li2O	HOMOGENEOUS	4.93	16.69	0.52	0.00	1.13	0.00	0.74	1.06	0.00	0.00	0.00	3.32	0.00	0.07	0.61
G3 25 wt% Magnox 5.0% Li2O	HOMOGENEOUS	4.93	16.69	0.52	0.00	1.13	0.00	0.74	1.06	0.00	0.00	0.00	3.32	0.00	0.07	0.61
G6 32 wt% Magnox 5.0% Li2O	HOMOGENEOUS	6.00	13.70	0.80	0.00	1.40	0.00	0.95	1.30	0.00	0.00	0.00	4.40	0.00	0.10	0.77
G6 32 wt% Magnox 5.0% Li2O	HOMOGENEOUS	6.00	13.70	0.80	0.00	1.40	0.00	0.95	1.30	0.00	0.00	0.00	4.40	0.00	0.10	0.77
G6 32 wt% Magnox 5.0% Li2O	HOMOGENEOUS	6.00	13.70	0.80	0.00	1.40	0.00	0.95	1.30	0.00	0.00	0.00	4.40	0.00	0.10	0.77
G6 32 wt% Magnox 5.0% Li2O	HOMOGENEOUS	6.00	13.70	0.80	0.00	1.40	0.00	0.95	1.30	0.00	0.00	0.00	4.40	0.00	0.10	0.77
G6 32 wt% Magnox 5.0% Li2O	HOMOGENEOUS	6.00	13.70	0.80	0.00	1.40	0.00	0.95	1.30	0.00	0.00	0.00	4.40	0.00	0.10	0.77
G6 32 wt% Magnox 5.0% Li2O	HOMOGENEOUS	6.00	13.70	0.80	0.00	1.40	0.00	0.95	1.30	0.00	0.00	0.00	4.40	0.00	0.10	0.77
G6 32 wt% Magnox 5.0% Li2O	HOMOGENEOUS	6.00	13.70	0.80	0.00	1.40	0.00	0.95	1.30	0.00	0.00	0.00	4.40	0.00	0.10	0.77
MP 35 wt% Magnox	HOMOGENEOUS	6.8	13.8	0.74	0.00	1.8	0.00	0.96	1.7	0.00	0.00	0.00	4.7	0.00	0	0.93
BP 31 wt% Blend HP	Potential ϕ-sep.	2.3	14.8	1.2	0.00	1.7	0.00	0.61	1.9	0.00	0.00	0.00	2.6	0.00	4.9	0.87
BP 31 wt% Blend HP	Potential ϕ-sep.	2.3	14.8	1.2	0.00	1.7	0.00	0.61	1.9	0.00	0.00	0.00	2.6	0.00	4.9	0.87
M25 25 wt% Magnox	HOMOGENEOUS	4.93	16.80	0.60	0.00	1.15	0.00	0.77	1.03	0.00	0.00	0.00	3.33	0.00	0.08	0.62
M25 25 wt% Magnox	HOMOGENEOUS	4.93	16.80	0.60	0.00	1.15	0.00	0.77	1.03	0.00	0.00	0.00	3.33	0.00	0.08	0.62
M25 25 wt% Magnox	HOMOGENEOUS	4.93	16.80	0.60	0.00	1.15	0.00	0.77	1.03	0.00	0.00	0.00	3.33	0.00	0.08	0.62
M25 25 wt% Magnox	HOMOGENEOUS	4.93	16.80	0.60	0.00	1.15	0.00	0.77	1.03	0.00	0.00	0.00	3.33	0.00	0.08	0.62
M25 25 wt% Magnox	HOMOGENEOUS	4.93	16.80	0.60	0.00	1.15	0.00	0.77	1.03	0.00	0.00	0.00	3.33	0.00	0.08	0.62
M25 25 wt% Magnox	HOMOGENEOUS	4.93	16.80	0.60	0.00	1.15	0.00	0.77	1.03	0.00	0.00	0.00	3.33	0.00	0.08	0.62
M25 25 wt% Magnox	HOMOGENEOUS	4.93	16.80	0.60	0.00	1.15	0.00	0.77	1.03	0.00	0.00	0.00	3.33	0.00	0.08	0.62
G2 25 wt% Magnox 4.5% Li2O	HOMOGENEOUS	4.93	16.81	0.52	0.00	1.13	0.00	0.74	1.06	0.00	0.00	0.00	3.32	0.00	0.07	0.61
G2 25 wt% Magnox 4.5% Li2O	HOMOGENEOUS	4.93	16.81	0.52	0.00	1.13	0.00	0.74	1.06	0.00	0.00	0.00	3.32	0.00	0.07	0.61
G2 25 wt% Magnox 4.5% Li2O	HOMOGENEOUS	4.93	16.81	0.52	0.00	1.13	0.00	0.74	1.06	0.00	0.00	0.00	3.32	0.00	0.07	0.61
G2 25 wt% Magnox 4.5% Li2O	HOMOGENEOUS	4.93	16.81	0.52	0.00	1.13	0.00	0.74	1.06	0.00	0.00	0.00	3.32	0.00	0.07	0.61
G2 25 wt% Magnox 4.5% Li2O	HOMOGENEOUS	4.93	16.81	0.52	0.00	1.13	0.00	0.74	1.06	0.00	0.00	0.00	3.32	0.00	0.07	0.61
G2 25 wt% Magnox 4.5% Li2O	HOMOGENEOUS	4.93	16.81	0.52	0.00	1.13	0.00	0.74	1.06	0.00	0.00	0.00	3.32	0.00	0.07	0.61
G5 32 wt% Magnox 4.5% Li2O	HOMOGENEOUS	6.31	15.14	0.66	0.00	1.44	0.00	0.95	1.36	0.00	0.00	0.00	4.25	0.00	0.09	0.78
G5 32 wt% Magnox 4.5% Li2O	HOMOGENEOUS	6.31	15.14	0.66	0.00	1.44	0.00	0.95	1.36	0.00	0.00	0.00	4.25	0.00	0.09	0.78
G5 32 wt% Magnox 4.5% Li2O	HOMOGENEOUS	6.31	15.14	0.66	0.00	1.44	0.00	0.95	1.36	0.00	0.00	0.00	4.25	0.00	0.09	0.78
G5 32 wt% Magnox 4.5% Li2O	HOMOGENEOUS	6.31	15.14	0.66	0.00	1.44	0.00	0.95	1.36	0.00	0.00	0.00	4.25	0.00	0.09	0.78
G5 32 wt% Magnox 4.5% Li2O	HOMOGENEOUS	6.31	15.14	0.66	0.00	1.44	0.00	0.95	1.36	0.00	0.00	0.00	4.25	0.00	0.09	0.78
G5 32 wt% Magnox 4.5% Li2O	HOMOGENEOUS	6.31	15.14	0.66	0.00	1.44	0.00	0.95	1.36	0.00	0.00	0.00	4.25	0.00	0.09	0.78
G5 32 wt% Magnox 4.5% Li2O	HOMOGENEOUS	6.31	15.14	0.66	0.00	1.44	0.00	0.95	1.36	0.00	0.00	0.00	4.25	0.00	0.09	0.78
25 wt% NDA VTR Glass	HOMOGENEOUS	4.40	16.30	0.52	0.00	1.10	0.00	1.00	1.00	0.00	0.00	0.00	4.30	0.00	0.10	0.57
25 wt% NDA VTR Glass	HOMOGENEOUS	4.40	16.30	0.52	0.00	1.10	0.00	1.00	1.00	0.00	0.00	0.00	4.30	0.00	0.10	0.57
25 wt% NDA VTR Glass	HOMOGENEOUS	4.40	16.30	0.52	0.00	1.10	0.00	1.00	1.00	0.00	0.00	0.00	4.30	0.00	0.10	0.57
25 wt% NDA VTR Glass	HOMOGENEOUS	4.40	16.30	0.52	0.00	1.10	0.00	1.00	1.00	0.00	0.00	0.00	4.30	0.00	0.10	0.57
25 wt% NDA VTR Glass	HOMOGENEOUS	4.40	16.30	0.52	0.00	1.10	0.00	1.00	1.00	0.00	0.00	0.00	4.30	0.00	0.10	0.57
25 wt% NDA VTR Glass	HOMOGENEOUS	4.40	16.30	0.52	0.00	1.10	0.00	1.00	1.00	0.00	0.00	0.00	4.30	0.00	0.10	0.57
G7 38 wt% Magnox 4% Li2O	HOMOGENEOUS	7.2	12.9	0.74	0.00	1.7	0.00	1.1	1.6	0.00	0.00	0.00	5.2	0.00	0.1	0.91
G7 38 wt% Magnox 4% Li2O	HOMOGENEOUS	7.2	12.9	0.74	0.00	1.7	0.00	1.1	1.6	0.00	0.00	0.00	5.2	0.00	0.1	0.91
G7 38 wt% Magnox 4% Li2O	HOMOGENEOUS	7.2	12.9	0.74	0.00	1.7	0.00	1.1	1.6	0.00	0.00	0.00	5.2	0.00	0.1	0.91
G7 38 wt% Magnox 4% Li2O	HOMOGENEOUS	7.2	12.9	0.74	0.00	1.7	0.00	1.1	1.6	0.00	0.00	0.00	5.2	0.00	0.1	0.91
G7 38 wt% Magnox 4% Li2O	HOMOGENEOUS	7.2	12.9	0.74	0.00	1.7	0.00	1.1	1.6	0.00	0.00	0.00	5.2	0.00	0.1	0.91
G7 38 wt% Magnox 4% Li2O	HOMOGENEOUS	7.2	12.9	0.74	0.00	1.7	0.00	1.1	1.6	0.00	0.00	0.00	5.2	0.00	0.1	0.91
G7 38 wt% Magnox 4% Li2O	HOMOGENEOUS	7.2	12.9	0.74	0.00	1.7	0.00	1.1	1.6	0.00	0.00	0.00	5.2	0.00	0.1	0.91
G8 38 wt% Magnox 4.65% Li2O	HOMOGENEOUS	7.49	13.67	0.73	0.00	1.75	0.00	1.14	1.62	0.00	0.00	0.00	5.09	0.00	0.11	0.95
G8 38 wt% Magnox 4.65% Li2O	HOMOGENEOUS	7.49	13.67	0.73	0.00	1.75	0.00	1.14	1.62	0.00	0.00	0.00	5.09	0.00	0.11	0.95
G8 38 wt% Magnox 4.65% Li2O	HOMOGENEOUS	7.49	13.67	0.73	0.00	1.75	0.00	1.14	1.62	0.00	0.00	0.00	5.09	0.00	0.11	0.95
G8 38 wt% Magnox 4.65% Li2O	HOMOGENEOUS	7.49	13.67	0.73	0.00	1.75	0.00	1.14	1.62	0.00	0.00	0.00	5.09	0.00	0.11	0.95
G8 38 wt% Magnox 4.65% Li2O	HOMOGENEOUS	7.49	13.67	0.73	0.00	1.75	0.00	1.14	1.62	0.00	0.00	0.00	5.09	0.00	0.11	0.95

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
MCP 38% Magnox Ca/Zn	3.7	7.7	0.00	2.5	6.9	2.8	0.72	0.00	0.00	0.00	0.00	0.88	0.98	33.1	0.6	0.00	0.45
M28R 28 wt% Magnox	3.80	5.70	0.00	1.80	7.50	2.10	0.48	0.00	0.00	0.00	0.00	0.64	0.67	43.70	0.45	0.00	0.32
M28R 28 wt% Magnox	3.80	5.70	0.00	1.80	7.50	2.10	0.48	0.00	0.00	0.00	0.00	0.64	0.67	43.70	0.45	0.00	0.32
M28R 28 wt% Magnox	3.80	5.70	0.00	1.80	7.50	2.10	0.48	0.00	0.00	0.00	0.00	0.64	0.67	43.70	0.45	0.00	0.32
M28R 28 wt% Magnox	3.80	5.70	0.00	1.80	7.50	2.10	0.48	0.00	0.00	0.00	0.00	0.64	0.67	43.70	0.45	0.00	0.32
M28R 28 wt% Magnox	3.80	5.70	0.00	1.80	7.50	2.10	0.48	0.00	0.00	0.00	0.00	0.64	0.67	43.70	0.45	0.00	0.32
M28R 28 wt% Magnox	3.80	5.70	0.00	1.80	7.50	2.10	0.48	0.00	0.00	0.00	0.00	0.64	0.67	43.70	0.45	0.00	0.32
M32 32 wt% Magnox	3.80	6.50	0.00	2.10	7.20	2.50	0.57	0.00	0.00	0.00	0.00	0.76	0.64	41.10	0.55	0.00	0.40
M32 32 wt% Magnox	3.80	6.50	0.00	2.10	7.20	2.50	0.57	0.00	0.00	0.00	0.00	0.76	0.64	41.10	0.55	0.00	0.40
M32 32 wt% Magnox	3.80	6.50	0.00	2.10	7.20	2.50	0.57	0.00	0.00	0.00	0.00	0.76	0.64	41.10	0.55	0.00	0.40
M32 32 wt% Magnox	3.80	6.50	0.00	2.10	7.20	2.50	0.57	0.00	0.00	0.00	0.00	0.76	0.64	41.10	0.55	0.00	0.40
M32 32 wt% Magnox	3.80	6.50	0.00	2.10	7.20	2.50	0.57	0.00	0.00	0.00	0.00	0.76	0.64	41.10	0.55	0.00	0.40
M32 32 wt% Magnox	3.80	6.50	0.00	2.10	7.20	2.50	0.57	0.00	0.00	0.00	0.00	0.76	0.64	41.10	0.55	0.00	0.40
G3 25 wt% Magnox 5.0% Li2O	5.00	4.90	0.00	1.61	8.12	1.84	0.48	0.00	0.00	0.00	0.00	0.61	0.64	45.09	0.39	0.00	0.30
G3 25 wt% Magnox 5.0% Li2O	5.00	4.90	0.00	1.61	8.12	1.84	0.48	0.00	0.00	0.00	0.00	0.61	0.64	45.09	0.39	0.00	0.30
G3 25 wt% Magnox 5.0% Li2O	5.00	4.90	0.00	1.61	8.12	1.84	0.48	0.00	0.00	0.00	0.00	0.61	0.64	45.09	0.39	0.00	0.30
G3 25 wt% Magnox 5.0% Li2O	5.00	4.90	0.00	1.61	8.12	1.84	0.48	0.00	0.00	0.00	0.00	0.61	0.64	45.09	0.39	0.00	0.30
G3 25 wt% Magnox 5.0% Li2O	5.00	4.90	0.00	1.61	8.12	1.84	0.48	0.00	0.00	0.00	0.00	0.61	0.64	45.09	0.39	0.00	0.30
G3 25 wt% Magnox 5.0% Li2O	5.00	4.90	0.00	1.61	8.12	1.84	0.48	0.00	0.00	0.00	0.00	0.61	0.64	45.09	0.39	0.00	0.30
G6 32 wt% Magnox 5.0% Li2O	**5.10**	**6.10**	0.00	**2.00**	**7.40**	**2.30**	**0.58**	0.00	0.00	0.00	0.00	**0.69**	**0.43**	**39.90**	**0.50**	0.00	**0.37**
G6 32 wt% Magnox 5.0% Li2O	**5.10**	**6.10**	0.00	**2.00**	**7.40**	**2.30**	**0.58**	0.00	0.00	0.00	0.00	**0.69**	**0.43**	**39.90**	**0.50**	0.00	**0.37**
G6 32 wt% Magnox 5.0% Li2O	**5.10**	**6.10**	0.00	**2.00**	**7.40**	**2.30**	**0.58**	0.00	0.00	0.00	0.00	**0.69**	**0.43**	**39.90**	**0.50**	0.00	**0.37**
G6 32 wt% Magnox 5.0% Li2O	**5.10**	**6.10**	0.00	**2.00**	**7.40**	**2.30**	**0.58**	0.00	0.00	0.00	0.00	**0.69**	**0.43**	**39.90**	**0.50**	0.00	**0.37**
G6 32 wt% Magnox 5.0% Li2O	**5.10**	**6.10**	0.00	**2.00**	**7.40**	**2.30**	**0.58**	0.00	0.00	0.00	0.00	**0.69**	**0.43**	**39.90**	**0.50**	0.00	**0.37**
G6 32 wt% Magnox 5.0% Li2O	**5.10**	**6.10**	0.00	**2.00**	**7.40**	**2.30**	**0.58**	0.00	0.00	0.00	0.00	**0.69**	**0.43**	**39.90**	**0.50**	0.00	**0.37**
G6 32 wt% Magnox 5.0% Li2O	**5.10**	**6.10**	0.00	**2.00**	**7.40**	**2.30**	**0.58**	0.00	0.00	0.00	0.00	**0.69**	**0.43**	**39.90**	**0.50**	0.00	**0.37**
MP 35 wt% Magnox	3.6	7.2	0.00	2.3	7.1	2.8	0.63	0.00	0.00	0.00	0	0.85	0.7	39.7	0.61	0.00	0.45
BP 31 wt% Blend HP	3.7	2	0.00	2.8	7.7	2.6	0.45	0.00	0.00	0.00	0.88	0.78	1.7	42.4	0.58	0.00	0.58
BP 31 wt% Blend HP	3.7	2	0.00	2.8	7.7	2.6	0.45	0.00	0.00	0.00	0.88	0.78	1.7	42.4	0.58	0.00	0.58
M25 25 wt% Magnox	4.05	4.83	0.00	1.62	8.25	1.80	0.47	0.00	0.00	0.00	0.00	0.62	0.62	45.90	0.37	0.00	0.30
M25 25 wt% Magnox	4.05	4.83	0.00	1.62	8.25	1.80	0.47	0.00	0.00	0.00	0.00	0.62	0.62	45.90	0.37	0.00	0.30
M25 25 wt% Magnox	4.05	4.83	0.00	1.62	8.25	1.80	0.47	0.00	0.00	0.00	0.00	0.62	0.62	45.90	0.37	0.00	0.30
M25 25 wt% Magnox	4.05	4.83	0.00	1.62	8.25	1.80	0.47	0.00	0.00	0.00	0.00	0.62	0.62	45.90	0.37	0.00	0.30
M25 25 wt% Magnox	4.05	4.83	0.00	1.62	8.25	1.80	0.47	0.00	0.00	0.00	0.00	0.62	0.62	45.90	0.37	0.00	0.30
M25 25 wt% Magnox	4.05	4.83	0.00	1.62	8.25	1.80	0.47	0.00	0.00	0.00	0.00	0.62	0.62	45.90	0.37	0.00	0.30
M25 25 wt% Magnox	4.05	4.83	0.00	1.62	8.25	1.80	0.47	0.00	0.00	0.00	0.00	0.62	0.62	45.90	0.37	0.00	0.30
G2 25 wt% Magnox 4.5% Li2O	4.50	4.90	0.00	1.61	8.17	1.84	0.48	0.00	0.00	0.00	0.00	0.61	0.64	45.41	0.39	0.00	0.30
G2 25 wt% Magnox 4.5% Li2O	4.50	4.90	0.00	1.61	8.17	1.84	0.48	0.00	0.00	0.00	0.00	0.61	0.64	45.41	0.39	0.00	0.30
G2 25 wt% Magnox 4.5% Li2O	4.50	4.90	0.00	1.61	8.17	1.84	0.48	0.00	0.00	0.00	0.00	0.61	0.64	45.41	0.39	0.00	0.30
G2 25 wt% Magnox 4.5% Li2O	4.50	4.90	0.00	1.61	8.17	1.84	0.48	0.00	0.00	0.00	0.00	0.61	0.64	45.41	0.39	0.00	0.30
G2 25 wt% Magnox 4.5% Li2O	4.50	4.90	0.00	1.61	8.17	1.84	0.48	0.00	0.00	0.00	0.00	0.61	0.64	45.41	0.39	0.00	0.30
G2 25 wt% Magnox 4.5% Li2O	4.50	4.90	0.00	1.61	8.17	1.84	0.48	0.00	0.00	0.00	0.00	0.61	0.64	45.41	0.39	0.00	0.30
G5 32 wt% Magnox 4.5% Li2O	4.50	6.27	0.00	2.06	7.36	2.35	0.62	0.00	0.00	0.00	0.00	0.78	0.82	40.91	0.49	0.00	0.38
G5 32 wt% Magnox 4.5% Li2O	4.50	6.27	0.00	2.06	7.36	2.35	0.62	0.00	0.00	0.00	0.00	0.78	0.82	40.91	0.49	0.00	0.38
G5 32 wt% Magnox 4.5% Li2O	4.50	6.27	0.00	2.06	7.36	2.35	0.62	0.00	0.00	0.00	0.00	0.78	0.82	40.91	0.49	0.00	0.38
G5 32 wt% Magnox 4.5% Li2O	4.50	6.27	0.00	2.06	7.36	2.35	0.62	0.00	0.00	0.00	0.00	0.78	0.82	40.91	0.49	0.00	0.38
G5 32 wt% Magnox 4.5% Li2O	4.50	6.27	0.00	2.06	7.36	2.35	0.62	0.00	0.00	0.00	0.00	0.78	0.82	40.91	0.49	0.00	0.38
G5 32 wt% Magnox 4.5% Li2O	4.50	6.27	0.00	2.06	7.36	2.35	0.62	0.00	0.00	0.00	0.00	0.78	0.82	40.91	0.49	0.00	0.38
G5 32 wt% Magnox 4.5% Li2O	4.50	6.27	0.00	2.06	7.36	2.35	0.62	0.00	0.00	0.00	0.00	0.78	0.82	40.91	0.49	0.00	0.38
25 wt% NDA VTR Glass	**3.90**	**4.30**	0.00	**1.40**	**8.10**	**1.70**	**0.63**	0.00	0.00	0.00	0.00	**0.53**	**0.58**	**45.20**	**0.37**	0.00	**0.29**
25 wt% NDA VTR Glass	**3.90**	**4.30**	0.00	**1.40**	**8.10**	**1.70**	**0.63**	0.00	0.00	0.00	0.00	**0.53**	**0.58**	**45.20**	**0.37**	0.00	**0.29**
25 wt% NDA VTR Glass	**3.90**	**4.30**	0.00	**1.40**	**8.10**	**1.70**	**0.63**	0.00	0.00	0.00	0.00	**0.53**	**0.58**	**45.20**	**0.37**	0.00	**0.29**
25 wt% NDA VTR Glass	**3.90**	**4.30**	0.00	**1.40**	**8.10**	**1.70**	**0.63**	0.00	0.00	0.00	0.00	**0.53**	**0.58**	**45.20**	**0.37**	0.00	**0.29**
25 wt% NDA VTR Glass	**3.90**	**4.30**	0.00	**1.40**	**8.10**	**1.70**	**0.63**	0.00	0.00	0.00	0.00	**0.53**	**0.58**	**45.20**	**0.37**	0.00	**0.29**
25 wt% NDA VTR Glass	**3.90**	**4.30**	0.00	**1.40**	**8.10**	**1.70**	**0.63**	0.00	0.00	0.00	0.00	**0.53**	**0.58**	**45.20**	**0.37**	0.00	**0.29**
G7 38 wt% Magnox 4% Li2O	**4.1**	**7.3**	0.00	**2.4**	**6.5**	**2.7**	**0.72**	0.00	0.00	0.00	0.00	**0.83**	**0.67**	**37**	**0.61**	0.00	**0.43**
G7 38 wt% Magnox 4% Li2O	**4.1**	**7.3**	0.00	**2.4**	**6.5**	**2.7**	**0.72**	0.00	0.00	0.00	0.00	**0.83**	**0.67**	**37**	**0.61**	0.00	**0.43**
G7 38 wt% Magnox 4% Li2O	**4.1**	**7.3**	0.00	**2.4**	**6.5**	**2.7**	**0.72**	0.00	0.00	0.00	0.00	**0.83**	**0.67**	**37**	**0.61**	0.00	**0.43**
G7 38 wt% Magnox 4% Li2O	**4.1**	**7.3**	0.00	**2.4**	**6.5**	**2.7**	**0.72**	0.00	0.00	0.00	0.00	**0.83**	**0.67**	**37**	**0.61**	0.00	**0.43**
G7 38 wt% Magnox 4% Li2O	**4.1**	**7.3**	0.00	**2.4**	**6.5**	**2.7**	**0.72**	0.00	0.00	0.00	0.00	**0.83**	**0.67**	**37**	**0.61**	0.00	**0.43**
G7 38 wt% Magnox 4% Li2O	**4.1**	**7.3**	0.00	**2.4**	**6.5**	**2.7**	**0.72**	0.00	0.00	0.00	0.00	**0.83**	**0.67**	**37**	**0.61**	0.00	**0.43**
G7 38 wt% Magnox 4% Li2O	**4.1**	**7.3**	0.00	**2.4**	**6.5**	**2.7**	**0.72**	0.00	0.00	0.00	0.00	**0.83**	**0.67**	**37**	**0.61**	0.00	**0.43**
G8 38 wt% Magnox 4.65% Li2O	4.65	7.47	0.00	2.41	6.65	2.78	0.72	0.00	0.00	0.00	0.00	0.94	0.95	36.94	0.59	0.00	0.44
G8 38 wt% Magnox 4.65% Li2O	4.65	7.47	0.00	2.41	6.65	2.78	0.72	0.00	0.00	0.00	0.00	0.94	0.95	36.94	0.59	0.00	0.44
G8 38 wt% Magnox 4.65% Li2O	4.65	7.47	0.00	2.41	6.65	2.78	0.72	0.00	0.00	0.00	0.00	0.94	0.95	36.94	0.59	0.00	0.44
G8 38 wt% Magnox 4.65% Li2O	4.65	7.47	0.00	2.41	6.65	2.78	0.72	0.00	0.00	0.00	0.00	0.94	0.95	36.94	0.59	0.00	0.44
G8 38 wt% Magnox 4.65% Li2O	4.65	7.47	0.00	2.41	6.65	2.78	0.72	0.00	0.00	0.00	0.00	0.94	0.95	36.94	0.59	0.00	0.44

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
MCP 38% Magnox Ca/Zn	0.26	0.00	0.00	0.00	0.28	3.5	2.3	0.00	99.94		
M28R 28 wt% Magnox	0.20	0.00	0.00	0.00	0.22	0.000	1.80	0.00	99.08		
M28R 28 wt% Magnox	0.20	0.00	0.00	0.00	0.22	0.000	1.80	0.00	99.08		
M28R 28 wt% Magnox	0.20	0.00	0.00	0.00	0.22	0.000	1.80	0.00	99.08		
M28R 28 wt% Magnox	0.20	0.00	0.00	0.00	0.22	0.000	1.80	0.00	99.08		
M28R 28 wt% Magnox	0.20	0.00	0.00	0.00	0.22	0.000	1.80	0.00	99.08		
M28R 28 wt% Magnox	0.20	0.00	0.00	0.00	0.22	0.000	1.80	0.00	99.08		
M32 32 wt% Magnox	0.25	0.00	0.00	0.00	0.26	0.000	2.00	0.00	98.78		
M32 32 wt% Magnox	0.25	0.00	0.00	0.00	0.26	0.000	2.00	0.00	98.78		
M32 32 wt% Magnox	0.25	0.00	0.00	0.00	0.26	0.000	2.00	0.00	98.78		
M32 32 wt% Magnox	0.25	0.00	0.00	0.00	0.26	0.000	2.00	0.00	98.78		
M32 32 wt% Magnox	0.25	0.00	0.00	0.00	0.26	0.000	2.00	0.00	98.78		
M32 32 wt% Magnox	0.25	0.00	0.00	0.00	0.26	0.000	2.00	0.00	98.78		
G3 25 wt% Magnox 5.0% Li2O	0.18	0.00	0.00	0.00	0.19	0.00	1.48	0.00	99.90		
G3 25 wt% Magnox 5.0% Li2O	0.18	0.00	0.00	0.00	0.19	0.00	1.48	0.00	99.90		
G3 25 wt% Magnox 5.0% Li2O	0.18	0.00	0.00	0.00	0.19	0.00	1.48	0.00	99.90		
G3 25 wt% Magnox 5.0% Li2O	0.18	0.00	0.00	0.00	0.19	0.00	1.48	0.00	99.90		
G3 25 wt% Magnox 5.0% Li2O	0.18	0.00	0.00	0.00	0.19	0.00	1.48	0.00	99.90		
G3 25 wt% Magnox 5.0% Li2O	0.18	0.00	0.00	0.00	0.19	0.00	1.48	0.00	99.90		
G6 32 wt% Magnox 5.0% Li2O	**0.21**	0.00	0.00	0.00	**0.23**	**0.00**	**1.80**	0.00	**97.03**		
G6 32 wt% Magnox 5.0% Li2O	**0.21**	0.00	0.00	0.00	**0.23**	**0.00**	**1.80**	0.00	**97.03**		
G6 32 wt% Magnox 5.0% Li2O	**0.21**	0.00	0.00	0.00	**0.23**	**0.00**	**1.80**	0.00	**97.03**		
G6 32 wt% Magnox 5.0% Li2O	**0.21**	0.00	0.00	0.00	**0.23**	**0.00**	**1.80**	0.00	**97.03**		
G6 32 wt% Magnox 5.0% Li2O	**0.21**	0.00	0.00	0.00	**0.23**	**0.00**	**1.80**	0.00	**97.03**		
G6 32 wt% Magnox 5.0% Li2O	**0.21**	0.00	0.00	0.00	**0.23**	**0.00**	**1.80**	0.00	**97.03**		
G6 32 wt% Magnox 5.0% Li2O	**0.21**	0.00	0.00	0.00	**0.23**	**0.00**	**1.80**	0.00	**97.03**		
MP 35 wt% Magnox	0.28	0.00	0.00	0.00	0.28	0.00	2.2	0.00	100.13		
BP 31 wt% Blend HP	0.32	0.00	0.00	0.00	0.36	0.00	3.2	0.00	100.93		
BP 31 wt% Blend HP	0.32	0.00	0.00	0.00	0.36	0.00	3.2	0.00	100.93		
M25 25 wt% Magnox	0.17	0.00	0.00	0.00	0.19	0.00	1.50	0.00	100.00		
M25 25 wt% Magnox	0.17	0.00	0.00	0.00	0.19	0.00	1.50	0.00	100.00		
M25 25 wt% Magnox	0.17	0.00	0.00	0.00	0.19	0.00	1.50	0.00	100.00		
M25 25 wt% Magnox	0.17	0.00	0.00	0.00	0.19	0.00	1.50	0.00	100.00		
M25 25 wt% Magnox	0.17	0.00	0.00	0.00	0.19	0.00	1.50	0.00	100.00		
M25 25 wt% Magnox	0.17	0.00	0.00	0.00	0.19	0.00	1.50	0.00	100.00		
M25 25 wt% Magnox	0.17	0.00	0.00	0.00	0.19	0.00	1.50	0.00	100.00		
G2 25 wt% Magnox 4.5% Li2O	0.18	0.00	0.00	0.00	0.19	0.00	1.48	0.00	99.90		
G2 25 wt% Magnox 4.5% Li2O	0.18	0.00	0.00	0.00	0.19	0.00	1.48	0.00	99.90		
G2 25 wt% Magnox 4.5% Li2O	0.18	0.00	0.00	0.00	0.19	0.00	1.48	0.00	99.90		
G2 25 wt% Magnox 4.5% Li2O	0.18	0.00	0.00	0.00	0.19	0.00	1.48	0.00	99.90		
G2 25 wt% Magnox 4.5% Li2O	0.18	0.00	0.00	0.00	0.19	0.00	1.48	0.00	99.90		
G2 25 wt% Magnox 4.5% Li2O	0.18	0.00	0.00	0.00	0.19	0.00	1.48	0.00	99.90		
G5 32 wt% Magnox 4.5% Li2O	0.23	0.00	0.00	0.00	0.24	0.00	1.90	0.00	99.91		
G5 32 wt% Magnox 4.5% Li2O	0.23	0.00	0.00	0.00	0.24	0.00	1.90	0.00	99.91		
G5 32 wt% Magnox 4.5% Li2O	0.23	0.00	0.00	0.00	0.24	0.00	1.90	0.00	99.91		
G5 32 wt% Magnox 4.5% Li2O	0.23	0.00	0.00	0.00	0.24	0.00	1.90	0.00	99.91		
G5 32 wt% Magnox 4.5% Li2O	0.23	0.00	0.00	0.00	0.24	0.00	1.90	0.00	99.91		
G5 32 wt% Magnox 4.5% Li2O	0.23	0.00	0.00	0.00	0.24	0.00	1.90	0.00	99.91		
G5 32 wt% Magnox 4.5% Li2O	0.23	0.00	0.00	0.00	0.24	0.00	1.90	0.00	99.91		
25 wt% NDA VTR Glass	**0.16**	0.00	0.00	0.00	**0.17**	**0.00**	**1.40**	0.00	**98.02**		
25 wt% NDA VTR Glass	**0.16**	0.00	0.00	0.00	**0.17**	**0.00**	**1.40**	0.00	**98.02**		
25 wt% NDA VTR Glass	**0.16**	0.00	0.00	0.00	**0.17**	**0.00**	**1.40**	0.00	**98.02**		
25 wt% NDA VTR Glass	**0.16**	0.00	0.00	0.00	**0.17**	**0.00**	**1.40**	0.00	**98.02**		
25 wt% NDA VTR Glass	**0.16**	0.00	0.00	0.00	**0.17**	**0.00**	**1.40**	0.00	**98.02**		
25 wt% NDA VTR Glass	**0.16**	0.00	0.00	0.00	**0.17**	**0.00**	**1.40**	0.00	**98.02**		
G7 38 wt% Magnox 4% Li2O	**0.25**	0.00	0.00	0.00	**0.28**	**0.00**	**2.2**	0.00	**97.44**		
G7 38 wt% Magnox 4% Li2O	**0.25**	0.00	0.00	0.00	**0.28**	**0.00**	**2.2**	0.00	**97.44**		
G7 38 wt% Magnox 4% Li2O	**0.25**	0.00	0.00	0.00	**0.28**	**0.00**	**2.2**	0.00	**97.44**		
G7 38 wt% Magnox 4% Li2O	**0.25**	0.00	0.00	0.00	**0.28**	**0.00**	**2.2**	0.00	**97.44**		
G7 38 wt% Magnox 4% Li2O	**0.25**	0.00	0.00	0.00	**0.28**	**0.00**	**2.2**	0.00	**97.44**		
G7 38 wt% Magnox 4% Li2O	**0.25**	0.00	0.00	0.00	**0.28**	**0.00**	**2.2**	0.00	**97.44**		
G7 38 wt% Magnox 4% Li2O	**0.25**	0.00	0.00	0.00	**0.28**	**0.00**	**2.2**	0.00	**97.44**		
G8 38 wt% Magnox 4.65% Li2O	0.27	0.00	0.00	0.00	0.29	0.00	2.26	0.00	99.92		
G8 38 wt% Magnox 4.65% Li2O	0.27	0.00	0.00	0.00	0.29	0.00	2.26	0.00	99.92		
G8 38 wt% Magnox 4.65% Li2O	0.27	0.00	0.00	0.00	0.29	0.00	2.26	0.00	99.92		
G8 38 wt% Magnox 4.65% Li2O	0.27	0.00	0.00	0.00	0.29	0.00	2.26	0.00	99.92		
G8 38 wt% Magnox 4.65% Li2O	0.27	0.00	0.00	0.00	0.29	0.00	2.26	0.00	99.92		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
M35H 35wt% Magnox	HLW	NNL-2016		7.00	0.10	9.697	67.879	**2.750**	5.00	**100-200**	1.125E-04	0.010	**ASTM I**	**90**	9.81
M35H 35wt% Magnox	HLW	NNL-2016		14.00	0.10	9.697	135.758	**2.750**	5.00	**100-200**	1.125E-04	0.010	**ASTM I**	**90**	9.77
M25H 25 wt% Magnox	HLW	NNL-2016		14.00	0.08	10.063	140.881	**2.650**	4.00	**100-200**	1.125E-04	0.008	**ASTM I**	**90**	
M25B 25 wt% Magnox	HLW	NNL-2016		21.00	0.08	8.050	169.057	**2.650**	4.00	**100-200**	1.125E-04	0.010	**ASTM I**	**90**	
B31H 31wt% Blend HP	HLW	NNL-2016		7.00	0.09	9.292	65.041	**2.870**	5.00	**100-200**	1.125E-04	0.010	**ASTM I**	**90**	9.87
B31H 31wt% Blend HP	HLW	NNL-2016		14.00	0.09	9.292	130.081	**2.870**	5.00	**100-200**	1.125E-04	0.010	**ASTM I**	**90**	
B31H 31wt% Blend HP	HLW	NNL-2016		21.00	0.09	9.292	195.122	**2.870**	5.00	**100-200**	1.125E-04	0.010	**ASTM I**	**90**	9.89
B31H 31wt% Blend HP	HLW	NNL-2016		28.00	0.09	9.292	260.163	**2.870**	5.00	**100-200**	1.125E-04	0.010	**ASTM I**	**90**	9.93
G9 38 wt% 75:25 Blend	HLW	NNL-2016		7.00	0.14	17.754	124.279	**3.004**	8.00	**100-200**	1.125E-04	0.008	**ASTM I**	**90**	9.96
G10 38 wt% 50:50 Blend	HLW	NNL-2016		7.00	0.15	18.128	126.898	**2.942**	8.00	**100-200**	1.125E-04	0.008	**ASTM I**	**90**	9.96
G10 38 wt% 50:50 Blend	HLW	NNL-2016		28.00	0.15	18.128	507.591	**2.942**	8.00	**100-200**	1.125E-04	0.008	**ASTM I**	**90**	9.89
G11 38 wt% 25:75 Blend	HLW	NNL-2016		7.00	0.15	18.773	131.409	**2.841**	8.00	**100-200**	1.125E-04	0.008	**ASTM I**	**90**	9.89
G11 38 wt% 25:75 Blend	HLW	NNL-2016		15.00	0.15	18.773	281.591	**2.841**	8.00	**100-200**	1.125E-04	0.008	**ASTM I**	**90**	9.95
G11 38 wt% 25:75 Blend	HLW	NNL-2016		26.00	0.15	18.773	488.091	**2.841**	8.00	**100-200**	1.125E-04	0.008	**ASTM I**	**90**	9.98
G7H 38 wt% Magnox 4.00% Li2O	HLW	NNL-2016		7.00	0.38	19.212	134.486	**2.776**	20.00	**100-200**	1.125E-04	0.020	**ASTM I**	**90**	
G7H 38 wt% Magnox 4.00% Li2O	HLW	NNL-2016		14.00	0.38	19.212	268.972	**2.776**	20.00	**100-200**	1.125E-04	0.020	**ASTM I**	**90**	
G7H 38 wt% Magnox 4.00% Li2O	HLW	NNL-2016		21.00	0.38	19.212	403.458	**2.776**	20.00	**100-200**	1.125E-04	0.020	**ASTM I**	**90**	
G7H 38 wt% Magnox 4.00% Li2O	HLW	NNL-2016		28.00	0.38	19.212	537.944	**2.776**	20.00	**100-200**	1.125E-04	0.020	**ASTM I**	**90**	
G7H 38 wt% Magnox 4.00% Li2O	HLW	NNL-2016		35.00	0.38	19.212	672.430	**2.776**	20.00	**100-200**	1.125E-04	0.020	**ASTM I**	**90**	
G8H 38 wt% Magnox 4.65% Li2O	HLW	NNL-2016		7.00	0.38	18.926	132.482	**2.818**	20.00	**100-200**	1.125E-04	0.020	**ASTM I**	**90**	
G8H 38 wt% Magnox 4.65% Li2O	HLW	NNL-2016		14.00	0.38	18.926	264.963	**2.818**	20.00	**100-200**	1.125E-04	0.020	**ASTM I**	**90**	
G8H 38 wt% Magnox 4.65% Li2O	HLW	NNL-2016		21.00	0.38	18.926	397.445	**2.818**	20.00	**100-200**	1.125E-04	0.020	**ASTM I**	**90**	
G8H 38 wt% Magnox 4.65% Li2O	HLW	NNL-2016		28.00	0.38	18.926	529.927	**2.818**	20.00	**100-200**	1.125E-04	0.020	**ASTM I**	**90**	
G8H 38 wt% Magnox 4.65% Li2O	HLW	NNL-2016		35.00	0.38	18.926	662.408	**2.818**	20.00	**100-200**	1.125E-04	0.020	**ASTM I**	**90**	
HSV 25 wt% NDA Glass	HLW	**NDA VTR Glass**		**7.00**	**0.20**	20.175	141.227	**2.644**	**10.00**	**100-200**	1.125E-04	**0.010**	**ASTM I**	**90**	**10.10**
HSV 25 wt% NDA Glass	HLW	**NDA VTR Glass**		**14.00**	**0.20**	20.175	282.454	**2.644**	**10.00**	**100-200**	1.125E-04	**0.010**	**ASTM I**	**90**	**9.87**
HSV 25 wt% NDA Glass	HLW	**NDA VTR Glass**		**28.00**	**0.20**	20.175	564.908	**2.644**	**10.00**	**100-200**	1.125E-04	**0.010**	**ASTM I**	**90**	**10.25**
HSV 25 wt% NDA Glass	HLW	**NDA VTR Glass**		**42.00**	**0.20**	20.175	847.361	**2.644**	**10.00**	**100-200**	1.125E-04	**0.010**	**ASTM I**	**90**	**9.92**
HSV 25 wt% NDA Glass	HLW	**NDA VTR Glass**		**7.00**	**0.35**	20.861	146.030	**2.644**	**10.00**	**200-270**	**6.400E-05**	**0.017**	**ASTM I**	**90**	
HSV 25 wt% NDA Glass	HLW	**NDA VTR Glass**		**14.00**	**0.35**	20.861	292.059	**2.644**	**10.00**	**200-270**	**6.400E-05**	**0.017**	**ASTM I**	**90**	**10.20**
HSV 25 wt% NDA Glass	HLW	**NDA VTR Glass**		**21.00**	**0.35**	20.861	438.089	**2.644**	**10.00**	**200-270**	**6.400E-05**	**0.017**	**ASTM I**	**90**	**9.91**
HSV 25 wt% NDA Glass	HLW	**NDA VTR Glass**		**28.00**	**0.35**	20.861	584.119	**2.644**	**10.00**	**200-270**	**6.400E-05**	**0.017**	**ASTM I**	**90**	**9.94**
HSV 25 wt% NDA Glass	HLW	**NDA VTR Glass**		**42.00**	**0.35**	20.861	876.178	**2.644**	**10.00**	**200-270**	**6.400E-05**	**0.017**	**ASTM I**	**90**	**10.12**
HSV 25 wt% NDA Glass	HLW	**NDA VTR Glass**		**7.00**	**0.58**	20.785	145.495	**2.644**	**10.00**	**270-500**	**3.900E-05**	**0.028**	**ASTM I**	**90**	
HSV 25 wt% NDA Glass	HLW	**NDA VTR Glass**		**14.00**	**0.58**	20.785	290.990	**2.644**	**10.00**	**270-500**	**3.900E-05**	**0.028**	**ASTM I**	**90**	**9.91**
HSV 25 wt% NDA Glass	HLW	**NDA VTR Glass**		**21.00**	**0.58**	20.785	436.484	**2.644**	**10.00**	**270-500**	**3.900E-05**	**0.028**	**ASTM I**	**90**	**9.91**
HSV 25 wt% NDA Glass	HLW	**NDA VTR Glass**		**28.00**	**0.58**	20.785	581.979	**2.644**	**10.00**	**270-500**	**3.900E-05**	**0.028**	**ASTM I**	**90**	**9.90**
HSV 25 wt% NDA Glass	HLW	**NDA VTR Glass**		**42.00**	**0.58**	20.785	872.969	**2.644**	**10.00**	**270-500**	**3.900E-05**	**0.028**	**ASTM I**	**90**	**9.92**
SRS 0/100 (8-8)	HLW	NNL-2016		7.00	0.15	18.668	130.673	**2.857**	8.00	**100-200**	**1.125E-04**	0.008	**ASTM I**	**90**	9.56
SRS 0/100 (8-8)	HLW	NNL-2016		14.00	0.15	18.668	261.346	**2.857**	8.00	**100-200**	**1.125E-04**	0.008	**ASTM I**	**90**	9.55
SRS 0/100 (4-40)	HLW	NNL-2016		7.00	0.07	1.867	13.067	**2.857**	4.00	**100-200**	**1.125E-04**	0.040	**ASTM I**	**90**	9.53
SRS 0/100 (4-40)	HLW	NNL-2016		14.00	0.07	1.884	26.369	**2.857**	3.90	**100-200**	**1.125E-04**	0.039	**ASTM I**	**90**	9.64
SRS 0/100 (4-40)	HLW	NNL-2016		28.00	0.07	1.884	52.738	**2.857**	4.00	**100-200**	**1.125E-04**	0.040	**ASTM I**	**90**	9.72
SRS 0/100 (4-40)	HLW	NNL-2016		42.00	0.07	1.884	79.107	**2.857**	4.00	**100-200**	**1.125E-04**	0.040	**ASTM I**	**90**	9.55
SRS 0/100 (4-40)	HLW	NNL-2016		56.00	0.07	1.884	105.476	**2.857**	4.00	**100-200**	**1.125E-04**	0.040	**ASTM I**	**90**	9.55
SRS 0/100 (4-40)	HLW	NNL-2016		84.00	0.07	1.884	158.214	**2.857**	4.00	**100-200**	**1.125E-04**	0.040	**ASTM I**	**90**	9.69
SRS 20/80 (8-8)	HLW	NNL-2016		7.00	0.15	19.028	133.197	**2.828**	8.00	**100-200**	**1.125E-04**	0.008	**ASTM I**	**90**	9.59
SRS 20/80 (8-8)	HLW	NNL-2016		14.00	0.15	19.028	266.394	**2.828**	8.00	**100-200**	**1.125E-04**	0.008	**ASTM I**	**90**	9.61
SRS 20/80 (4-40)	HLW	NNL-2016		7.00	0.08	1.903	13.320	**2.828**	4.00	**100-200**	**1.125E-04**	0.040	**ASTM I**	**90**	9.57
SRS 20/80 (4-40)	HLW	NNL-2016		14.00	0.08	1.903	26.639	**2.828**	4.00	**100-200**	**1.125E-04**	0.040	**ASTM I**	**90**	9.67
SRS 20/80 (4-40)	HLW	NNL-2016		28.00	0.08	1.903	53.279	**2.828**	4.00	**100-200**	**1.125E-04**	0.040	**ASTM I**	**90**	9.67
SRS 20/80 (4-40)	HLW	NNL-2016		56.00	0.08	1.903	106.558	**2.828**	4.00	**100-200**	**1.125E-04**	0.040	**ASTM I**	**90**	9.64
SRS 20/80 (4-40)	HLW	NNL-2016		84.00	0.08	1.903	159.837	**2.828**	4.00	**100-200**	**1.125E-04**	0.040	**ASTM I**	**90**	9.65
SRS 20/80 (4-40)	HLW	NNL-2016		112.00	0.08	1.903	213.115	**2.828**	4.00	**100-200**	**1.125E-04**	0.040	**ASTM I**	**90**	9.56
SRS 40/60 (8-8)	HLW	NNL-2016		7.00	0.15	19.267	134.866	**2.793**	8.00	**100-200**	**1.125E-04**	0.008	**ASTM I**	**90**	9.60
SRS 40/60 (8-8)	HLW	NNL-2016		14.00	0.15	19.267	269.733	**2.793**	8.00	**100-200**	**1.125E-04**	0.008	**ASTM I**	**90**	9.58
SRS 40/60 (4-40)	HLW	NNL-2016		112.00	0.08	1.927	215.786	**2.793**	4.00	**100-200**	**1.125E-04**	0.040	**ASTM I**	**90**	
SRS 40/60 (6-6)	HLW	NNL-2016		14.00	0.11	19.267	269.733	**2.793**	6.00	**100-200**	**1.125E-04**	0.006	**ASTM I**	**90**	9.55
SRS 60/40 (8-8)	HLW	NNL-2016		14.00	0.16	19.726	276.160	**2.728**	8.00	**100-200**	**1.125E-04**	0.008	**ASTM I**	**90**	9.57
SRS 60/40 (4-40)	HLW	NNL-2016		7.00	0.08	1.973	13.808	**2.728**	4.00	**100-200**	**1.125E-04**	0.040	**ASTM I**	**90**	9.65
SRS 60/40 (4-40)	HLW	NNL-2016		14.00	0.08	1.973	27.616	**2.728**	3.90	**100-200**	**1.125E-04**	0.039	**ASTM I**	**90**	9.54
SRS 60/40 (4-40)	HLW	NNL-2016		28.00	0.08	1.973	55.232	**2.728**	4.00	**100-200**	**1.125E-04**	0.040	**ASTM I**	**90**	9.63
SRS 60/40 (4-40)	HLW	NNL-2016		42.00	0.08	1.973	82.848	**2.728**	4.00	**100-200**	**1.125E-04**	0.040	**ASTM I**	**90**	9.63
SRS 60/40 (4-40)	HLW	NNL-2016		56.00	0.08	1.973	110.464	**2.728**	4.00	**100-200**	**1.125E-04**	0.040	**ASTM I**	**90**	9.55
SRS 60/40 (4-40)	HLW	NNL-2016		84.00	0.08	1.973	165.696	**2.728**	4.00	**100-200**	**1.125E-04**	0.040	**ASTM I**	**90**	9.55
SRS 60/40 (4-40)	HLW	NNL-2016		112.00	0.08	1.973	220.928	**2.728**	4.00	**100-200**	**1.125E-04**	0.040	**ASTM I**	**90**	9.55
SRS 60/40 (6-6)	HLW	NNL-2016		14.00	0.12	19.726	276.160	**2.728**	6.00	**100-200**	**1.125E-04**	0.006	**ASTM I**	**90**	9.58

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
M35H 35wt% Magnox	16.76	714.67			202.47	533.54				192.94	0.73			
M35H 35wt% Magnox	20.87	1651.70			435.79	1177.12				369.24	0.39			
M25H 25 wt% Magnox	48.27	1478.66			430.20	1086.65				281.20	0.37			
M25B 25 wt% Magnox	63.10	2486.65			633.60	1796.88				455.86	0.02			
B31H 31wt% Blend HP	44.60	265.22			80.71	223.91				90.16	0.00			
B31H 31wt% Blend HP	67.59	583.66			183.08	497.82				196.23	0.68			
B31H 31wt% Blend HP	74.46	670.68			206.94	569.19				223.38	0.07			
B31H 31wt% Blend HP	125.86	669.06			207.75	568.78				212.23	0.15			
G9 38 wt% 75:25 Blend	72.47	593.45		20.67	236.05	498.24				303.63	0.00			
G10 38 wt% 50:50 Blend	54.44	858.24		26.56	325.51	692.16				408.27	0.01			
G10 38 wt% 50:50 Blend	36.95	2778.83		105.35	931.95	2286.93				1616.25	0.03			
G11 38 wt% 25:75 Blend	38.20	1277.85		27.77	464.08	979.14				557.28	0.08			
G11 38 wt% 25:75 Blend	38.55	1908.26		48.03	672.62	1437.44				863.70	0.08			
G11 38 wt% 25:75 Blend	42.95	3667.45		98.53	1249.97	2806.15				1823.37	0.13			
G7H 38 wt% Magnox 4.00% Li2O	47.28	1155.32		14.74	430.53	878.25				410.96	4.35			
G7H 38 wt% Magnox 4.00% Li2O	40.65	2125.89		29.33	781.08	1611.23				839.45	3.66			
G7H 38 wt% Magnox 4.00% Li2O	39.70	2966.37		44.06	1096.93	2273.31				1262.29	3.25			
G7H 38 wt% Magnox 4.00% Li2O	55.27	4077.51		62.08	1438.64	2985.62				1713.62	3.44			
G7H 38 wt% Magnox 4.00% Li2O	68.99	4932.70		75.17	1723.44	3657.87				2145.16	6.13			
G8H 38 wt% Magnox 4.65% Li2O	52.01	1478.74		34.77	627.43	1135.90				556.40	3.20			
G8H 38 wt% Magnox 4.65% Li2O	45.65	2681.63		65.72	1118.62	2001.50				1097.70	3.01			
G8H 38 wt% Magnox 4.65% Li2O	47.02	3828.26		101.95	1621.38	2931.52				1699.01	2.92			
G8H 38 wt% Magnox 4.65% Li2O	66.84	5113.10		138.41	2034.01	3795.54				2223.51	2.10			
G8H 38 wt% Magnox 4.65% Li2O	74.81	6140.06		166.45	2407.74	4576.19				2746.44	3.02			
HSV 25 wt% NDA Glass	**119.14**	**5276.23**		**11.51**	**1439.79**	**3725.40**				**1044.63**	**0.24**			
HSV 25 wt% NDA Glass	**149.56**	**8673.14**		**21.57**	**2307.82**	**5986.95**				**1998.40**	**0.15**			
HSV 25 wt% NDA Glass	**251.02**	**10273.59**		**23.62**	**2560.49**	**7339.56**				**2258.91**	**0.09**			
HSV 25 wt% NDA Glass	**256.09**	**10856.15**		**29.41**	**2938.82**	**7389.15**				**2776.59**	**0.13**			
HSV 25 wt% NDA Glass	**144.85**	**4151.47**		**9.14**	**1200.51**	**2953.91**				**768.44**	**0.14**			
HSV 25 wt% NDA Glass	**389.76**	**8142.86**		**19.19**	**2141.67**	**5666.59**				**1711.42**	**0.04**			
HSV 25 wt% NDA Glass	**218.14**	**9463.32**		**22.36**	**2447.98**	**6578.52**				**2051.61**	**0.00**			
HSV 25 wt% NDA Glass	**217.89**	**9893.89**		**25.69**	**2663.23**	**6698.97**				**2344.68**	**0.00**			
HSV 25 wt% NDA Glass	**261.22**	**9356.62**		**25.47**	**2660.20**	**6140.95**				**2433.72**	**0.01**			
HSV 25 wt% NDA Glass	**180.93**	**4842.88**		**10.55**	**1352.92**	**3478.45**				**931.09**	**0.13**			
HSV 25 wt% NDA Glass	**238.65**	**8655.33**		**20.64**	**2212.78**	**6079.74**				**1841.41**	**0.05**			
HSV 25 wt% NDA Glass	**231.53**	**9219.30**		**22.02**	**2380.11**	**6398.61**				**1999.51**	**0.01**			
HSV 25 wt% NDA Glass	**246.51**	**10035.31**		**24.59**	**2551.49**	**6946.68**				**2263.53**	**0.00**			
HSV 25 wt% NDA Glass	**267.51**	**11053.10**		**27.02**	**2710.63**	**7676.57**				**2428.01**	**1.11**			
SRS 0/100 (8-8)	209.399	903.765		31.133	287.311	821.116		6.270		297.928	1.300			
SRS 0/100 (8-8)	220.075	1024.341		32.856	306.594	906.579		6.545		305.916	3.080			
SRS 0/100 (4-40)	211.867	403.561		14.532	131.840	402.161		3.300		157.531	0.275			
SRS 0/100 (4-40)	220.799	442.087		15.473	138.422	423.625		3.635		162.197	0.423			
SRS 0/100 (4-40)	214.810	515.980		16.534	163.323	503.064		0.000		170.929	0.000			
SRS 0/100 (4-40)	215.216	540.600		16.994	172.948	519.673		4.086		181.541	0.683			
SRS 0/100 (4-40)	206.722	565.036		16.600	179.538	536.774		3.874		183.151	0.000			
SRS 0/100 (4-40)	218.241	621.314		16.687	214.396	670.388		4.298		198.110	0.158			
SRS 20/80 (8-8)	158.902	1092.973		37.635	336.755	940.286		7.446		351.031	1.105			
SRS 20/80 (8-8)	177.703	1183.795		39.423	343.820	1000.557		7.530		353.403	2.163			
SRS 20/80 (4-40)	188.007	476.485		16.632	150.325	448.860		3.632		169.018	0.493			
SRS 20/80 (4-40)	189.893	515.835		17.449	157.884	477.256		3.836		172.638	0.524			
SRS 20/80 (4-40)	183.130	552.629		18.420	169.860	496.308		3.939		177.687	0.394			
SRS 20/80 (4-40)	175.848	627.532		19.370	191.213	558.071		4.174		196.881	0.020			
SRS 20/80 (4-40)	184.757	660.439		18.999	214.410	641.638		4.368		202.460	0.257			
SRS 20/80 (4-40)	198.713	710.135		21.381	212.611	639.509		4.648		204.691	1.485			
SRS 40/60 (8-8)	135.880	1355.981		44.430	402.357	1113.575		8.487		406.921	1.293			
SRS 40/60 (8-8)	145.975	1304.101		40.269	357.552	1061.624		8.389		357.178	4.566			
SRS 40/60 (4-40)	168.434	827.297		23.880	237.001	702.586		4.598		219.229	0.542			
SRS 40/60 (6-6)	132.284	1952.843		65.474	582.606	1637.555		12.196		582.892	5.098			
SRS 60/40 (8-8)	103.948	2376.236		76.208	632.886	1827.648		15.129		687.961	5.706			
SRS 60/40 (4-40)	136.603	531.984		16.006	162.480	455.227		3.282		151.078	0.254			
SRS 60/40 (4-40)	140.590	681.805		20.281	199.046	562.425		4.177		185.771	0.298			
SRS 60/40 (4-40)	132.029	820.500		24.111	247.050	701.026		5.052		216.510	0.017			
SRS 60/40 (4-40)	132.939	880.330		25.218	259.665	724.442		5.312		231.416	0.416			
SRS 60/40 (4-40)	127.084	840.765		23.139	245.015	684.380		4.773		221.585	0.000			
SRS 60/40 (4-40)	132.664	912.690		24.691	265.529	766.421		5.204		238.553	0.264			
SRS 60/40 (4-40)	147.739	983.205		26.601	272.247	812.398		5.235		238.036	0.844			
SRS 60/40 (6-6)	125.136	4616.508		163.118	1237.072	3663.516		34.993		1537.960	6.659			

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
M35H 35wt% Magnox				65.90	19.5263	**-5.03098714**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
M35H 35wt% Magnox				65.90	19.5263	**-5.03098714**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
M25H 25 wt% Magnox				76.03	13.57466348	**12.3328125**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
M25B 25 wt% Magnox				76.03	13.57466348	**12.3328125**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
B31H 31wt% Blend HP				70.50	13.15095	**23.59961459**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
B31H 31wt% Blend HP				70.50	13.15095	**23.59961459**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
B31H 31wt% Blend HP				70.50	13.15095	**23.59961459**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
B31H 31wt% Blend HP				70.50	13.15095	**23.59961459**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
G9 38 wt% 75:25 Blend				64.25	16.46020813	**14.92588021**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
G10 38 wt% 50:50 Blend				63.98	17.82412996	**7.665858137**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G10 38 wt% 50:50 Blend				63.98	17.82412996	**7.665858137**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
G11 38 wt% 25:75 Blend				63.70	19.18805179	**0.405836064**	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
G11 38 wt% 25:75 Blend				63.70	19.18805179	**0.405836064**	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
G11 38 wt% 25:75 Blend				63.70	19.18805179	**0.405836064**	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
G7H 38 wt% Magnox 4.00% Li2O				63.53	20.62932345	**-7.461597739**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
G7H 38 wt% Magnox 4.00% Li2O				63.53	20.62932345	**-7.461597739**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
G7H 38 wt% Magnox 4.00% Li2O				63.53	20.62932345	**-7.461597739**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
G7H 38 wt% Magnox 4.00% Li2O				63.53	20.62932345	**-7.461597739**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
G7H 38 wt% Magnox 4.00% Li2O				63.53	20.62932345	**-7.461597739**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
G8H 38 wt% Magnox 4.65% Li2O				63.52	20.62932345	**-7.447120425**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
G8H 38 wt% Magnox 4.65% Li2O				63.52	20.62932345	**-7.447120425**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
G8H 38 wt% Magnox 4.65% Li2O				63.52	20.62932345	**-7.447120425**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
G8H 38 wt% Magnox 4.65% Li2O				63.52	20.62932345	**-7.447120425**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
G8H 38 wt% Magnox 4.65% Li2O				63.52	20.62932345	**-7.447120425**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
HSV 25 wt% NDA Glass				77.30	12.07885	**18.75082097**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
HSV 25 wt% NDA Glass				77.30	12.07885	**18.75082097**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
HSV 25 wt% NDA Glass				77.30	12.07885	**18.75082097**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
HSV 25 wt% NDA Glass				77.30	12.07885	**18.75082097**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
HSV 25 wt% NDA Glass				77.30	12.07885	**18.75082097**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
HSV 25 wt% NDA Glass				77.30	12.07885	**18.75082097**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
HSV 25 wt% NDA Glass				77.30	12.07885	**18.75082097**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
HSV 25 wt% NDA Glass				77.30	12.07885	**18.75082097**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
HSV 25 wt% NDA Glass				77.30	12.07885	**18.75082097**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
HSV 25 wt% NDA Glass				77.30	12.07885	**18.75082097**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
HSV 25 wt% NDA Glass				77.30	12.07885	**18.75082097**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
HSV 25 wt% NDA Glass				77.30	12.07885	**18.75082097**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
HSV 25 wt% NDA Glass				77.30	12.07885	**18.75082097**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
HSV 25 wt% NDA Glass				77.30	12.07885	**18.75082097**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
SRS 0/100 (8-8)				74.23	12.15203598	**23.26439529**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
SRS 0/100 (8-8)				74.23	12.15203598	**23.26439529**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
SRS 0/100 (4-40)				74.23	12.15203598	**23.26439529**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
SRS 0/100 (4-40)				74.23	12.15203598	**23.26439529**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
SRS 0/100 (4-40)				74.23	12.15203598	**23.26439529**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
SRS 0/100 (4-40)				74.23	12.15203598	**23.26439529**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
SRS 0/100 (4-40)				74.23	12.15203598	**23.26439529**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
SRS 0/100 (4-40)				74.23	12.15203598	**23.26439529**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
SRS 20/80 (8-8)				74.06	12.77692411	**19.99581312**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
SRS 20/80 (8-8)				74.06	12.77692411	**19.99581312**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
SRS 20/80 (4-40)				74.06	12.77692411	**19.99581312**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
SRS 20/80 (4-40)				74.06	12.77692411	**19.99581312**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
SRS 20/80 (4-40)				74.06	12.77692411	**19.99581312**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
SRS 20/80 (4-40)				74.06	12.77692411	**19.99581312**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
SRS 20/80 (4-40)				74.06	12.77692411	**19.99581312**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
SRS 20/80 (4-40)				74.06	12.77692411	**19.99581312**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
SRS 40/60 (8-8)				73.90	13.40181224	**16.72723094**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
SRS 40/60 (8-8)				73.90	13.40181224	**16.72723094**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
SRS 40/60 (4-40)				73.90	13.40181224	**16.72723094**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
SRS 40/60 (6-6)				73.90	13.40181224	**16.72723094**	Potential ϕ-sep	Low alkali	Low Al	Potential ϕ-sep.	Low Ti
SRS 60/40 (8-8)				73.74	14.02670037	**13.45864877**	Potential ϕ-sep	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
SRS 60/40 (4-40)				73.74	14.02670037	**13.45864877**	Potential ϕ-sep	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
SRS 60/40 (4-40)				73.74	14.02670037	**13.45864877**	Potential ϕ-sep	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
SRS 60/40 (4-40)				73.74	14.02670037	**13.45864877**	Potential ϕ-sep	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
SRS 60/40 (4-40)				73.74	14.02670037	**13.45864877**	Potential ϕ-sep	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
SRS 60/40 (4-40)				73.74	14.02670037	**13.45864877**	Potential ϕ-sep	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
SRS 60/40 (4-40)				73.74	14.02670037	**13.45864877**	Potential ϕ-sep	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
SRS 60/40 (4-40)				73.74	14.02670037	**13.45864877**	Potential ϕ-sep	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
SRS 60/40 (6-6)				73.74	14.02670037	**13.45864877**	Potential ϕ-sep	Low alkali	Mid Al	HOMOGENEOUS	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
M35H 35wt% Magnox	HOMOGENEOUS	6.80	13.80	0.74	0.00	1.80	0.00	0.96	1.70	0.00	0.00	0.00	4.70	0.00	0.00	0.93
M35H 35wt% Magnox	HOMOGENEOUS	6.80	13.80	0.74	0.00	1.80	0.00	0.96	1.70	0.00	0.00	0.00	4.70	0.00	0.00	0.93
M25H 25 wt% Magnox	HOMOGENEOUS	4.93	16.80	0.60	0.00	1.15	0.00	0.77	1.03	0.00	0.00	0.00	3.33	0.00	0.08	0.62
M25B 25 wt% Magnox	HOMOGENEOUS	4.93	16.80	0.60	0.00	1.15	0.00	0.77	1.03	0.00	0.00	0.00	3.33	0.00	0.08	0.62
B31H 31wt% Blend HP	Potential ϕ-sep.	2.3	14.8	1.2	0.00	1.7	0.00	0.61	1.9	0.00	0.00	0.00	2.6	0.00	4.9	0.87
B31H 31wt% Blend HP	Potential ϕ-sep.	2.3	14.8	1.2	0.00	1.7	0.00	0.61	1.9	0.00	0.00	0.00	2.6	0.00	4.9	0.87
B31H 31wt% Blend HP	Potential ϕ-sep.	2.3	14.8	1.2	0.00	1.7	0.00	0.61	1.9	0.00	0.00	0.00	2.6	0.00	4.9	0.87
B31H 31wt% Blend HP	Potential ϕ-sep.	2.3	14.8	1.2	0.00	1.7	0.00	0.61	1.9	0.00	0.00	0.00	2.6	0.00	4.9	0.87
G9 38 wt% 75:25 Blend	Potential ϕ-sep.	2.83	13.83	1.23	0.00	2.07	0.00	0.74	2.34	0.00	0.00	0.00	3.22	0.00	6.39	1.06
G10 38 wt% 50:50 Blend	HOMOGENEOUS	4.37	13.83	1.14	0.00	1.96	0.00	0.87	2.06	0.00	0.00	0.00	3.84	0.00	4.30	1.03
G10 38 wt% 50:50 Blend	HOMOGENEOUS	4.37	13.83	1.14	0.00	1.96	0.00	0.87	2.06	0.00	0.00	0.00	3.84	0.00	4.30	1.03
G11 38 wt% 25:75 Blend	HOMOGENEOUS	5.90	13.83	1.06	0.00	1.86	0.00	1.01	1.79	0.00	0.00	0.00	4.45	0.00	2.21	1.00
G11 38 wt% 25:75 Blend	HOMOGENEOUS	5.90	13.83	1.06	0.00	1.86	0.00	1.01	1.79	0.00	0.00	0.00	4.45	0.00	2.21	1.00
G11 38 wt% 25:75 Blend	HOMOGENEOUS	5.90	13.83	1.06	0.00	1.86	0.00	1.01	1.79	0.00	0.00	0.00	4.45	0.00	2.21	1.00
G7H 38 wt% Magnox 4.00% Li2O	HOMOGENEOUS	7.49	13.83	0.78	0.00	1.71	0.00	1.13	1.62	0.00	0.00	0.00	5.04	0.00	0.11	0.93
G7H 38 wt% Magnox 4.00% Li2O	HOMOGENEOUS	7.49	13.83	0.78	0.00	1.71	0.00	1.13	1.62	0.00	0.00	0.00	5.04	0.00	0.11	0.93
G7H 38 wt% Magnox 4.00% Li2O	HOMOGENEOUS	7.49	13.83	0.78	0.00	1.71	0.00	1.13	1.62	0.00	0.00	0.00	5.04	0.00	0.11	0.93
G7H 38 wt% Magnox 4.00% Li2O	HOMOGENEOUS	7.49	13.83	0.78	0.00	1.71	0.00	1.13	1.62	0.00	0.00	0.00	5.04	0.00	0.11	0.93
G7H 38 wt% Magnox 4.00% Li2O	HOMOGENEOUS	7.49	13.83	0.78	0.00	1.71	0.00	1.13	1.62	0.00	0.00	0.00	5.04	0.00	0.11	0.93
G8H 38 wt% Magnox 4.65% Li2O	HOMOGENEOUS	7.49	13.67	0.78	0.00	1.71	0.00	1.13	1.62	0.00	0.00	0.00	5.04	0.00	0.11	0.93
G8H 38 wt% Magnox 4.65% Li2O	HOMOGENEOUS	7.49	13.67	0.78	0.00	1.71	0.00	1.13	1.62	0.00	0.00	0.00	5.04	0.00	0.11	0.93
G8H 38 wt% Magnox 4.65% Li2O	HOMOGENEOUS	7.49	13.67	0.78	0.00	1.71	0.00	1.13	1.62	0.00	0.00	0.00	5.04	0.00	0.11	0.93
G8H 38 wt% Magnox 4.65% Li2O	HOMOGENEOUS	7.49	13.67	0.78	0.00	1.71	0.00	1.13	1.62	0.00	0.00	0.00	5.04	0.00	0.11	0.93
G8H 38 wt% Magnox 4.65% Li2O	HOMOGENEOUS	7.49	13.67	0.78	0.00	1.71	0.00	1.13	1.62	0.00	0.00	0.00	5.04	0.00	0.11	0.93
HSV 25 wt% NDA Glass	HOMOGENEOUS	**4.30**	**16.70**	**0.52**	**0.00**	**1.10**	0.00	**0.64**	**1.00**	0.00	0.00	0.00	**3.00**	0.00	**0.10**	**0.56**
HSV 25 wt% NDA Glass	HOMOGENEOUS	**4.30**	**16.70**	**0.52**	**0.00**	**1.10**	0.00	**0.64**	**1.00**	0.00	0.00	0.00	**3.00**	0.00	**0.10**	**0.56**
HSV 25 wt% NDA Glass	HOMOGENEOUS	**4.30**	**16.70**	**0.52**	**0.00**	**1.10**	0.00	**0.64**	**1.00**	0.00	0.00	0.00	**3.00**	0.00	**0.10**	**0.56**
HSV 25 wt% NDA Glass	HOMOGENEOUS	**4.30**	**16.70**	**0.52**	**0.00**	**1.10**	0.00	**0.64**	**1.00**	0.00	0.00	0.00	**3.00**	0.00	**0.10**	**0.56**
HSV 25 wt% NDA Glass	HOMOGENEOUS	**4.30**	**16.70**	**0.52**	**0.00**	**1.10**	0.00	**0.64**	**1.00**	0.00	0.00	0.00	**3.00**	0.00	**0.10**	**0.56**
HSV 25 wt% NDA Glass	HOMOGENEOUS	**4.30**	**16.70**	**0.52**	**0.00**	**1.10**	0.00	**0.64**	**1.00**	0.00	0.00	0.00	**3.00**	0.00	**0.10**	**0.56**
HSV 25 wt% NDA Glass	HOMOGENEOUS	**4.30**	**16.70**	**0.52**	**0.00**	**1.10**	0.00	**0.64**	**1.00**	0.00	0.00	0.00	**3.00**	0.00	**0.10**	**0.56**
HSV 25 wt% NDA Glass	HOMOGENEOUS	**4.30**	**16.70**	**0.52**	**0.00**	**1.10**	0.00	**0.64**	**1.00**	0.00	0.00	0.00	**3.00**	0.00	**0.10**	**0.56**
HSV 25 wt% NDA Glass	HOMOGENEOUS	**4.30**	**16.70**	**0.52**	**0.00**	**1.10**	0.00	**0.64**	**1.00**	0.00	0.00	0.00	**3.00**	0.00	**0.10**	**0.56**
HSV 25 wt% NDA Glass	HOMOGENEOUS	**4.30**	**16.70**	**0.52**	**0.00**	**1.10**	0.00	**0.64**	**1.00**	0.00	0.00	0.00	**3.00**	0.00	**0.10**	**0.56**
HSV 25 wt% NDA Glass	HOMOGENEOUS	**4.30**	**16.70**	**0.52**	**0.00**	**1.10**	0.00	**0.64**	**1.00**	0.00	0.00	0.00	**3.00**	0.00	**0.10**	**0.56**
HSV 25 wt% NDA Glass	HOMOGENEOUS	**4.30**	**16.70**	**0.52**	**0.00**	**1.10**	0.00	**0.64**	**1.00**	0.00	0.00	0.00	**3.00**	0.00	**0.10**	**0.56**
HSV 25 wt% NDA Glass	HOMOGENEOUS	**4.30**	**16.70**	**0.52**	**0.00**	**1.10**	0.00	**0.64**	**1.00**	0.00	0.00	0.00	**3.00**	0.00	**0.10**	**0.56**
HSV 25 wt% NDA Glass	HOMOGENEOUS	**4.30**	**16.70**	**0.52**	**0.00**	**1.10**	0.00	**0.64**	**1.00**	0.00	0.00	0.00	**3.00**	0.00	**0.10**	**0.56**
SRS 0/100 (8-8)	Potential ϕ-sep.	0.21	16.13	1.34	0.00	1.97	0.00	0.64	2.23	0.00	0.00	0.00	2.58	0.00	4.16	0.97
SRS 0/100 (8-8)	Potential ϕ-sep.	0.21	16.13	1.34	0.00	1.97	0.00	0.64	2.23	0.00	0.00	0.00	2.58	0.00	4.16	0.97
SRS 0/100 (4-40)	Potential ϕ-sep.	0.21	16.13	1.34	0.00	1.97	0.00	0.64	2.23	0.00	0.00	0.00	2.58	0.00	4.16	0.97
SRS 0/100 (4-40)	Potential ϕ-sep.	0.21	16.13	1.34	0.00	1.97	0.00	0.64	2.23	0.00	0.00	0.00	2.58	0.00	4.16	0.97
SRS 0/100 (4-40)	Potential ϕ-sep.	0.21	16.13	1.34	0.00	1.97	0.00	0.64	2.23	0.00	0.00	0.00	2.58	0.00	4.16	0.97
SRS 0/100 (4-40)	Potential ϕ-sep.	0.21	16.13	1.34	0.00	1.97	0.00	0.64	2.23	0.00	0.00	0.00	2.58	0.00	4.16	0.97
SRS 0/100 (4-40)	Potential ϕ-sep.	0.21	16.13	1.34	0.00	1.97	0.00	0.64	2.23	0.00	0.00	0.00	2.58	0.00	4.16	0.97
SRS 0/100 (4-40)	Potential ϕ-sep.	0.21	16.13	1.34	0.00	1.97	0.00	0.64	2.23	0.00	0.00	0.00	2.58	0.00	4.16	0.97
SRS 20/80 (8-8)	Potential ϕ-sep.	1.25	16.13	1.19	0.00	1.86	0.00	0.66	2.04	0.00	0.00	0.00	2.78	0.00	3.33	0.92
SRS 20/80 (8-8)	Potential ϕ-sep.	1.25	16.13	1.19	0.00	1.86	0.00	0.66	2.04	0.00	0.00	0.00	2.78	0.00	3.33	0.92
SRS 20/80 (4-40)	Potential ϕ-sep.	1.25	16.13	1.19	0.00	1.86	0.00	0.66	2.04	0.00	0.00	0.00	2.78	0.00	3.33	0.92
SRS 20/80 (4-40)	Potential ϕ-sep.	1.25	16.13	1.19	0.00	1.86	0.00	0.66	2.04	0.00	0.00	0.00	2.78	0.00	3.33	0.92
SRS 20/80 (4-40)	Potential ϕ-sep.	1.25	16.13	1.19	0.00	1.86	0.00	0.66	2.04	0.00	0.00	0.00	2.78	0.00	3.33	0.92
SRS 20/80 (4-40)	Potential ϕ-sep.	1.25	16.13	1.19	0.00	1.86	0.00	0.66	2.04	0.00	0.00	0.00	2.78	0.00	3.33	0.92
SRS 20/80 (4-40)	Potential ϕ-sep.	1.25	16.13	1.19	0.00	1.86	0.00	0.66	2.04	0.00	0.00	0.00	2.78	0.00	3.33	0.92
SRS 20/80 (4-40)	Potential ϕ-sep.	1.25	16.13	1.19	0.00	1.86	0.00	0.66	2.04	0.00	0.00	0.00	2.78	0.00	3.33	0.92
SRS 40/60 (8-8)	Potential ϕ-sep.	2.29	16.13	1.04	0.00	1.74	0.00	0.67	1.86	0.00	0.00	0.00	2.98	0.00	2.49	0.87
SRS 40/60 (8-8)	Potential ϕ-sep.	2.29	16.13	1.04	0.00	1.74	0.00	0.67	1.86	0.00	0.00	0.00	2.98	0.00	2.49	0.87
SRS 40/60 (4-40)	Potential ϕ-sep.	2.29	16.13	1.04	0.00	1.74	0.00	0.67	1.86	0.00	0.00	0.00	2.98	0.00	2.49	0.87
SRS 40/60 (6-6)	Potential ϕ-sep.	2.29	16.13	1.04	0.00	1.74	0.00	0.67	1.86	0.00	0.00	0.00	2.98	0.00	2.49	0.87
SRS 60/40 (8-8)	HOMOGENEOUS	3.32	16.13	0.89	0.00	1.62	0.00	0.69	1.67	0.00	0.00	0.00	3.18	0.00	1.66	0.81
SRS 60/40 (4-40)	HOMOGENEOUS	3.32	16.13	0.89	0.00	1.62	0.00	0.69	1.67	0.00	0.00	0.00	3.18	0.00	1.66	0.81
SRS 60/40 (4-40)	HOMOGENEOUS	3.32	16.13	0.89	0.00	1.62	0.00	0.69	1.67	0.00	0.00	0.00	3.18	0.00	1.66	0.81
SRS 60/40 (4-40)	HOMOGENEOUS	3.32	16.13	0.89	0.00	1.62	0.00	0.69	1.67	0.00	0.00	0.00	3.18	0.00	1.66	0.81
SRS 60/40 (4-40)	HOMOGENEOUS	3.32	16.13	0.89	0.00	1.62	0.00	0.69	1.67	0.00	0.00	0.00	3.18	0.00	1.66	0.81
SRS 60/40 (4-40)	HOMOGENEOUS	3.32	16.13	0.89	0.00	1.62	0.00	0.69	1.67	0.00	0.00	0.00	3.18	0.00	1.66	0.81
SRS 60/40 (4-40)	HOMOGENEOUS	3.32	16.13	0.89	0.00	1.62	0.00	0.69	1.67	0.00	0.00	0.00	3.18	0.00	1.66	0.81
SRS 60/40 (4-40)	HOMOGENEOUS	3.32	16.13	0.89	0.00	1.62	0.00	0.69	1.67	0.00	0.00	0.00	3.18	0.00	1.66	0.81
SRS 60/40 (6-6)	HOMOGENEOUS	3.32	16.13	0.89	0.00	1.62	0.00	0.69	1.67	0.00	0.00	0.00	3.18	0.00	1.66	0.81

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
M35H 35wt% Magnox	3.60	7.20	0.00	2.30	7.10	2.80	0.63	0.00	0.00	0.00	0.00	0.85	0.70	39.70	0.61	0.00	0.45
M35H 35wt% Magnox	3.60	7.20	0.00	2.30	7.10	2.80	0.63	0.00	0.00	0.00	0.00	0.85	0.70	39.70	0.61	0.00	0.45
M25H 25 wt% Magnox	4.05	4.83	0.00	1.62	8.25	1.80	0.47	0.00	0.00	0.00	0.00	0.62	0.62	45.90	0.37	0.00	0.30
M25B 25 wt% Magnox	4.05	4.83	0.00	1.62	8.25	1.80	0.47	0.00	0.00	0.00	0.00	0.62	0.62	45.90	0.37	0.00	0.30
B31H 31wt% Blend HP	3.7	2	0.00	2.8	7.7	2.6	0.45	0.00	0.00	0.00	0.88	0.78	1.7	42.4	0.58	0.00	0.58
B31H 31wt% Blend HP	3.7	2	0.00	2.8	7.7	2.6	0.45	0.00	0.00	0.00	0.88	0.78	1.7	42.4	0.58	0.00	0.58
B31H 31wt% Blend HP	3.7	2	0.00	2.8	7.7	2.6	0.45	0.00	0.00	0.00	0.88	0.78	1.7	42.4	0.58	0.00	0.58
B31H 31wt% Blend HP	3.7	2	0.00	2.8	7.7	2.6	0.45	0.00	0.00	0.00	0.88	0.78	1.7	42.4	0.58	0.00	0.58
G9 38 wt% 75:25 Blend	4.00	2.42	0.00	3.53	6.72	3.37	0.47	0.00	0.00	0.00	0.00	0.99	1.09	37.36	0.81	0.00	0.68
G10 38 wt% 50:50 Blend	4.00	4.07	0.00	3.14	6.72	3.17	0.56	0.00	0.00	0.00	0.00	0.96	1.09	37.36	0.73	0.00	0.61
G10 38 wt% 50:50 Blend	4.00	4.07	0.00	3.14	6.72	3.17	0.56	0.00	0.00	0.00	0.00	0.96	1.09	37.36	0.73	0.00	0.61
G11 38 wt% 25:75 Blend	4.00	5.72	0.00	2.75	6.72	2.98	0.64	0.00	0.00	0.00	0.00	0.93	1.09	37.36	0.66	0.00	0.54
G11 38 wt% 25:75 Blend	4.00	5.72	0.00	2.75	6.72	2.98	0.64	0.00	0.00	0.00	0.00	0.93	1.09	37.36	0.66	0.00	0.54
G11 38 wt% 25:75 Blend	4.00	5.72	0.00	2.75	6.72	2.98	0.64	0.00	0.00	0.00	0.00	0.93	1.09	37.36	0.66	0.00	0.54
G7H 38 wt% Magnox 4.00% Li2O	4.00	7.44	0.00	2.45	6.72	2.79	0.73	0.00	0.00	0.00	0.00	0.93	0.98	37.36	0.59	0.00	0.45
G7H 38 wt% Magnox 4.00% Li2O	4.00	7.44	0.00	2.45	6.72	2.79	0.73	0.00	0.00	0.00	0.00	0.93	0.98	37.36	0.59	0.00	0.45
G7H 38 wt% Magnox 4.00% Li2O	4.00	7.44	0.00	2.45	6.72	2.79	0.73	0.00	0.00	0.00	0.00	0.93	0.98	37.36	0.59	0.00	0.45
G7H 38 wt% Magnox 4.00% Li2O	4.00	7.44	0.00	2.45	6.72	2.79	0.73	0.00	0.00	0.00	0.00	0.93	0.98	37.36	0.59	0.00	0.45
G7H 38 wt% Magnox 4.00% Li2O	4.00	7.44	0.00	2.45	6.72	2.79	0.73	0.00	0.00	0.00	0.00	0.93	0.98	37.36	0.59	0.00	0.45
G8H 38 wt% Magnox 4.65% Li2O	4.65	7.44	0.00	2.45	6.65	2.79	0.73	0.00	0.00	0.00	0.00	0.93	0.98	36.94	0.59	0.00	0.45
G8H 38 wt% Magnox 4.65% Li2O	4.65	7.44	0.00	2.45	6.65	2.79	0.73	0.00	0.00	0.00	0.00	0.93	0.98	36.94	0.59	0.00	0.45
G8H 38 wt% Magnox 4.65% Li2O	4.65	7.44	0.00	2.45	6.65	2.79	0.73	0.00	0.00	0.00	0.00	0.93	0.98	36.94	0.59	0.00	0.45
G8H 38 wt% Magnox 4.65% Li2O	4.65	7.44	0.00	2.45	6.65	2.79	0.73	0.00	0.00	0.00	0.00	0.93	0.98	36.94	0.59	0.00	0.45
G8H 38 wt% Magnox 4.65% Li2O	4.65	7.44	0.00	2.45	6.65	2.79	0.73	0.00	0.00	0.00	0.00	0.93	0.98	36.94	0.59	0.00	0.45
HSV 25 wt% NDA Glass	**4.00**	**4.50**	0.00	**1.40**	**8.50**	**1.60**	**0.48**	0.00	0.00	0.00	0.00	**0.52**	**0.49**	**47.10**	**0.36**	0.00	**0.29**
HSV 25 wt% NDA Glass	**4.00**	**4.50**	0.00	**1.40**	**8.50**	**1.60**	**0.48**	0.00	0.00	0.00	0.00	**0.52**	**0.49**	**47.10**	**0.36**	0.00	**0.29**
HSV 25 wt% NDA Glass	**4.00**	**4.50**	0.00	**1.40**	**8.50**	**1.60**	**0.48**	0.00	0.00	0.00	0.00	**0.52**	**0.49**	**47.10**	**0.36**	0.00	**0.29**
HSV 25 wt% NDA Glass	**4.00**	**4.50**	0.00	**1.40**	**8.50**	**1.60**	**0.48**	0.00	0.00	0.00	0.00	**0.52**	**0.49**	**47.10**	**0.36**	0.00	**0.29**
HSV 25 wt% NDA Glass	**4.00**	**4.50**	0.00	**1.40**	**8.50**	**1.60**	**0.48**	0.00	0.00	0.00	0.00	**0.52**	**0.49**	**47.10**	**0.36**	0.00	**0.29**
HSV 25 wt% NDA Glass	**4.00**	**4.50**	0.00	**1.40**	**8.50**	**1.60**	**0.48**	0.00	0.00	0.00	0.00	**0.52**	**0.49**	**47.10**	**0.36**	0.00	**0.29**
HSV 25 wt% NDA Glass	**4.00**	**4.50**	0.00	**1.40**	**8.50**	**1.60**	**0.48**	0.00	0.00	0.00	0.00	**0.52**	**0.49**	**47.10**	**0.36**	0.00	**0.29**
HSV 25 wt% NDA Glass	**4.00**	**4.50**	0.00	**1.40**	**8.50**	**1.60**	**0.48**	0.00	0.00	0.00	0.00	**0.52**	**0.49**	**47.10**	**0.36**	0.00	**0.29**
HSV 25 wt% NDA Glass	**4.00**	**4.50**	0.00	**1.40**	**8.50**	**1.60**	**0.48**	0.00	0.00	0.00	0.00	**0.52**	**0.49**	**47.10**	**0.36**	0.00	**0.29**
HSV 25 wt% NDA Glass	**4.00**	**4.50**	0.00	**1.40**	**8.50**	**1.60**	**0.48**	0.00	0.00	0.00	0.00	**0.52**	**0.49**	**47.10**	**0.36**	0.00	**0.29**
HSV 25 wt% NDA Glass	**4.00**	**4.50**	0.00	**1.40**	**8.50**	**1.60**	**0.48**	0.00	0.00	0.00	0.00	**0.52**	**0.49**	**47.10**	**0.36**	0.00	**0.29**
HSV 25 wt% NDA Glass	**4.00**	**4.50**	0.00	**1.40**	**8.50**	**1.60**	**0.48**	0.00	0.00	0.00	0.00	**0.52**	**0.49**	**47.10**	**0.36**	0.00	**0.29**
HSV 25 wt% NDA Glass	**4.00**	**4.50**	0.00	**1.40**	**8.50**	**1.60**	**0.48**	0.00	0.00	0.00	0.00	**0.52**	**0.49**	**47.10**	**0.36**	0.00	**0.29**
HSV 25 wt% NDA Glass	**4.00**	**4.50**	0.00	**1.40**	**8.50**	**1.60**	**0.48**	0.00	0.00	0.00	0.00	**0.52**	**0.49**	**47.10**	**0.36**	0.00	**0.29**
SRS 0/100 (8-8)	3.82	0.00	0.00	2.84	7.99	3.24	0.40	0.75	0.00	0.00	0.00	0.95	0.00	44.06	0.67	0.00	0.62
SRS 0/100 (8-8)	3.82	0.00	0.00	2.84	7.99	3.24	0.40	0.75	0.00	0.00	0.00	0.95	0.00	44.06	0.67	0.00	0.62
SRS 0/100 (4-40)	3.82	0.00	0.00	2.84	7.99	3.24	0.40	0.75	0.00	0.00	0.00	0.95	0.00	44.06	0.67	0.00	0.62
SRS 0/100 (4-40)	3.82	0.00	0.00	2.84	7.99	3.24	0.40	0.75	0.00	0.00	0.00	0.95	0.00	44.06	0.67	0.00	0.62
SRS 0/100 (4-40)	3.82	0.00	0.00	2.84	7.99	3.24	0.40	0.75	0.00	0.00	0.00	0.95	0.00	44.06	0.67	0.00	0.62
SRS 0/100 (4-40)	3.82	0.00	0.00	2.84	7.99	3.24	0.40	0.75	0.00	0.00	0.00	0.95	0.00	44.06	0.67	0.00	0.62
SRS 0/100 (4-40)	3.82	0.00	0.00	2.84	7.99	3.24	0.40	0.75	0.00	0.00	0.00	0.95	0.00	44.06	0.67	0.00	0.62
SRS 0/100 (4-40)	3.82	0.00	0.00	2.84	7.99	3.24	0.40	0.75	0.00	0.00	0.00	0.95	0.00	44.06	0.67	0.00	0.62
SRS 20/80 (8-8)	3.82	1.15	0.00	2.62	8.01	3.05	0.41	0.64	0.00	0.00	0.00	0.90	0.00	44.06	0.63	0.03	0.56
SRS 20/80 (8-8)	3.82	1.15	0.00	2.62	8.01	3.05	0.41	0.64	0.00	0.00	0.00	0.90	0.00	44.06	0.63	0.03	0.56
SRS 20/80 (4-40)	3.82	1.15	0.00	2.62	8.01	3.05	0.41	0.64	0.00	0.00	0.00	0.90	0.00	44.06	0.63	0.03	0.56
SRS 20/80 (4-40)	3.82	1.15	0.00	2.62	8.01	3.05	0.41	0.64	0.00	0.00	0.00	0.90	0.00	44.06	0.63	0.03	0.56
SRS 20/80 (4-40)	3.82	1.15	0.00	2.62	8.01	3.05	0.41	0.64	0.00	0.00	0.00	0.90	0.00	44.06	0.63	0.03	0.56
SRS 20/80 (4-40)	3.82	1.15	0.00	2.62	8.01	3.05	0.41	0.64	0.00	0.00	0.00	0.90	0.00	44.06	0.63	0.03	0.56
SRS 20/80 (4-40)	3.82	1.15	0.00	2.62	8.01	3.05	0.41	0.64	0.00	0.00	0.00	0.90	0.00	44.06	0.63	0.03	0.56
SRS 20/80 (4-40)	3.82	1.15	0.00	2.62	8.01	3.05	0.41	0.64	0.00	0.00	0.00	0.90	0.00	44.06	0.63	0.03	0.56
SRS 40/60 (8-8)	3.82	2.29	0.00	2.41	8.04	2.85	0.42	0.53	0.00	0.00	0.00	0.84	0.00	44.06	0.59	0.05	0.51
SRS 40/60 (8-8)	3.82	2.29	0.00	2.41	8.04	2.85	0.42	0.53	0.00	0.00	0.00	0.84	0.00	44.06	0.59	0.05	0.51
SRS 40/60 (4-40)	3.82	2.29	0.00	2.41	8.04	2.85	0.42	0.53	0.00	0.00	0.00	0.84	0.00	44.06	0.59	0.05	0.51
SRS 40/60 (6-6)	3.82	2.29	0.00	2.41	8.04	2.85	0.42	0.53	0.00	0.00	0.00	0.84	0.00	44.06	0.59	0.05	0.51
SRS 60/40 (8-8)	3.82	3.44	0.00	2.19	8.06	2.66	0.43	0.42	0.00	0.00	0.00	0.79	0.00	44.06	0.55	0.08	0.45
SRS 60/40 (4-40)	3.82	3.44	0.00	2.19	8.06	2.66	0.43	0.42	0.00	0.00	0.00	0.79	0.00	44.06	0.55	0.08	0.45
SRS 60/40 (4-40)	3.82	3.44	0.00	2.19	8.06	2.66	0.43	0.42	0.00	0.00	0.00	0.79	0.00	44.06	0.55	0.08	0.45
SRS 60/40 (4-40)	3.82	3.44	0.00	2.19	8.06	2.66	0.43	0.42	0.00	0.00	0.00	0.79	0.00	44.06	0.55	0.08	0.45
SRS 60/40 (4-40)	3.82	3.44	0.00	2.19	8.06	2.66	0.43	0.42	0.00	0.00	0.00	0.79	0.00	44.06	0.55	0.08	0.45
SRS 60/40 (4-40)	3.82	3.44	0.00	2.19	8.06	2.66	0.43	0.42	0.00	0.00	0.00	0.79	0.00	44.06	0.55	0.08	0.45
SRS 60/40 (4-40)	3.82	3.44	0.00	2.19	8.06	2.66	0.43	0.42	0.00	0.00	0.00	0.79	0.00	44.06	0.55	0.08	0.45
SRS 60/40 (4-40)	3.82	3.44	0.00	2.19	8.06	2.66	0.43	0.42	0.00	0.00	0.00	0.79	0.00	44.06	0.55	0.08	0.45
SRS 60/40 (6-6)	3.82	3.44	0.00	2.19	8.06	2.66	0.43	0.42	0.00	0.00	0.00	0.79	0.00	44.06	0.55	0.08	0.45

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
M35H 35wt% Magnox	0.28	0.00	0.00	0.00	0.28	0.00	2.20	0.00	100.13		
M35H 35wt% Magnox	0.28	0.00	0.00	0.00	0.28	0.00	2.20	0.00	100.13		
M25H 25 wt% Magnox	0.17	0.00	0.00	0.00	0.19	0.00	1.50	0.00	100.00		
M25B 25 wt% Magnox	0.17	0.00	0.00	0.00	0.19	0.00	1.50	0.00	100.00		
B31H 31wt% Blend HP	0.32	0.00	0.00	0.00	0.36	0.00	3.2	0.00	100.93		
B31H 31wt% Blend HP	0.32	0.00	0.00	0.00	0.36	0.00	3.2	0.00	100.93		
B31H 31wt% Blend HP	0.32	0.00	0.00	0.00	0.36	0.00	3.2	0.00	100.93		
B31H 31wt% Blend HP	0.32	0.00	0.00	0.00	0.36	0.00	3.2	0.00	100.93		
G9 38 wt% 75:25 Blend	0.39	0.00	0.00	0.00	0.47	0.00	3.83	0.00	99.86		
G10 38 wt% 50:50 Blend	0.35	0.00	0.00	0.00	0.41	0.00	3.30	0.00	99.88		
G10 38 wt% 50:50 Blend	0.35	0.00	0.00	0.00	0.41	0.00	3.30	0.00	99.88		
G11 38 wt% 25:75 Blend	0.30	0.00	0.00	0.00	0.35	0.00	2.77	0.00	99.90		
G11 38 wt% 25:75 Blend	0.30	0.00	0.00	0.00	0.35	0.00	2.77	0.00	99.90		
G11 38 wt% 25:75 Blend	0.30	0.00	0.00	0.00	0.35	0.00	2.77	0.00	99.90		
G7H 38 wt% Magnox 4.00% Li2O	0.27	0.00	0.00	0.00	0.29	0.00	2.25	0.00	99.91		
G7H 38 wt% Magnox 4.00% Li2O	0.27	0.00	0.00	0.00	0.29	0.00	2.25	0.00	99.91		
G7H 38 wt% Magnox 4.00% Li2O	0.27	0.00	0.00	0.00	0.29	0.00	2.25	0.00	99.91		
G7H 38 wt% Magnox 4.00% Li2O	0.27	0.00	0.00	0.00	0.29	0.00	2.25	0.00	99.91		
G7H 38 wt% Magnox 4.00% Li2O	0.27	0.00	0.00	0.00	0.29	0.00	2.25	0.00	99.91		
G8H 38 wt% Magnox 4.65% Li2O	0.27	0.00	0.00	0.00	0.29	0.00	2.25	0.00	99.91		
G8H 38 wt% Magnox 4.65% Li2O	0.27	0.00	0.00	0.00	0.29	0.00	2.25	0.00	99.91		
G8H 38 wt% Magnox 4.65% Li2O	0.27	0.00	0.00	0.00	0.29	0.00	2.25	0.00	99.91		
G8H 38 wt% Magnox 4.65% Li2O	0.27	0.00	0.00	0.00	0.29	0.00	2.25	0.00	99.91		
G8H 38 wt% Magnox 4.65% Li2O	0.27	0.00	0.00	0.00	0.29	0.00	2.25	0.00	99.91		
HSV 25 wt% NDA Glass	**0.17**	0.00	0.00	0.00	**0.17**	**0.00**	**1.40**	0.00	**98.90**		
HSV 25 wt% NDA Glass	**0.17**	0.00	0.00	0.00	**0.17**	**0.00**	**1.40**	0.00	**98.90**		
HSV 25 wt% NDA Glass	**0.17**	0.00	0.00	0.00	**0.17**	**0.00**	**1.40**	0.00	**98.90**		
HSV 25 wt% NDA Glass	**0.17**	0.00	0.00	0.00	**0.17**	**0.00**	**1.40**	0.00	**98.90**		
HSV 25 wt% NDA Glass	**0.17**	0.00	0.00	0.00	**0.17**	**0.00**	**1.40**	0.00	**98.90**		
HSV 25 wt% NDA Glass	**0.17**	0.00	0.00	0.00	**0.17**	**0.00**	**1.40**	0.00	**98.90**		
HSV 25 wt% NDA Glass	**0.17**	0.00	0.00	0.00	**0.17**	**0.00**	**1.40**	0.00	**98.90**		
HSV 25 wt% NDA Glass	**0.17**	0.00	0.00	0.00	**0.17**	**0.00**	**1.40**	0.00	**98.90**		
HSV 25 wt% NDA Glass	**0.17**	0.00	0.00	0.00	**0.17**	**0.00**	**1.40**	0.00	**98.90**		
HSV 25 wt% NDA Glass	**0.17**	0.00	0.00	0.00	**0.17**	**0.00**	**1.40**	0.00	**98.90**		
HSV 25 wt% NDA Glass	**0.17**	0.00	0.00	0.00	**0.17**	**0.00**	**1.40**	0.00	**98.90**		
HSV 25 wt% NDA Glass	**0.17**	0.00	0.00	0.00	**0.17**	**0.00**	**1.40**	0.00	**98.90**		
HSV 25 wt% NDA Glass	**0.17**	0.00	0.00	0.00	**0.17**	**0.00**	**1.40**	0.00	**98.90**		
HSV 25 wt% NDA Glass	**0.17**	0.00	0.00	0.00	**0.17**	**0.00**	**1.40**	0.00	**98.90**		
SRS 0/100 (8-8)	0.34	0.00	0.00	0.00	0.44	0.00	3.66	0.00	100.00		
SRS 0/100 (8-8)	0.34	0.00	0.00	0.00	0.44	0.00	3.66	0.00	100.00		
SRS 0/100 (4-40)	0.34	0.00	0.00	0.00	0.44	0.00	3.66	0.00	100.00		
SRS 0/100 (4-40)	0.34	0.00	0.00	0.00	0.44	0.00	3.66	0.00	100.00		
SRS 0/100 (4-40)	0.34	0.00	0.00	0.00	0.44	0.00	3.66	0.00	100.00		
SRS 0/100 (4-40)	0.34	0.00	0.00	0.00	0.44	0.00	3.66	0.00	100.00		
SRS 0/100 (4-40)	0.34	0.00	0.00	0.00	0.44	0.00	3.66	0.00	100.00		
SRS 0/100 (4-40)	0.34	0.00	0.00	0.00	0.44	0.00	3.66	0.00	100.00		
SRS 20/80 (8-8)	0.31	0.00	0.00	0.00	0.39	0.00	3.27	0.00	100.00		
SRS 20/80 (8-8)	0.31	0.00	0.00	0.00	0.39	0.00	3.27	0.00	100.00		
SRS 20/80 (4-40)	0.31	0.00	0.00	0.00	0.39	0.00	3.27	0.00	100.00		
SRS 20/80 (4-40)	0.31	0.00	0.00	0.00	0.39	0.00	3.27	0.00	100.00		
SRS 20/80 (4-40)	0.31	0.00	0.00	0.00	0.39	0.00	3.27	0.00	100.00		
SRS 20/80 (4-40)	0.31	0.00	0.00	0.00	0.39	0.00	3.27	0.00	100.00		
SRS 20/80 (4-40)	0.31	0.00	0.00	0.00	0.39	0.00	3.27	0.00	100.00		
SRS 20/80 (4-40)	0.31	0.00	0.00	0.00	0.39	0.00	3.27	0.00	100.00		
SRS 40/60 (8-8)	0.29	0.00	0.00	0.00	0.35	0.00	2.88	0.00	100.00		
SRS 40/60 (8-8)	0.29	0.00	0.00	0.00	0.35	0.00	2.88	0.00	100.00		
SRS 40/60 (4-40)	0.29	0.00	0.00	0.00	0.35	0.00	2.88	0.00	100.00		
SRS 40/60 (6-6)	0.29	0.00	0.00	0.00	0.35	0.00	2.88	0.00	100.00		
SRS 60/40 (8-8)	0.26	0.00	0.00	0.00	0.30	0.00	2.50	0.00	100.00		
SRS 60/40 (4-40)	0.26	0.00	0.00	0.00	0.30	0.00	2.50	0.00	100.00		
SRS 60/40 (4-40)	0.26	0.00	0.00	0.00	0.30	0.00	2.50	0.00	100.00		
SRS 60/40 (4-40)	0.26	0.00	0.00	0.00	0.30	0.00	2.50	0.00	100.00		
SRS 60/40 (4-40)	0.26	0.00	0.00	0.00	0.30	0.00	2.50	0.00	100.00		
SRS 60/40 (4-40)	0.26	0.00	0.00	0.00	0.30	0.00	2.50	0.00	100.00		
SRS 60/40 (4-40)	0.26	0.00	0.00	0.00	0.30	0.00	2.50	0.00	100.00		
SRS 60/40 (4-40)	0.26	0.00	0.00	0.00	0.30	0.00	2.50	0.00	100.00		
SRS 60/40 (6-6)	0.26	0.00	0.00	0.00	0.30	0.00	2.50	0.00	100.00		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
SRS 100/0 (8-8)	HLW	NNL-2016		7.00	0.16	19.989	139.926	**2.692**	8.00	**100-200**	**1.125E-04**	0.008	**ASTM I**	**90**	9.58
SRS 100/0 (4-40)	HLW	NNL-2016		7.00	0.08	1.999	13.993	**2.692**	4.00	**100-200**	**1.125E-04**	0.040	**ASTM I**	**90**	9.55
SRS 100/0 (4-40)	HLW	NNL-2016		14.00	0.08	1.999	27.985	**2.692**	4.00	**100-200**	**1.125E-04**	0.040	**ASTM I**	**90**	9.59
SRS 100/0 (4-40)	HLW	NNL-2016		28.00	0.08	1.999	55.971	**2.692**	4.00	**100-200**	**1.125E-04**	0.040	**ASTM I**	**90**	9.62
SRS 100/0 (4-40)	HLW	NNL-2016		42.00	0.08	1.999	83.956	**2.692**	4.00	**100-200**	**1.125E-04**	0.040	**ASTM I**	**90**	9.60
SRS 100/0 (4-40)	HLW	NNL-2016		56.00	0.08	1.999	111.941	**2.692**	4.00	**100-200**	**1.125E-04**	0.040	**ASTM I**	**90**	9.52
SRS 100/0 (4-40)	HLW	NNL-2016		84.00	0.08	1.999	167.912	**2.692**	4.00	**100-200**	**1.125E-04**	0.040	**ASTM I**	**90**	9.53
SRS 100/0 (4-40)	HLW	NNL-2016		112.00	0.08	1.999	223.882	**2.692**	4.00	**100-200**	**1.125E-04**	0.040	**ASTM I**	**90**	9.54
SRS 100/0 (6-6)	HLW	NNL-2016		14.00	0.12	19.989	279.853	**2.692**	6.00	**100-200**	**1.125E-04**	0.006	**ASTM I**	**90**	9.54
12S-G-85C		VSL-11R2270-1		7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.66
12U-G-86A		VSL-11R2270-1		7.00	0.81	2.031	14.214	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.87
A3-AN104		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.84
A3C2		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.79
C2-AN102C35		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.84
GTSD-1126		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.18
GTSD-1437		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.71
LA126CCC		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.86
LA137SRCCC		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.85
LA44CCCR2		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.02
LA44PNCC		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.81
LAWA170		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.21
LAWB96		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.33
LAWC21		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.64
LAWCrP1R		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.58
LAWCrP2R		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.75
LAWCrP3R		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.43
LAWCrP4R		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.84
LAWCrP5		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.08
LAWCrP6		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.34
LAWCrP7		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.01
LAWE10H		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.25
LAWE10HCr3CCC		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	9.97
LAWE11		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.88
LAWE12		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.74
LAWE13		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.62
LAWE14		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.58
LAWE15		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.61
LAWE16		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.61
LAWE2H		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.62
LAWE3		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.24
LAWE3Cr2CCC		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.96
LAWE3H		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.66
LAWE4H		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.24
LAWE5H		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.06
LAWE7H		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.14
LAWE9H		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.75
LAWE9HCr1CCC		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.33
LAWE9HCr2CCC		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.28
LAWM1		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.84
LAWM10		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.06
LAWM11		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.54
LAWM12		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.92
LAWM13		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	12.34
LAWM14		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.72
LAWM15		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.37
LAWM16		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.58
LAWM17		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.55
LAWM18		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.53
LAWM19		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.48
LAWM2		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.03
LAWM20		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.91
LAWM21		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.97
LAWM22		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.04
LAWM23		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.84
LAWM24		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.57
LAWM25R1		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.03
LAWM26		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.18

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
SRS 100/0 (8-8)	94.985	4605.558		114.097	1230.271	3252.412		24.721	1.241	1139.847	1.641			
SRS 100/0 (4-40)	106.099	538.987		11.369	164.064	430.447		2.509	0.045	112.267	0.291			
SRS 100/0 (4-40)	107.028	896.015		18.761	258.485	672.987		4.050	0.115	180.737	0.249			
SRS 100/0 (4-40)	95.176	1472.977		31.616	420.221	1079.479		7.107	0.073	303.712	0.200			
SRS 100/0 (4-40)	93.161	1926.157		42.667	528.897	1436.497		9.228	0.152	407.438	0.429			
SRS 100/0 (4-40)	87.856	2143.405		47.629	577.382	1567.467		10.424	0.000	495.000	0.084			
SRS 100/0 (4-40)	104.659	2612.590		56.191	675.906	2118.825		12.792	0.056	593.706	0.267			
SRS 100/0 (4-40)	112.300	3632.931		88.000	820.346	2892.999		1812.178	0.075	753.128	0.414			
SRS 100/0 (6-6)	124.475	12284.183		346.084	2985.610	8845.226		73.053	1.431	3509.823	3.480			
12S-G-85C	68.340	21.130	0.32		7.390	71.150	2.21	3.600	0.000		0.310	0.000	0.000	0.000
12U-G-86A	75.100	22.430	0.14		0.000	113.840	2.57	7.370	0.000		0.310	0.000	0.000	0.000
A3-AN104	84.500	33.320	0.52		11.250	115.100	0.00	3.020	0.000		0.000	0.000	0.000	0.000
A3C2	75.980	25.627	0.33		6.213	100.030	1.59	4.663	0.000		0.000	0.000	0.000	0.000
C2-AN102C35	64.190	19.820	1.59		11.220	66.860	0.00	2.180	0.000		0.000	0.000	0.000	0.000
GTSD-1126	53.440	17.920	1.55		12.150	22.490	0.00	0.680	0.000		0.000	0.000	0.000	0.000
GTSD-1437	65.340	20.710	0.65		9.720	65.320	0.00	2.020	0.000		0.000	0.000	0.000	0.000
LA126CCC	67.410	28.930	0.00		0.000	116.930	14.99	6.380	0.000		0.000	0.000	0.460	0.000
LA137SRCCC	89.680	33.310	0.25		10.860	104.880	3.74	3.300	0.000		0.000	0.000	0.490	0.000
LA44CCCR2	79.340	18.190	0.10		0.000	107.310	0.00	7.290	0.000		0.400	0.000	0.600	0.000
LA44PNCC	69.670	18.360	0.00		0.000	99.800	0.00	6.550	0.000		0.250	0.000	0.570	0.000
LAWA170	77.720	39.280	0.00		0.000	188.770	16.40	8.950	0.000		0.300	0.000	0.000	0.000
LAWB96	54.920	17.140	1.12		12.600	22.960	0.00	1.180	0.000		0.000	0.000	0.000	0.000
LAWC21	56.730	20.470	0.44		8.820	62.940	0.00	2.510	0.000		0.000	0.000	0.000	0.000
LAWCrP1R	61.090	17.550	0.00		0.000	94.130	0.00	8.290	0.000		0.000	0.000	0.000	0.000
LAWCrP2R	75.840	34.280	0.00		0.000	163.380	0.00	8.310	0.000		0.000	0.000	0.440	0.000
LAWCrP3R	73.340	23.310	0.00		0.000	121.590	0.00	7.490	0.000		0.000	0.000	0.000	0.000
LAWCrP4R	76.890	27.140	0.00		0.000	136.180	0.00	9.420	0.000		0.000	0.000	0.000	0.000
LAWCrP5	102.550	45.530	0.10		15.630	156.560	1.69	3.960	0.000		0.000	0.000	0.000	0.000
LAWCrP6	58.180	20.810	0.11		13.610	34.180	0.00	2.870	0.000		0.000	0.000	0.000	0.000
LAWCrP7	49.940	15.030	0.22		11.420	14.220	0.00	2.180	0.000		0.000	0.000	0.000	0.000
LAWE10H	47.870	14.080	1.79		9.990	18.380	1.89	1.050	0.000		0.000	0.000	0.000	0.000
LAWE10HCr3CCC	32.850	8.210	0.55		7.080	12.140	0.00	3.170	0.000		0.000	0.000	0.000	0.000
LAWE11	64.500	34.030	0.00		0.000	116.770	20.55	6.920	0.000		0.260	0.000	0.000	0.000
LAWE12	92.750	65.270	0.10		0.000	310.370	56.58	12.160	0.000		0.000	0.000	0.690	0.000
LAWE13	77.660	76.160	0.00		0.000	289.560	51.64	12.770	0.000		0.000	0.000	0.480	0.000
LAWE14	99.310	90.460	0.52		0.000	352.450	63.62	8.610	0.000		0.000	0.000	0.000	0.000
LAWE15	90.100	61.810	0.00		0.000	300.550	52.36	12.490	2.620		0.960	0.000	0.000	0.000
LAWE16	83.970	42.480	0.10		0.000	238.760	41.69	10.790	0.000		0.000	0.000	0.000	0.000
LAWE2H	97.860	75.570	0.25		0.000	301.110	33.71	11.460	2.710		0.770	0.000	0.000	0.000
LAWE3	73.490	59.180	0.00		0.000	191.010	33.66	7.920	0.000		0.340	0.000	0.650	0.000
LAWE3Cr2CCC	67.920	36.300	0.00		0.000	148.620	27.13	8.630	0.000		0.000	0.000	0.000	0.000
LAWE3H	99.900	87.080	0.16		0.000	326.060	56.51	11.780	1.910		0.520	0.000	0.000	0.000
LAWE4H	87.920	38.340	0.11		0.000	189.700	2.95	8.780	0.000		0.260	0.000	0.000	0.000
LAWE5H	78.420	23.950	0.13		0.000	129.840	2.36	5.500	0.000		0.000	0.000	0.000	0.000
LAWE7H	81.850	32.720	0.43		14.170	103.170	3.11	3.070	0.000		0.000	0.000	0.000	0.000
LAWE9H	63.160	20.450	0.87		14.270	46.460	3.00	1.970	0.000		0.000	0.000	0.000	0.000
LAWE9HCr1CCC	42.250	12.500	0.33		9.680	30.180	2.02	6.130	0.000		0.000	0.000	0.000	0.000
LAWE9HCr2CCC	41.860	15.540	0.86		8.620	32.430	0.00	3.140	0.000		0.000	0.000	0.000	0.000
LAWM1	27.310	2.850	4.11		7.320	10.810	6.47	4.270	0.000		0.000	0.000	0.000	0.000
LAWM10	26.250	9.780	2.52		8.090	42.940	0.00	4.460	0.000		0.000	0.000	0.000	0.000
LAWM11	120.250	46.930	1.67		30.200	120.370	37.96	2.430	0.000		0.000	0.000	0.000	0.000
LAWM12	468.130	1198.500	0.35		367.430	1700.800	350.67	3.870	0.000		0.330	0.490	0.000	0.000
LAWM13	223.030	46.120	0.24		0.000	804.930	108.67	14.270	0.000		0.000	0.000	0.000	0.000
LAWM14	276.330	37.170	0.33		5.120	352.770	0.00	3.800	0.000		0.000	0.000	0.000	0.000
LAWM15	101.220	63.090	0.00		0.000	251.330	0.00	14.850	2.100		1.830	0.740	0.670	0.000
LAWM16	31.340	10.620	2.41		5.760	30.790	0.00	3.450	0.000		0.000	0.000	0.000	0.000
LAWM17	178.970	467.030	0.33		18.970	1006.330	78.67	2.740	0.000		0.000	0.000	0.000	0.000
LAWM18	37.390	16.120	0.81		7.990	37.770	0.00	4.230	0.000		0.000	0.000	0.000	0.000
LAWM19	36.130	18.800	2.14		1.400	54.120	6.54	2.640	0.000		0.000	0.000	0.000	0.000
LAWM2	67.170	12.570	5.14		18.040	31.740	0.00	0.000	0.000		0.000	0.000	0.000	0.000
LAWM20	147.500	58.050	0.76		26.670	343.570	32.92	3.100	0.000		0.000	0.000	0.000	0.000
LAWM21	61.490	30.160	0.67		13.190	70.940	11.16	1.490	0.000		0.000	0.000	0.000	0.000
LAWM22	56.350	8.530	0.00		0.000	78.570	6.66	8.600	0.000		0.000	0.000	0.500	0.000
LAWM23	45.740	6.060	1.36		6.620	37.940	5.09	1.580	0.000		0.000	0.000	0.000	0.000
LAWM24	62.850	39.260	0.00		2.200	103.830	6.49	8.640	1.190		0.270	0.000	0.520	0.000
LAWM25R1	61.980	30.370	0.00		9.270	42.730	6.36	5.900	0.000		0.390	0.000	0.000	0.000
LAWM26	48.990	15.770	0.98		7.400	26.370	0.00	3.510	0.000		0.000	0.000	0.000	0.000

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
SRS 100/0 (8-8)				73.41	15.265365	**6.991636553**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
SRS 100/0 (4-40)				73.41	15.265365	**6.991636553**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
SRS 100/0 (4-40)				73.41	15.265365	**6.991636553**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
SRS 100/0 (4-40)				73.41	15.265365	**6.991636553**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
SRS 100/0 (4-40)				73.41	15.265365	**6.991636553**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
SRS 100/0 (4-40)				73.41	15.265365	**6.991636553**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
SRS 100/0 (4-40)				73.41	15.265365	**6.991636553**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
SRS 100/0 (4-40)				73.41	15.265365	**6.991636553**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
SRS 100/0 (6-6)				73.41	15.265365	**6.991636553**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
12S-G-85C				73.69	15.082	7.5862829	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
12U-G-86A				73.69	15.082	7.5862829	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
A3-AN104				73.47	16.453	0.1927121	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
A3C2				73.61	15.539	5.1217593	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
C2-AN102C35				72.03	17.034	-0.7828267	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
GTSD-1126				68.81	18.268	-2.5825279	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
GTSD-1437				72.32	17.09	-1.5705325	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LA126CCC				76.44	13.215	13.7114795	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LA137SRCCC				73.72	16.443	-0.1516849	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LA44CCCR2				73.62	15.117	7.4992514	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LA44PNCC				73.62	15.117	7.4992514	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWA170				76.47	13.549	11.7866303	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWB96				68.67	18.232	-2.1563206	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWC21				71.66	19.047	-11.5617601	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWCrP1R				73.88	14.363	11.3423861	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWCrP2R				74.33	13.703	14.3339276	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWCrP3R				72.93	14.362	12.8649449	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWCrP4R				73.28	13.7	16.04096	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWCrP5				70.64	17.428	-0.7840054	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWCrP6				67.04	18.553	-1.3667839	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWCrP7				66.54	18.593	-0.7893424	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWE10H				69.58	18.562	-5.4808831	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWE10HCr3CCC				69.25	18.548	-4.8758659	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWE11				75.93	13.934	10.4765138	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWE12				75.76	13.284	14.4073508	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWE13				76.76	14.285	7.150403	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWE14				78.28	11.779	18.8776943	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWE15				76.78	12.779	15.6351443	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWE16				76.16	12.76	16.728605	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWE2H				76.76	13.286	12.7941587	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWE3				76.17	13.625	11.8256195	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWE3Cr2CCC				74.87	13.627	13.9084949	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWE3H				76.76	13.279	12.8385038	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWE4H				76.15	13.818	10.7788886	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWE5H				74.94	15.021	5.9184062	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWE7H				71.95	17.786	-4.9081063	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWE9H				70.45	18.412	-6.0335686	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWE9HCr1CCC				69.84	18.391	-4.9416403	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWE9HCr2CCC				70.01	18.395	-5.2368265	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWM1				64.26	27.131	-45.3510718	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	High Ti
LAWM10				70.75	19.011	-9.9040648	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	High Ti
LAWM11				79.82	18.234	-20.0482447	HOMOGENEOUS	High alkali	Mid Al	Potential ϕ-sep.	Low Ti
LAWM12				77.98	5.811	53.0551937	Potential ϕ-sep	High alkali	Mid Al	Potential ϕ-sep.	High Ti
LAWM13				71.80	21.505	-25.666939	HOMOGENEOUS	High alkali	Mid Al	Potential ϕ-sep.	High Ti
LAWM14				80.88	5.545	49.9169795	Potential ϕ-sep	High alkali	Mid Al	Potential ϕ-sep.	High Ti
LAWM15				74.83	15.282	4.6287329	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
LAWM16				67.60	22.517	-24.6430021	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	High Ti
LAWM17				73.53	13.719	15.5391908	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWM18				67.14	22.514	-23.8932592	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	High Ti
LAWM19				69.65	17.993	-2.3859439	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWM2				62.71	21.572	-11.4679231	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	High Ti
LAWM20				70.28	15.004	13.4819183	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWM21				67.96	19.52	-8.295409	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	High Ti
LAWM22				68.42	16.48	8.1378965	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWM23				70.60	15.033	12.8178401	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
LAWM24				78.72	16.5	-8.4943165	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWM25R1				77.03	13.698	10.0407341	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWM26				75.03	14.977	6.0290084	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
SRS 100/0 (8-8)	HOMOGENEOUS	5.400	16.130	0.590	0.00	1.390	0.00	0.730	1.300	0.00	0.00	0.00	3.590	0.00	0.000	0.700
SRS 100/0 (4-40)	HOMOGENEOUS	5.400	16.130	0.590	0.00	1.390	0.00	0.730	1.300	0.00	0.00	0.00	3.590	0.00	0.000	0.700
SRS 100/0 (4-40)	HOMOGENEOUS	5.400	16.130	0.590	0.00	1.390	0.00	0.730	1.300	0.00	0.00	0.00	3.590	0.00	0.000	0.700
SRS 100/0 (4-40)	HOMOGENEOUS	5.400	16.130	0.590	0.00	1.390	0.00	0.730	1.300	0.00	0.00	0.00	3.590	0.00	0.000	0.700
SRS 100/0 (4-40)	HOMOGENEOUS	5.400	16.130	0.590	0.00	1.390	0.00	0.730	1.300	0.00	0.00	0.00	3.590	0.00	0.000	0.700
SRS 100/0 (4-40)	HOMOGENEOUS	5.400	16.130	0.590	0.00	1.390	0.00	0.730	1.300	0.00	0.00	0.00	3.590	0.00	0.000	0.700
SRS 100/0 (4-40)	HOMOGENEOUS	5.400	16.130	0.590	0.00	1.390	0.00	0.730	1.300	0.00	0.00	0.00	3.590	0.00	0.000	0.700
SRS 100/0 (4-40)	HOMOGENEOUS	5.400	16.130	0.590	0.00	1.390	0.00	0.730	1.300	0.00	0.00	0.00	3.590	0.00	0.000	0.700
SRS 100/0 (6-6)	HOMOGENEOUS	5.400	16.130	0.590	0.00	1.390	0.00	0.730	1.300	0.00	0.00	0.00	3.590	0.00	0.000	0.700
12S-G-85C	HOMOGENEOUS	6.161	8.952	0.00	1.980	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.941	0.440	0.00	0.00
12U-G-86A	HOMOGENEOUS	6.161	8.952	0.00	1.980	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.941	0.440	0.00	0.00
A3-AN104	HOMOGENEOUS	6.051	9.921	0.00	5.031	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.371	0.330	0.00	0.00
A3C2	HOMOGENEOUS	6.124	9.275	0.00	2.997	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.418	0.403	0.00	0.00
C2-AN102C35	HOMOGENEOUS	6.075	9.428	0.00	7.356	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.603	0.090	0.00	0.00
GTSD-1126	HOMOGENEOUS	6.183	10.041	0.00	6.784	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.301	0.120	0.00	0.00
GTSD-1437	HOMOGENEOUS	6.091	9.463	0.00	7.386	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.613	0.090	0.00	0.00
LA126CCC	HOMOGENEOUS	5.652	9.854	0.00	2.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.562	3.882	0.00	0.00
LA137SRCCC	HOMOGENEOUS	6.051	9.911	0.00	5.031	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.361	0.620	0.00	0.00
LA44CCCR2	HOMOGENEOUS	6.173	8.874	0.00	1.981	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.963	0.260	0.00	0.00
LA44PNCC	HOMOGENEOUS	6.173	8.874	0.00	1.981	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.963	0.260	0.00	0.00
LAWA170	HOMOGENEOUS	6.056	9.664	0.00	1.980	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.513	3.055	0.00	0.00
LAWB96	HOMOGENEOUS	6.171	10.027	0.00	6.772	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.289	0.120	0.00	0.00
LAWC21	HOMOGENEOUS	6.139	10.104	0.00	6.419	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.489	0.150	0.00	0.00
LAWCrP1R	HOMOGENEOUS	6.101	10.002	0.00	2.761	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.501	0.125	0.00	0.00
LAWCrP2R	HOMOGENEOUS	6.099	9.998	0.00	2.105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.499	0.275	0.00	0.00
LAWCrP3R	HOMOGENEOUS	6.101	10.001	0.00	2.761	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.500	0.125	0.00	0.00
LAWCrP4R	HOMOGENEOUS	6.098	9.997	0.00	2.104	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.498	0.275	0.00	0.00
LAWCrP5	HOMOGENEOUS	6.108	10.013	0.00	5.813	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.507	0.087	0.00	0.00
LAWCrP6	HOMOGENEOUS	6.104	10.007	0.00	6.945	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.504	0.087	0.00	0.00
LAWCrP7	HOMOGENEOUS	6.104	10.007	0.00	6.985	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.504	0.087	0.00	0.00
LAWE10H	HOMOGENEOUS	6.086	9.976	0.00	6.978	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.498	0.541	0.00	0.00
LAWE10HCr3CCC	HOMOGENEOUS	6.081	9.968	0.00	6.973	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.494	0.541	0.00	0.00
LAWE11	HOMOGENEOUS	6.106	10.010	0.00	2.322	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.506	4.755	0.00	0.00
LAWE12	HOMOGENEOUS	6.952	8.753	0.00	1.971	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.361	5.412	0.00	0.00
LAWE13	HOMOGENEOUS	6.952	9.753	0.00	1.971	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.362	5.412	0.00	0.00
LAWE14	HOMOGENEOUS	4.942	9.754	0.00	1.471	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.366	5.412	0.00	0.00
LAWE15	HOMOGENEOUS	5.942	8.754	0.00	1.471	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.366	5.412	0.00	0.00
LAWE16	HOMOGENEOUS	5.934	8.241	0.00	1.468	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.358	5.404	0.00	0.00
LAWE2H	HOMOGENEOUS	5.951	9.751	0.00	1.970	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.365	3.790	0.00	0.00
LAWE3	HOMOGENEOUS	6.102	10.003	0.00	2.021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.502	4.992	0.00	0.00
LAWE3Cr2CCC	HOMOGENEOUS	6.103	10.005	0.00	2.021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.503	4.992	0.00	0.00
LAWE3H	HOMOGENEOUS	5.942	9.743	0.00	1.971	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.366	5.412	0.00	0.00
LAWE4H	HOMOGENEOUS	5.974	9.796	0.00	2.461	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.383	0.540	0.00	0.00
LAWE5H	HOMOGENEOUS	5.997	9.821	0.00	3.614	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.410	0.541	0.00	0.00
LAWE7H	HOMOGENEOUS	6.027	9.882	0.00	6.318	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.441	0.541	0.00	0.00
LAWE9H	HOMOGENEOUS	6.066	9.946	0.00	6.878	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.468	0.541	0.00	0.00
LAWE9HCr1CCC	HOMOGENEOUS	6.059	9.934	0.00	6.870	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.462	0.541	0.00	0.00
LAWE9HCr2CCC	HOMOGENEOUS	6.060	9.937	0.00	6.872	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.463	0.541	0.00	0.00
LAWM1	HOMOGENEOUS	9.044	6.029	0.00	10.048	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.039	4.019	0.00	0.00
LAWM10	HOMOGENEOUS	9.005	13.007	0.00	10.006	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	0.00
LAWM11	Potential ϕ-sep.	3.504	13.013	0.00	9.413	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.317	4.004	0.00	0.00
LAWM12	Potential ϕ-sep.	3.501	13.005	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.310	4.002	0.00	0.00
LAWM13	Potential ϕ-sep.	3.501	6.001	0.00	10.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.002	3.785	0.00	0.00
LAWM14	Potential ϕ-sep.	3.500	6.000	0.00	2.045	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	0.00
LAWM15	HOMOGENEOUS	8.999	9.356	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.283	0.000	0.00	0.00
LAWM16	HOMOGENEOUS	8.006	12.008	0.00	8.006	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.505	0.100	0.00	0.00
LAWM17	HOMOGENEOUS	5.002	12.004	0.00	2.215	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.502	2.001	0.00	0.00
LAWM18	HOMOGENEOUS	8.005	12.007	0.00	8.005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.504	0.100	0.00	0.00
LAWM19	HOMOGENEOUS	7.997	11.996	0.00	7.997	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.999	1.999	0.00	0.00
LAWM2	Potential ϕ-sep.	3.512	6.020	0.00	10.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.027	0.000	0.00	0.00
LAWM20	HOMOGENEOUS	5.001	7.002	0.00	8.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.001	2.001	0.00	0.00
LAWM21	HOMOGENEOUS	5.005	10.901	0.00	8.008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.507	2.002	0.00	0.00
LAWM22	HOMOGENEOUS	7.990	6.992	0.00	1.998	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.492	1.998	0.00	0.00
LAWM23	HOMOGENEOUS	5.011	7.015	0.00	8.018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.004	2.004	0.00	0.00
LAWM24	HOMOGENEOUS	8.000	12.001	0.00	2.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.500	2.000	0.00	0.00
LAWM25R1	HOMOGENEOUS	8.011	12.017	0.00	2.003	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.684	2.003	0.00	0.00
LAWM26	HOMOGENEOUS	8.006	12.008	0.00	4.970	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.001	0.100	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
SRS 100/0 (8-8)	3.820	5.730	0.00	1.760	8.100	2.280	0.450	0.00	0.00	0.00	0.00	0.680	0.000	44.060	0.470	0.00	0.340
SRS 100/0 (4-40)	3.820	5.730	0.00	1.760	8.100	2.280	0.450	0.00	0.00	0.00	0.00	0.680	0.000	44.060	0.470	0.00	0.340
SRS 100/0 (4-40)	3.820	5.730	0.00	1.760	8.100	2.280	0.450	0.00	0.00	0.00	0.00	0.680	0.000	44.060	0.470	0.00	0.340
SRS 100/0 (4-40)	3.820	5.730	0.00	1.760	8.100	2.280	0.450	0.00	0.00	0.00	0.00	0.680	0.000	44.060	0.470	0.00	0.340
SRS 100/0 (4-40)	3.820	5.730	0.00	1.760	8.100	2.280	0.450	0.00	0.00	0.00	0.00	0.680	0.000	44.060	0.470	0.00	0.340
SRS 100/0 (4-40)	3.820	5.730	0.00	1.760	8.100	2.280	0.450	0.00	0.00	0.00	0.00	0.680	0.000	44.060	0.470	0.00	0.340
SRS 100/0 (4-40)	3.820	5.730	0.00	1.760	8.100	2.280	0.450	0.00	0.00	0.00	0.00	0.680	0.000	44.060	0.470	0.00	0.340
SRS 100/0 (4-40)	3.820	5.730	0.00	1.760	8.100	2.280	0.450	0.00	0.00	0.00	0.00	0.680	0.000	44.060	0.470	0.00	0.340
SRS 100/0 (6-6)	3.820	5.730	0.00	1.760	8.100	2.280	0.450	0.00	0.00	0.00	0.00	0.680	0.000	44.060	0.470	0.00	0.340
12S-G-85C	0.000	1.980	0.00	0.00	19.964	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.329	0.00	0.00	0.00
12U-G-86A	0.000	1.980	0.00	0.00	19.964	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.329	0.00	0.00	0.00
A3-AN104	2.480	1.480	0.00	0.00	14.641	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.095	0.00	0.00	0.00
A3C2	0.827	1.813	0.00	0.00	18.190	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.918	0.00	0.00	0.00
C2-AN102C35	3.253	1.491	0.00	0.00	11.980	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.278	0.00	0.00	0.00
GTSD-1126	4.309	2.976	0.00	0.00	5.492	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.843	0.00	0.00	0.00
GTSD-1437	3.271	1.495	0.00	0.00	12.032	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.467	0.00	0.00	0.00
LA126CCC	0.000	1.481	0.00	0.00	18.467	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.238	0.00	0.00	0.00
LA137SRCCC	2.480	1.480	0.00	0.00	14.641	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.065	0.00	0.00	0.00
LA44CCCR2	0.000	1.971	0.00	0.00	20.010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.472	0.00	0.00	0.00
LA44PNCC	0.000	1.971	0.00	0.00	20.010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.472	0.00	0.00	0.00
LAWA170	0.000	1.473	0.00	0.00	19.905	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.841	0.00	0.00	0.00
LAWB96	4.297	2.975	0.00	0.00	5.479	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.743	0.00	0.00	0.00
LAWC21	2.744	1.512	0.00	0.00	11.897	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.766	0.00	0.00	0.00
LAWCrP1R	0.000	1.480	0.00	0.00	19.347	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.401	0.00	0.00	0.00
LAWCrP2R	0.000	1.480	0.00	0.00	20.996	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.065	0.00	0.00	0.00
LAWCrP3R	0.000	1.480	0.00	0.00	19.345	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.458	0.00	0.00	0.00
LAWCrP4R	0.000	1.480	0.00	0.00	20.994	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.014	0.00	0.00	0.00
LAWCrP5	2.642	1.488	0.00	0.00	14.395	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.505	0.00	0.00	0.00
LAWCrP6	4.173	2.552	0.00	0.00	8.006	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.770	0.00	0.00	0.00
LAWCrP7	4.303	2.932	0.00	0.00	5.404	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.741	0.00	0.00	0.00
LAWE10H	4.271	2.948	0.00	0.00	5.735	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.054	0.00	0.00	0.00
LAWE10HCr3CCC	4.268	2.945	0.00	0.00	5.730	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.742	0.00	0.00	0.00
LAWE11	0.000	1.481	0.00	0.00	17.377	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.784	0.00	0.00	0.00
LAWE12	0.000	1.440	0.00	0.00	19.746	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.853	0.00	0.00	0.00
LAWE13	0.000	0.440	0.00	0.00	19.746	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.853	0.00	0.00	0.00
LAWE14	0.000	0.440	0.00	0.00	19.748	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.363	0.00	0.00	0.00
LAWE15	0.000	0.940	0.00	0.00	19.748	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.863	0.00	0.00	0.00
LAWE16	0.000	0.939	0.00	0.00	19.719	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.798	0.00	0.00	0.00
LAWE2H	0.000	1.440	0.00	0.00	20.782	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.440	0.00	0.00	0.00
LAWE3	0.000	1.480	0.00	0.00	18.215	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.963	0.00	0.00	0.00
LAWE3Cr2CCC	0.000	1.481	0.00	0.00	18.219	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.651	0.00	0.00	0.00
LAWE3H	0.000	1.440	0.00	0.00	19.746	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.859	0.00	0.00	0.00
LAWE4H	0.000	1.451	0.00	0.00	21.283	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.527	0.00	0.00	0.00
LAWE5H	0.491	1.452	0.00	0.00	18.991	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.096	0.00	0.00	0.00
LAWE7H	3.174	1.492	0.00	0.00	13.546	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.810	0.00	0.00	0.00
LAWE9H	4.091	2.366	0.00	0.00	8.953	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.919	0.00	0.00	0.00
LAWE9HCr1CCC	4.086	2.363	0.00	0.00	8.943	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.339	0.00	0.00	0.00
LAWE9HCr2CCC	4.087	2.364	0.00	0.00	8.945	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.503	0.00	0.00	0.00
LAWM1	4.522	0.000	0.00	0.00	5.024	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.666	0.00	0.00	0.00
LAWM10	4.503	0.000	0.00	0.00	13.074	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.170	0.00	0.00	0.00
LAWM11	4.505	0.000	0.00	0.00	11.491	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.804	0.00	0.00	0.00
LAWM12	4.502	1.971	0.00	0.00	14.259	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.215	0.00	0.00	0.00
LAWM13	0.000	0.000	0.00	0.00	22.005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.009	0.00	0.00	0.00
LAWM14	0.881	5.000	0.00	0.00	21.999	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.997	0.00	0.00	0.00
LAWM15	0.000	3.724	0.00	0.00	21.998	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.471	0.00	0.00	0.00
LAWM16	3.002	1.001	0.00	0.00	10.007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.480	0.00	0.00	0.00
LAWM17	0.500	3.501	0.00	0.00	17.006	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.015	0.00	0.00	0.00
LAWM18	3.002	1.001	0.00	0.00	10.006	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.025	0.00	0.00	0.00
LAWM19	0.500	1.000	0.00	0.00	13.170	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.986	0.00	0.00	0.00
LAWM2	4.515	5.017	0.00	0.00	5.017	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.157	0.00	0.00	0.00
LAWM20	2.265	3.501	0.00	0.00	17.004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.011	0.00	0.00	0.00
LAWM21	3.003	1.001	0.00	0.00	10.010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.042	0.00	0.00	0.00
LAWM22	0.499	3.496	0.00	0.00	16.979	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.949	0.00	0.00	0.00
LAWM23	3.007	1.002	0.00	0.00	10.022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.547	0.00	0.00	0.00
LAWM24	0.641	1.000	0.00	0.00	17.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.076	0.00	0.00	0.00
LAWM25R1	3.004	3.505	0.00	0.00	10.014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.991	0.00	0.00	0.00
LAWM26	3.002	1.001	0.00	0.00	10.007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.909	0.00	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
SRS 100/0 (8-8)	0.200	0.00	0.00	0.00	0.210	0.00	1.720	0.00	99.65		
SRS 100/0 (4-40)	0.200	0.00	0.00	0.00	0.210	0.00	1.720	0.00	99.65		
SRS 100/0 (4-40)	0.200	0.00	0.00	0.00	0.210	0.00	1.720	0.00	99.65		
SRS 100/0 (4-40)	0.200	0.00	0.00	0.00	0.210	0.00	1.720	0.00	99.65		
SRS 100/0 (4-40)	0.200	0.00	0.00	0.00	0.210	0.00	1.720	0.00	99.65		
SRS 100/0 (4-40)	0.200	0.00	0.00	0.00	0.210	0.00	1.720	0.00	99.65		
SRS 100/0 (4-40)	0.200	0.00	0.00	0.00	0.210	0.00	1.720	0.00	99.65		
SRS 100/0 (4-40)	0.200	0.00	0.00	0.00	0.210	0.00	1.720	0.00	99.65		
SRS 100/0 (6-6)	0.200	0.00	0.00	0.00	0.210	0.00	1.720	0.00	99.65		
12S-G-85C	0.00	0.00	1.980	0.00	0.00	2.951	2.971	1.120	99.77		
12U-G-86A	0.00	0.00	1.980	0.00	0.00	2.951	2.971	1.120	99.77		
A3-AN104	0.00	0.00	1.130	0.00	0.00	3.040	3.000	1.080	99.65		
A3C2	0.00	0.00	1.697	0.00	0.00	2.981	2.981	1.107	99.73		
C2-AN102C35	0.00	0.00	1.081	0.00	0.00	3.993	3.002	0.831	99.46		
GTSD-1126	0.00	0.00	1.393	0.00	0.00	4.860	3.177	0.070	99.55		
GTSD-1437	0.00	0.00	1.084	0.00	0.00	4.004	3.011	0.702	99.71		
LA126CCC	0.00	0.00	2.001	0.00	0.00	2.961	3.001	0.610	99.71		
LA137SRCCC	0.00	0.00	1.130	0.00	0.00	3.040	3.000	0.920	99.73		
LA44CCCR2	0.00	0.00	1.971	0.00	0.00	2.911	2.991	1.211	99.79		
LA44PNCC	0.00	0.00	1.971	0.00	0.00	2.911	2.991	1.211	99.79		
LAWA170	0.00	0.00	1.984	0.00	0.00	2.936	2.976	0.406	99.79		
LAWB96	0.00	0.00	1.392	0.00	0.00	4.858	3.175	0.220	99.52		
LAWC21	0.00	0.00	1.122	0.00	0.00	3.024	3.024	0.320	99.71		
LAWCrP1R	0.00	0.00	1.400	0.00	0.00	3.501	3.001	2.010	99.63		
LAWCrP2R	0.00	0.00	1.400	0.00	0.00	3.499	2.999	2.225	99.64		
LAWCrP3R	0.00	0.00	1.400	0.00	0.00	3.500	3.000	2.948	99.62		
LAWCrP4R	0.00	0.00	1.400	0.00	0.00	3.499	2.999	3.272	99.63		
LAWCrP5	0.00	0.00	1.402	0.00	0.00	3.504	3.004	2.151	99.62		
LAWCrP6	0.00	0.00	1.401	0.00	0.00	3.502	3.002	3.367	99.42		
LAWCrP7	0.00	0.00	1.401	0.00	0.00	3.502	3.002	3.367	99.34		
LAWE10H	0.00	0.00	1.394	0.00	0.00	3.489	2.998	0.491	99.46		
LAWE10HCr3CCC	0.00	0.00	1.393	0.00	0.00	3.486	2.995	0.763	99.38		
LAWE11	0.00	0.00	1.401	0.00	0.00	3.504	3.003	0.501	99.75		
LAWE12	0.00	0.00	1.370	0.00	0.00	3.411	3.921	0.490	99.68		
LAWE13	0.00	0.00	0.370	0.00	0.00	3.411	3.921	0.490	99.68		
LAWE14	0.00	0.00	1.371	0.00	0.00	3.411	3.922	0.490	99.69		
LAWE15	0.00	0.00	1.371	0.00	0.00	3.411	3.922	0.490	99.69		
LAWE16	0.00	0.00	1.369	0.00	0.00	3.406	4.415	0.489	99.54		
LAWE2H	0.00	0.00	1.370	0.00	0.00	3.410	2.930	0.490	99.69		
LAWE3	0.00	0.00	1.400	0.00	0.00	3.501	3.001	0.500	99.68		
LAWE3Cr2CCC	0.00	0.00	1.401	0.00	0.00	3.502	3.002	1.821	99.70		
LAWE3H	0.00	0.00	1.360	0.00	0.00	3.411	2.921	0.490	99.66		
LAWE4H	0.00	0.00	1.371	0.00	0.00	3.432	2.942	0.490	99.65		
LAWE5H	0.00	0.00	1.372	0.00	0.00	3.434	2.943	0.491	99.65		
LAWE7H	0.00	0.00	1.382	0.00	0.00	3.464	2.964	0.491	99.53		
LAWE9H	0.00	0.00	1.394	0.00	0.00	3.479	2.978	0.491	99.57		
LAWE9HCr1CCC	0.00	0.00	1.392	0.00	0.00	3.475	2.974	1.013	99.45		
LAWE9HCr2CCC	0.00	0.00	1.392	0.00	0.00	3.476	2.975	0.863	99.48		
LAWM1	0.00	0.00	3.015	0.00	0.00	5.024	0.000	0.050	99.48		
LAWM10	0.00	0.00	3.002	0.00	0.00	1.001	4.002	2.001	99.77		
LAWM11	0.00	0.00	0.000	0.00	0.00	1.001	0.000	0.050	99.10		
LAWM12	0.00	0.00	3.001	0.00	0.00	5.002	4.002	2.001	99.77		
LAWM13	0.00	0.00	3.001	0.00	0.00	2.164	0.000	1.030	99.50		
LAWM14	0.00	0.00	3.000	0.00	0.00	5.000	0.000	0.050	99.47		
LAWM15	0.00	0.00	3.000	0.00	0.00	1.000	0.000	2.000	99.83		
LAWM16	0.00	0.00	2.502	0.00	0.00	5.004	1.001	0.050	99.67		
LAWM17	0.00	0.00	0.500	0.00	0.00	5.002	3.501	0.050	99.80		
LAWM18	0.00	0.00	2.502	0.00	0.00	2.001	2.501	2.001	99.66		
LAWM19	0.00	0.00	0.500	0.00	0.00	4.998	3.499	1.999	99.64		
LAWM2	0.00	0.00	3.010	0.00	0.00	5.017	0.000	2.007	99.33		
LAWM20	0.00	0.00	0.500	0.00	0.00	5.001	3.501	2.001	99.79		
LAWM21	0.00	0.00	2.503	0.00	0.00	5.005	3.504	0.050	99.54		
LAWM22	0.00	0.00	0.670	0.00	0.00	4.994	3.496	1.998	99.55		
LAWM23	0.00	0.00	2.506	0.00	0.00	5.011	3.508	2.004	99.66		
LAWM24	0.00	0.00	0.500	0.00	0.00	2.000	1.000	0.050	99.77		
LAWM25R1	0.00	0.00	0.501	0.00	0.00	2.003	1.001	2.003	99.74		
LAWM26	0.00	0.00	0.500	0.00	0.00	5.004	1.001	2.001	99.51		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
LAWM27		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.06
LAWM28		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	9.97
LAWM29		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.55
LAWM3		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.68
LAWM30		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.86
LAWM31		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.85
LAWM32		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.43
LAWM33R1		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.66
LAWM34		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	12.14
LAWM35		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.35
LAWM36		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.64
LAWM37		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.93
LAWM38		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.24
LAWM39		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.75
LAWM4		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.67
LAWM40		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.37
LAWM41		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.74
LAWM42		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.78
LAWM43		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.65
LAWM44		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.33
LAWM45		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.88
LAWM46		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.17
LAWM47		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.86
LAWM48		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.23
LAWM49		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.51
LAWM5		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.53
LAWM50		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.53
LAWM51		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.54
LAWM52		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.37
LAWM53		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.74
LAWM54R1		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.35
LAWM55		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	12.05
LAWM56		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.38
LAWM57		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.65
LAWM58		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.61
LAWM59		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.17
LAWM6		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.55
LAWM60		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.15
LAWM61		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.28
LAWM62		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.26
LAWM63		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.61
LAWM64		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.37
LAWM65		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.67
LAWM66		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.45
LAWM67		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.61
LAWM68		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.82
LAWM69		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.17
LAWM7		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.13
LAWM70		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.61
LAWM71		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.70
LAWM72		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.61
LAWM73		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.71
LAWM74		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.25
LAWM75		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.28
LAWM76		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	11.54
LAWM8		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	9.46
LAWM9		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.46
LB83CCC-1		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.27
LB83PNCC		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.28
LB88CCC		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.02
PLTC35CCC		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.73
WVB-G-124B		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.85
WVM-G-142C		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.92
WVR-G-127A		VSL-11R2270-1		120.00	0.81	2.031	243.675	2.650	40.00	100-200	1.125E-04	0.400	**ASTM I**	90	10.75
HLP-1		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.649**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.640
HLP-2		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.702**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.000
HLP-3		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.636**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.250

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
LAWM27	49.240	15.000	1.98		1.760	84.370	9.38	3.790	0.000		0.000	0.000	0.000	0.000
LAWM28	49.440	13.770	2.70		2.010	39.230	2.09	1.180	0.000		0.000	0.000	0.000	0.000
LAWM29	60.930	10.960	0.00		7.510	36.310	4.73	5.470	0.000		0.290	0.000	0.000	0.000
LAWM3	47.310	14.860	2.89		23.550	98.870	0.00	7.130	0.000		0.000	0.000	0.000	0.000
LAWM30	60.510	43.960	0.00		7.940	128.960	0.00	10.220	0.000		0.000	0.000	0.000	0.850
LAWM31	146.440	49.430	0.18		27.630	272.210	0.00	3.640	0.000		0.000	0.000	0.000	0.000
LAWM32	202.320	43.460	0.45		22.890	225.040	18.02	3.630	2.010		2.000	0.000	4.150	0.520
LAWM33R1	179.500	159.500	0.52		16.060	518.730	32.73	2.340	0.000		0.000	0.000	0.000	0.000
LAWM34	234.380	135.470	0.56		60.550	538.020	51.61	4.350	0.000		0.000	0.000	0.000	0.000
LAWM35	168.900	392.500	0.56		18.150	836.000	3.81	2.200	0.000		0.000	0.000	0.000	0.000
LAWM36	49.520	16.700	1.11		7.250	54.060	0.00	3.230	0.000		0.000	0.000	0.000	0.000
LAWM37	66.130	40.060	1.51		11.190	88.050	0.00	2.120	0.000		0.000	0.000	0.000	0.000
LAWM38	58.990	9.500	1.44		6.470	71.160	2.43	3.470	0.000		0.000	0.000	0.000	0.000
LAWM39	47.670	13.870	1.14		5.560	48.090	1.78	3.270	0.000		0.000	0.000	0.000	0.000
LAWM4	36.680	18.590	1.18		13.340	22.320	14.33	1.440	0.000		0.000	0.000	0.000	0.000
LAWM40	65.450	26.250	0.22		2.950	75.380	0.00	2.500	0.000		0.000	0.000	0.000	0.000
LAWM41	49.260	8.950	1.05		2.330	60.850	1.90	2.430	0.000		0.000	0.000	0.000	0.000
LAWM42	60.310	13.230	0.45		6.410	60.310	0.00	2.970	0.000		0.000	0.000	0.000	0.000
LAWM43	57.700	17.550	0.24		7.310	57.470	0.00	3.480	0.000		0.000	0.000	0.000	0.000
LAWM44	52.350	15.500	2.09		2.680	50.460	0.00	2.100	0.000		0.000	0.000	0.000	0.000
LAWM45	51.510	10.600	0.81		3.220	60.820	0.00	3.540	0.000		0.000	0.000	0.000	0.000
LAWM46	40.860	16.350	2.01		2.640	41.600	0.00	1.060	0.000		0.000	0.000	0.000	0.000
LAWM47	60.470	12.960	0.88		2.570	75.990	0.00	1.920	0.000		0.000	0.000	0.000	0.000
LAWM48	51.750	16.010	0.43		2.420	50.770	0.00	1.890	0.000		0.000	0.000	0.000	0.000
LAWM49	47.810	18.160	0.45		2.030	52.350	0.00	2.660	0.000		0.000	0.000	0.000	0.000
LAWM5	36.380	4.590	0.26		7.360	10.400	4.04	4.980	0.000		0.000	0.000	0.000	0.000
LAWM50	55.670	19.490	0.59		4.350	61.170	0.00	2.100	0.000		0.000	0.000	0.000	0.000
LAWM51	57.320	20.840	0.72		5.290	69.670	0.00	1.950	0.000		0.000	0.000	0.000	0.000
LAWM52	84.730	43.560	0.27		0.000	172.460	13.33	8.170	1.260		0.320	0.000	0.600	0.660
LAWM53	23.670	3.340	4.64		6.110	9.950	5.51	3.590	0.000		0.000	0.000	0.000	0.000
LAWM54R1	32.050	6.940	2.64		4.170	13.640	7.79	0.730	0.000		0.000	0.000	0.000	0.000
LAWM55	441.830	1439.630	0.18		406.300	2425.570	475.97	1.220	0.000		0.000	0.000	0.000	0.000
LAWM56	209.520	543.150	0.91		20.000	1233.030	5.07	1.270	0.000		0.000	0.000	0.000	0.440
LAWM57	77.190	89.860	0.00		0.000	315.530	42.04	12.220	0.000		0.220	0.000	0.680	0.000
LAWM58	77.060	63.640	0.00		0.000	250.310	30.33	12.940	1.280		0.360	0.000	0.840	0.630
LAWM59	71.360	21.540	0.00		0.000	133.410	8.41	8.870	0.000		0.000	0.000	0.000	0.000
LAWM6	36.070	18.040	6.23		0.000	47.660	19.14	2.590	0.000		0.000	0.000	0.000	0.000
LAWM60	105.990	80.870	0.00		0.000	265.530	15.61	1.960	0.000		0.000	0.000	0.000	0.000
LAWM61	163.240	125.010	0.00		0.000	409.310	44.09	1.920	0.000		0.000	0.000	0.000	0.000
LAWM62	83.630	41.950	0.00		0.000	185.850	19.73	6.120	0.000		0.000	0.000	0.560	0.000
LAWM63	108.520	72.720	0.19		0.000	326.670	18.33	15.200	2.440		1.140	0.590	2.860	1.070
LAWM64	69.640	66.740	0.00		0.000	231.840	15.04	8.960	0.000		0.240	0.000	0.760	0.000
LAWM65	167.720	73.730	0.00		0.000	384.930	24.48	3.120	0.000		0.000	0.000	0.000	0.000
LAWM66	71.330	72.760	0.00		0.000	267.520	3.55	13.270	0.000		0.000	0.000	0.000	0.000
LAWM67	62.950	88.730	0.00		0.000	296.170	56.33	13.150	0.000		0.000	0.000	0.000	0.000
LAWM68	182.850	135.750	0.00		0.000	519.200	101.93	2.960	1.730		0.360	0.000	0.000	0.000
LAWM69	70.750	54.230	0.00		0.000	198.210	11.79	11.570	0.000		0.000	0.000	0.000	0.000
LAWM7	52.080	5.390	8.36		4.910	15.970	0.00	0.000	0.000		0.000	0.000	0.000	0.000
LAWM70	149.450	93.880	0.00		0.000	387.260	56.18	5.350	3.450		0.810	0.000	0.000	0.000
LAWM71	216.460	122.560	0.00		0.000	521.620	98.29	4.050	5.160		2.130	0.630	0.000	0.000
LAWM72	86.340	107.920	0.00		0.000	390.810	53.39	16.080	1.610		0.620	0.000	0.000	0.000
LAWM73	108.930	55.560	0.00		0.000	361.470	11.33	18.490	1.230		0.490	0.000	0.000	0.000
LAWM74	78.970	29.640	0.00		0.000	180.900	0.00	12.280	1.070		0.340	0.000	0.790	0.680
LAWM75	64.770	31.920	0.00		0.000	180.190	6.11	12.840	0.000		0.000	0.000	0.000	0.000
LAWM76	90.660	73.170	0.09		0.000	310.510	22.47	10.700	1.740		0.800	0.000	1.500	0.460
LAWM8	29.210	13.000	1.60		4.590	10.300	0.00	1.160	0.000		0.000	0.000	0.000	0.000
LAWM9	31.500	3.920	3.07		4.210	19.070	5.90	1.180	0.000		0.000	0.000	0.000	0.000
LB83CCC-1	50.920	16.300	1.14		10.650	17.680	2.19	1.590	0.000		0.000	0.000	0.000	0.000
LB83PNCC	47.090	14.550	1.73		9.750	18.470	0.00	0.980	0.000		0.000	0.000	0.000	0.000
LB88CCC	41.190	11.640	3.04		8.430	10.070	0.00	1.230	0.000		0.000	0.000	0.000	0.000
PLTC35CCC	63.920	14.860	0.70		7.760	54.980	0.00	2.100	0.000		0.000	0.000	0.000	0.000
WVB-G-124B	72.990	24.960	0.19		9.620	88.790	3.23	3.230	0.000		0.240	0.000	0.490	0.000
WVM-G-142C	73.340	34.980	0.10		0.000	140.850	17.86	6.270	0.000		0.000	0.000	0.000	0.000
WVR-G-127A	73.300	24.820	0.73		8.430	85.780	2.56	3.810	0.000		0.000	0.000	0.000	0.000
HLP-1	191.000	349.000			<0.400	1140.000	<2.90							
HLP-2	7720.000	26800.000			<0.400	62000.000	1064.000							
HLP-3	158.000	216.000			<0.400	734.000	<2.90							

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
LAWM27				64.92	22.517	-20.3456221	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	High Ti
LAWM28				73.54	19.539	-17.3502472	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	High Ti
LAWM29				68.91	16.073	9.6428186	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
LAWM3				62.18	27.098	-41.8213969	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWM30				73.15	16.506	0.4048952	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWM31				69.19	19.507	-10.1958961	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	High Ti
LAWM32				78.53	9.148	33.3297671	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWM33R1				73.65	19.508	-17.3547574	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	High Ti
LAWM34				72.38	19.298	-14.1242569	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWM35				71.64	15.598	7.9511756	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
LAWM36				70.83	19.006	-9.9896743	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	High Ti
LAWM37				70.86	18.761	-8.6604823	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWM38				72.64	16.995	-1.535887	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWM39				73.72	15.015	7.902149	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWM4				68.22	19.12	-6.4515955	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	High Ti
LAWM40				74.14	16.009	1.6179728	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWM41				68.32	19.005	-5.964052	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWM42				72.65	15.044	9.4637288	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
LAWM43				68.50	17.006	5.0356667	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
LAWM44				71.21	18.339	-6.8383357	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	High Ti
LAWM45				71.75	17.789	-4.5963322	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	High Ti
LAWM46				72.18	17.545	-3.917395	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWM47				71.13	18.205	-5.9468365	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWM48				72.20	16.518	1.8508256	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
LAWM49				73.55	15.002	8.2609934	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWM5				68.49	22.871	-28.0758523	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	High Ti
LAWM50				71.65	16.75	1.4304785	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWM51				71.63	16.745	1.4939945	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
LAWM52				76.38	13.62	11.5299515	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWM53				64.17	27.092	-44.9864926	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	High Ti
LAWM54R1				67.19	21.53	-18.422413	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
LAWM55				77.97	5.811	53.0696252	Potential ϕ-sep	High alkali	Mid Al	Potential ϕ-sep.	High Ti
LAWM56				71.45	15.558	8.4769421	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
LAWM57				74.70	14.656	8.3727107	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWM58				75.28	14.53	8.139872	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWM59				75.58	16.304	-2.3523577	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWM6				63.62	27.006	-43.6204603	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	High Ti
LAWM60				78.38	11.22	21.876068	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWM61				79.36	10.505	24.339608	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWM62				76.73	12.506	17.2507547	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWM63				77.06	12.74	15.401618	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWM64				71.42	16.496	3.2322212	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWM65				77.39	12.468	16.4054576	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWM66				72.47	14.905	10.527782	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWM67				74.51	14.15	11.5319555	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWM68				74.63	14.502	9.3483029	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWM69				72.52	17.343	-3.3072979	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWM7				66.71	23.492	-28.7305096	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	High Ti
LAWM70				79.32	12.547	12.8757509	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWM71				79.35	10.51	24.3258005	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWM72				74.39	17.388	-6.5744254	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWM73				73.62	15.876	3.2061572	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWM74				75.72	13.094	15.5590043	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWM75				69.39	17.496	0.8379227	Indeterminate	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWM76				75.82	13.75	11.6936975	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
LAWM8				64.77	15.475	19.6667105	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
LAWM9				67.21	21.535	-18.473101	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
LB83CCC-1				68.63	18.303	-2.4963814	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LB83PNCC				68.63	18.303	-2.4963814	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
LB88CCC				72.96	16.683	-0.2901004	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
PLTC35CCC				72.32	17.09	-1.5705325	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVB-G-124B				73.59	16.487	-0.2013541	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
WVM-G-142C				76.12	13.149	14.6069753	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
WVR-G-127A				73.38	16.427	0.4854734	Indeterminate	Low alkali	High Al	HOMOGENEOUS	Low Ti
HLP-1				76.52	13.59	11.466878	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-2				72.99	16.58	0.240311	Indeterminate	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-3				78.90	13.14	10.192058	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
LAWM27	HOMOGENEOUS	8.006	7.005	0.00	8.006	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.505	2.001	0.00	0.00
LAWM28	HOMOGENEOUS	5.010	12.024	0.00	8.016	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.513	0.703	0.00	0.00
LAWM29	HOMOGENEOUS	7.565	7.006	0.00	2.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.506	2.002	0.00	0.00
LAWM3	HOMOGENEOUS	9.033	6.022	0.00	10.036	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.029	0.000	0.00	0.00
LAWM30	HOMOGENEOUS	8.003	12.004	0.00	2.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.502	0.100	0.00	0.00
LAWM31	HOMOGENEOUS	5.002	7.003	0.00	8.003	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.502	0.100	0.00	0.00
LAWM32	HOMOGENEOUS	5.146	7.002	0.00	2.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.001	2.001	0.00	0.00
LAWM33R1	HOMOGENEOUS	5.002	12.005	0.00	8.003	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.503	1.722	0.00	0.00
LAWM34	HOMOGENEOUS	5.001	8.356	0.00	8.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.295	2.001	0.00	0.00
LAWM35	HOMOGENEOUS	5.003	12.007	0.00	6.182	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.413	0.100	0.00	0.00
LAWM36	HOMOGENEOUS	7.002	11.004	0.00	7.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.002	0.300	0.00	0.00
LAWM37	HOMOGENEOUS	6.751	11.009	0.00	7.006	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.004	0.300	0.00	0.00
LAWM38	HOMOGENEOUS	6.998	7.998	0.00	6.998	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.999	0.154	0.00	0.00
LAWM39	HOMOGENEOUS	7.007	9.063	0.00	5.005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.003	0.100	0.00	0.00
LAWM4	Potential ϕ-sep.	3.516	13.058	0.00	10.044	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.560	4.018	0.00	0.00
LAWM40	HOMOGENEOUS	6.003	11.006	0.00	5.003	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.003	0.100	0.00	0.00
LAWM41	HOMOGENEOUS	7.002	8.002	0.00	7.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.001	0.300	0.00	0.00
LAWM42	HOMOGENEOUS	6.004	8.005	0.00	5.003	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.037	0.100	0.00	0.00
LAWM43	HOMOGENEOUS	7.002	8.678	0.00	5.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.002	0.300	0.00	0.00
LAWM44	HOMOGENEOUS	6.325	10.039	0.00	7.008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.006	0.100	0.00	0.00
LAWM45	HOMOGENEOUS	7.003	8.003	0.00	5.784	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.002	0.300	0.00	0.00
LAWM46	HOMOGENEOUS	6.012	11.023	0.00	6.523	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.010	0.100	0.00	0.00
LAWM47	HOMOGENEOUS	6.200	8.003	0.00	7.003	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.002	0.100	0.00	0.00
LAWM48	HOMOGENEOUS	6.234	11.016	0.00	5.277	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.007	0.100	0.00	0.00
LAWM49	HOMOGENEOUS	7.001	10.906	0.00	5.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.000	0.100	0.00	0.00
LAWM5	HOMOGENEOUS	9.041	6.027	0.00	5.794	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.036	4.018	0.00	0.00
LAWM50	HOMOGENEOUS	6.530	9.700	0.00	6.109	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.111	0.204	0.00	0.00
LAWM51	HOMOGENEOUS	6.528	9.697	0.00	6.107	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.110	0.204	0.00	0.00
LAWM52	HOMOGENEOUS	6.088	9.711	0.00	1.994	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.538	2.586	0.00	0.00
LAWM53	HOMOGENEOUS	9.031	6.021	0.00	10.034	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.027	4.014	0.00	0.00
LAWM54R1	HOMOGENEOUS	3.505	6.008	0.00	10.014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.011	4.006	0.00	0.00
LAWM55	Potential ϕ-sep.	3.501	13.004	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.310	4.001	0.00	0.00
LAWM56	HOMOGENEOUS	4.990	11.975	0.00	6.166	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.402	0.100	0.00	0.00
LAWM57	HOMOGENEOUS	6.997	11.000	0.00	3.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.659	3.801	0.00	0.00
LAWM58	HOMOGENEOUS	7.002	9.294	0.00	1.028	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.500	3.800	0.00	0.00
LAWM59	HOMOGENEOUS	6.847	9.009	0.00	2.965	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.492	2.004	0.00	0.00
LAWM6	HOMOGENEOUS	9.002	10.612	0.00	10.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.002	4.001	0.00	0.00
LAWM60	HOMOGENEOUS	5.003	11.006	0.00	1.714	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.503	2.004	0.00	0.00
LAWM61	HOMOGENEOUS	5.002	11.001	0.00	1.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.502	3.293	0.00	0.00
LAWM62	HOMOGENEOUS	5.004	9.004	0.00	1.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.500	3.380	0.00	0.00
LAWM63	HOMOGENEOUS	7.001	9.402	0.00	1.044	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.695	2.059	0.00	0.00
LAWM64	HOMOGENEOUS	6.991	10.989	0.00	3.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.503	2.001	0.00	0.00
LAWM65	HOMOGENEOUS	5.001	9.001	0.00	2.964	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.503	2.001	0.00	0.00
LAWM66	HOMOGENEOUS	7.587	10.637	0.00	1.003	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.315	0.479	0.00	0.00
LAWM67	HOMOGENEOUS	8.002	10.601	0.00	1.545	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.603	5.402	0.00	0.00
LAWM68	HOMOGENEOUS	5.003	9.002	0.00	2.999	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.500	4.803	0.00	0.00
LAWM69	HOMOGENEOUS	7.976	10.990	0.00	2.997	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.370	1.829	0.00	0.00
LAWM7	HOMOGENEOUS	5.441	6.966	0.00	10.028	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.023	0.000	0.00	0.00
LAWM70	HOMOGENEOUS	5.002	9.397	0.00	1.047	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.498	4.550	0.00	0.00
LAWM71	HOMOGENEOUS	5.006	9.001	0.00	1.003	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.501	5.401	0.00	0.00
LAWM72	HOMOGENEOUS	8.002	11.002	0.00	2.937	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.449	4.177	0.00	0.00
LAWM73	HOMOGENEOUS	8.002	9.006	0.00	2.996	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.878	1.221	0.00	0.00
LAWM74	HOMOGENEOUS	7.589	9.009	0.00	1.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.504	0.000	0.00	0.00
LAWM75	HOMOGENEOUS	8.003	9.157	0.00	2.996	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.497	1.082	0.00	0.00
LAWM76	HOMOGENEOUS	6.403	9.926	0.00	1.923	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.424	2.599	0.00	0.00
LAWM8	HOMOGENEOUS	9.027	13.039	0.00	6.448	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.00	0.00
LAWM9	HOMOGENEOUS	3.506	6.010	0.00	10.016	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.013	4.006	0.00	0.00
LB83CCC-1	HOMOGENEOUS	6.214	10.047	0.00	6.795	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.294	0.180	0.00	0.00
LB83PNCC	HOMOGENEOUS	6.214	10.047	0.00	6.795	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.294	0.180	0.00	0.00
LB88CCC	HOMOGENEOUS	6.505	12.980	0.00	7.976	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.202	0.200	0.00	0.00
PLTC35CCC	HOMOGENEOUS	6.091	9.463	0.00	7.386	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.613	0.090	0.00	0.00
WVB-G-124B	HOMOGENEOUS	6.039	9.969	0.00	5.049	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.399	0.260	0.00	0.00
WVM-G-142C	HOMOGENEOUS	5.618	9.825	0.00	1.993	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.538	3.816	0.00	0.00
WVR-G-127A	HOMOGENEOUS	6.049	9.908	0.00	5.019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.359	0.330	0.00	0.00
HLP-1	HOMOGENEOUS	7.040	8.920	0.00	0.010	0.00	0.00	0.250	0.00	0.00	0.00	0.00	6.520	0.400	0.00	0.020
HLP-2	HOMOGENEOUS	8.950	11.400	0.00	0.000	0.00	0.00	0.220	0.00	0.00	0.00	0.00	7.630	0.590	0.00	0.000
HLP-3	HOMOGENEOUS	7.080	9.090	0.00	0.000	0.00	0.00	0.190	0.00	0.00	0.00	0.00	6.060	0.410	0.00	0.000

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
LAWM27	0.500	3.502	0.00	0.00	13.381	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.030	0.00	0.00	0.00
LAWM28	0.690	1.002	0.00	0.00	10.020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.101	0.00	0.00	0.00
LAWM29	3.003	3.503	0.00	0.00	10.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.892	0.00	0.00	0.00
LAWM3	4.487	5.018	0.00	0.00	11.521	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.145	0.00	0.00	0.00
LAWM30	2.023	1.000	0.00	0.00	17.006	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.015	0.00	0.00	0.00
LAWM31	3.001	1.000	0.00	0.00	16.758	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.327	0.00	0.00	0.00
LAWM32	3.001	3.501	0.00	0.00	16.514	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.013	0.00	0.00	0.00
LAWM33R1	0.899	1.000	0.00	0.00	17.007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.017	0.00	0.00	0.00
LAWM34	3.001	1.000	0.00	0.00	17.005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.012	0.00	0.00	0.00
LAWM35	0.500	3.502	0.00	0.00	17.010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.023	0.00	0.00	0.00
LAWM36	2.501	1.501	0.00	0.00	12.004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.016	0.00	0.00	0.00
LAWM37	2.502	2.502	0.00	0.00	12.010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.038	0.00	0.00	0.00
LAWM38	2.499	1.500	0.00	0.00	13.997	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.988	0.00	0.00	0.00
LAWM39	2.502	2.502	0.00	0.00	14.013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.046	0.00	0.00	0.00
LAWM4	4.520	0.000	0.00	0.00	5.022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.599	0.00	0.00	0.00
LAWM40	1.001	1.501	0.00	0.00	14.008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.027	0.00	0.00	0.00
LAWM41	1.000	2.501	0.00	0.00	14.004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.012	0.00	0.00	0.00
LAWM42	2.502	1.501	0.00	0.00	14.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.032	0.00	0.00	0.00
LAWM43	2.501	2.501	0.00	0.00	12.004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.016	0.00	0.00	0.00
LAWM44	1.001	1.502	0.00	0.00	12.014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.055	0.00	0.00	0.00
LAWM45	1.423	1.501	0.00	0.00	14.005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.017	0.00	0.00	0.00
LAWM46	1.002	2.505	0.00	0.00	12.025	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.034	0.00	0.00	0.00
LAWM47	1.000	2.501	0.00	0.00	14.005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.017	0.00	0.00	0.00
LAWM48	1.001	1.502	0.00	0.00	12.017	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.070	0.00	0.00	0.00
LAWM49	1.000	1.500	0.00	0.00	14.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.538	0.00	0.00	0.00
LAWM5	4.520	0.000	0.00	0.00	5.023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.903	0.00	0.00	0.00
LAWM50	1.668	2.032	0.00	0.00	13.095	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.982	0.00	0.00	0.00
LAWM51	1.667	2.031	0.00	0.00	13.091	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.968	0.00	0.00	0.00
LAWM52	0.000	1.477	0.00	0.00	20.027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.051	0.00	0.00	0.00
LAWM53	4.515	0.000	0.00	0.00	5.017	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.603	0.00	0.00	0.00
LAWM54R1	2.391	0.000	0.00	0.00	5.007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.782	0.00	0.00	0.00
LAWM55	4.501	1.971	0.00	0.00	14.257	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.211	0.00	0.00	0.00
LAWM56	0.499	3.493	0.00	0.00	16.965	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.914	0.00	0.00	0.00
LAWM57	0.000	1.440	0.00	0.00	20.620	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.274	0.00	0.00	0.00
LAWM58	0.000	1.440	0.00	0.00	20.536	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.654	0.00	0.00	0.00
LAWM59	0.000	1.441	0.00	0.00	20.008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.558	0.00	0.00	0.00
LAWM6	0.000	5.001	0.00	0.00	8.999	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.009	0.00	0.00	0.00
LAWM60	0.000	1.441	0.00	0.00	20.015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.351	0.00	0.00	0.00
LAWM61	0.000	1.440	0.00	0.00	20.004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.060	0.00	0.00	0.00
LAWM62	0.000	1.440	0.00	0.00	20.006	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.341	0.00	0.00	0.00
LAWM63	0.000	1.440	0.00	0.00	22.998	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.601	0.00	0.00	0.00
LAWM64	0.000	1.441	0.00	0.00	20.051	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.379	0.00	0.00	0.00
LAWM65	0.000	1.440	0.00	0.00	22.791	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.599	0.00	0.00	0.00
LAWM66	0.000	1.440	0.00	0.00	22.996	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.362	0.00	0.00	0.00
LAWM67	0.000	1.440	0.00	0.00	20.134	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.370	0.00	0.00	0.00
LAWM68	0.000	1.440	0.00	0.00	20.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.815	0.00	0.00	0.00
LAWM69	0.000	1.440	0.00	0.00	20.095	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.601	0.00	0.00	0.00
LAWM7	2.585	5.014	0.00	0.00	5.014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.147	0.00	0.00	0.00
LAWM70	0.000	1.440	0.00	0.00	20.011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.357	0.00	0.00	0.00
LAWM71	0.000	1.440	0.00	0.00	20.004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.943	0.00	0.00	0.00
LAWM72	0.000	1.440	0.00	0.00	20.042	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.173	0.00	0.00	0.00
LAWM73	0.000	1.440	0.00	0.00	23.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.391	0.00	0.00	0.00
LAWM74	0.000	1.441	0.00	0.00	21.329	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.377	0.00	0.00	0.00
LAWM75	0.000	1.441	0.00	0.00	20.691	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.461	0.00	0.00	0.00
LAWM76	0.000	1.441	0.00	0.00	21.409	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.881	0.00	0.00	0.00
LAWM8	2.087	5.015	0.00	0.00	5.015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.626	0.00	0.00	0.00
LAWM9	2.392	0.000	0.00	0.00	5.008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.792	0.00	0.00	0.00
LB83CCC-1	4.313	2.992	0.00	0.00	5.374	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.714	0.00	0.00	0.00
LB83PNCC	4.313	2.992	0.00	0.00	5.374	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.714	0.00	0.00	0.00
LB88CCC	4.694	1.411	0.00	0.00	5.004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.080	0.00	0.00	0.00
PLTC35CCC	3.271	1.495	0.00	0.00	12.032	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.467	0.00	0.00	0.00
WVB-G-124B	2.490	1.490	0.00	0.00	14.419	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.455	0.00	0.00	0.00
WVM-G-142C	0.000	1.472	0.00	0.00	18.468	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.006	0.00	0.00	0.00
WVR-G-127A	2.480	1.480	0.00	0.00	14.627	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.031	0.00	0.00	0.00
HLP-1	0.000	1.410	0.00	0.00	18.400	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.800	0.00	0.00	0.00
HLP-2	0.000	1.810	0.00	0.00	25.800	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.200	0.00	0.00	0.00
HLP-3	0.000	1.360	0.00	0.00	17.900	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.500	0.00	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
LAWM27	0.00	0.00	2.502	0.00	0.00	3.309	1.001	2.001	99.75		
LAWM28	0.00	0.00	2.505	0.00	0.00	2.004	1.002	0.050	99.64		
LAWM29	0.00	0.00	2.502	0.00	0.00	5.005	3.503	0.192	99.69		
LAWM3	0.00	0.00	0.000	0.00	0.00	1.004	4.015	0.050	99.36		
LAWM30	0.00	0.00	0.592	0.00	0.00	5.002	3.501	0.050	99.80		
LAWM31	0.00	0.00	2.501	0.00	0.00	2.001	3.501	2.001	99.70		
LAWM32	0.00	0.00	0.500	0.00	0.00	5.001	1.000	2.001	99.68		
LAWM33R1	0.00	0.00	2.501	0.00	0.00	2.001	1.000	0.050	99.71		
LAWM34	0.00	0.00	1.474	0.00	0.00	2.001	3.501	0.050	99.70		
LAWM35	0.00	0.00	2.501	0.00	0.00	2.001	2.576	2.001	99.82		
LAWM36	0.00	0.00	2.001	0.00	0.00	3.501	2.001	0.795	99.63		
LAWM37	0.00	0.00	1.001	0.00	0.00	3.503	3.003	0.050	99.68		
LAWM38	0.00	0.00	1.000	0.00	0.00	3.499	2.000	2.000	99.63		
LAWM39	0.00	0.00	1.001	0.00	0.00	3.503	2.002	2.002	99.75		
LAWM4	0.00	0.00	3.013	0.00	0.00	5.022	4.018	0.050	99.44		
LAWM40	0.00	0.00	1.001	0.00	0.00	3.502	3.002	0.535	99.69		
LAWM41	0.00	0.00	1.000	0.00	0.00	4.601	2.235	2.001	99.66		
LAWM42	0.00	0.00	2.001	0.00	0.00	3.502	3.002	2.001	99.70		
LAWM43	0.00	0.00	2.001	0.00	0.00	4.602	3.001	2.001	99.61		
LAWM44	0.00	0.00	2.002	0.00	0.00	4.605	2.002	0.050	99.71		
LAWM45	0.00	0.00	2.001	0.00	0.00	4.602	2.001	0.050	99.69		
LAWM46	0.00	0.00	1.002	0.00	0.00	3.507	3.006	0.050	99.80		
LAWM47	0.00	0.00	1.307	0.00	0.00	3.501	3.001	0.050	99.69		
LAWM48	0.00	0.00	2.003	0.00	0.00	3.505	2.003	2.003	99.74		
LAWM49	0.00	0.00	1.000	0.00	0.00	4.601	2.000	2.000	99.65		
LAWM5	0.00	0.00	3.014	0.00	0.00	1.005	4.018	0.050	99.45		
LAWM50	0.00	0.00	1.528	0.00	0.00	4.104	2.533	1.115	99.71		
LAWM51	0.00	0.00	1.528	0.00	0.00	4.102	2.533	1.115	99.68		
LAWM52	0.00	0.00	1.994	0.00	0.00	2.954	2.991	0.409	99.82		
LAWM53	0.00	0.00	3.010	0.00	0.00	5.017	0.000	0.050	99.34		
LAWM54R1	0.00	0.00	0.000	0.00	0.00	5.007	4.006	2.003	99.74		
LAWM55	0.00	0.00	3.001	0.00	0.00	5.001	4.001	2.001	99.76		
LAWM56	0.00	0.00	2.495	0.00	0.00	1.996	2.570	1.996	99.56		
LAWM57	0.00	0.00	1.370	0.00	0.00	3.026	4.001	0.490	99.68		
LAWM58	0.00	0.00	1.370	0.00	0.00	2.563	4.001	0.490	99.68		
LAWM59	0.00	0.00	1.371	0.00	0.00	2.506	2.001	0.490	99.69		
LAWM6	0.00	0.00	3.001	0.00	0.00	1.000	0.000	0.050	99.68		
LAWM60	0.00	0.00	1.371	0.00	0.00	2.804	3.998	0.491	99.70		
LAWM61	0.00	0.00	1.370	0.00	0.00	4.501	2.005	0.490	99.67		
LAWM62	0.00	0.00	1.370	0.00	0.00	3.842	3.300	0.490	99.68		
LAWM63	0.00	0.00	1.370	0.00	0.00	4.500	2.058	0.490	99.66		
LAWM64	0.00	0.00	1.371	0.00	0.00	4.490	3.993	0.491	99.70		
LAWM65	0.00	0.00	1.370	0.00	0.00	2.501	3.997	0.490	99.66		
LAWM66	0.00	0.00	1.370	0.00	0.00	4.500	4.498	0.490	99.68		
LAWM67	0.00	0.00	1.370	0.00	0.00	2.720	5.001	0.490	99.68		
LAWM68	0.00	0.00	1.370	0.00	0.00	3.562	3.677	0.490	99.67		
LAWM69	0.00	0.00	1.370	0.00	0.00	4.499	2.002	0.490	99.66		
LAWM7	0.00	0.00	3.008	0.00	0.00	1.003	0.000	0.050	99.28		
LAWM70	0.00	0.00	1.370	0.00	0.00	2.501	2.006	0.490	99.67		
LAWM71	0.00	0.00	1.370	0.00	0.00	4.498	2.002	0.490	99.66		
LAWM72	0.00	0.00	1.370	0.00	0.00	2.501	2.095	0.490	99.68		
LAWM73	0.00	0.00	1.370	0.00	0.00	4.494	2.388	0.490	99.68		
LAWM74	0.00	0.00	1.371	0.00	0.00	2.598	5.002	0.491	99.71		
LAWM75	0.00	0.00	1.371	0.00	0.00	4.500	5.001	0.490	99.69		
LAWM76	0.00	0.00	1.371	0.00	0.00	3.423	3.401	0.490	99.69		
LAWM8	0.00	0.00	3.009	0.00	0.00	5.015	4.012	2.006	99.30		
LAWM9	0.00	0.00	0.000	0.00	0.00	5.008	4.006	2.003	99.76		
LB83CCC-1	0.00	0.00	1.401	0.00	0.00	4.853	3.172	0.160	99.51		
LB83PNCC	0.00	0.00	1.401	0.00	0.00	4.853	3.172	0.160	99.51		
LB88CCC	0.00	0.00	0.000	0.00	0.00	4.884	3.193	0.140	99.27		
PLTC35CCC	0.00	0.00	1.084	0.00	0.00	4.004	3.011	0.702	99.71		
WVB-G-124B	0.00	0.00	1.140	0.00	0.00	3.060	3.020	0.770	99.56		
WVM-G-142C	0.00	0.00	1.983	0.00	0.00	2.944	2.964	1.122	99.75		
WVR-G-127A	0.00	0.00	1.130	0.00	0.00	3.039	2.999	1.170	99.62		
HLP-1	0.00	0.00	3.000	0.00	0.00	1.46	1.54	0.00	97.77		
HLP-2	0.00	0.00	3.860	0.00	0.00	1.88	1.88	0.00	99.22		
HLP-3	0.00	0.00	2.890	0.00	0.00	1.43	1.36	0.00	99.27		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
HLP-4		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.683**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.000
HLP-5		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.676**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.000
HLP-6		PNNL-13744	T	416.67	0.21	20.000	8333.33	**2.561**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.110
HLP-7		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.603**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.460
HLP-8		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.692**	10.000	100-200	1.125E-04	0.01	ASTM I	90	12.460
HLP-9		PNNL-13744	T	416.67	0.21	20.000	8333.33	**2.601**	10.000	100-200	1.125E-04	0.01	ASTM I	90	10.630
HLP-10		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.623**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.000
HLP-11		PNNL-13744	T	416.67	0.21	20.000	8333.33	**2.563**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.000
HLP-12		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.682**	10.000	100-200	1.125E-04	0.01	ASTM I	90	10.000
HLP-13		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.607**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.940
HLP-14		PNNL-13744	T	416.67	0.21	20.000	8333.33	**2.588**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.740
HLP-15		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.628**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.590
HLP-16		PNNL-13744	T	416.67	0.21	20.000	8333.33	**2.592**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.890
HLP-17		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.657**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.550
HLP-18		PNNL-13744	T	416.67	0.21	20.000	8333.33	**2.600**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.840
HLP-19		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.669**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.620
HLP-20		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.626**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.780
HLP-21		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.615**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.630
HLP-22		PNNL-13744	T	416.67	0.21	20.000	8333.33	**2.590**	10.000	100-200	1.125E-04	0.01	ASTM I	90	10.000
HLP-23		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.629**	10.000	100-200	1.125E-04	0.01	ASTM I	90	12.540
HLP-24		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.609**	10.000	100-200	1.125E-04	0.01	ASTM I	90	10.480
HLP-25		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.641**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.770
HLP-26		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.642**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.710
HLP-27		PNNL-13744	T	416.67	0.21	20.000	8333.33	**2.496**	10.000	100-200	1.125E-04	0.01	ASTM I	90	12.040
HLP-28		PNNL-13744	T	416.67	0.21	20.000	8333.33	**2.517**	10.000	100-200	1.125E-04	0.01	ASTM I	90	9.530
HLP-29		PNNL-13744	T	416.67	0.21	20.000	8333.33	**2.569**	10.000	100-200	1.125E-04	0.01	ASTM I	90	10.000
HLP-30		PNNL-13744	T	416.67	0.21	20.000	8333.33	**2.599**	10.000	100-200	1.125E-04	0.01	ASTM I	90	10.890
HLP-31		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.624**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.810
HLP-32		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.625**	10.000	100-200	1.125E-04	0.01	ASTM I	90	10.310
HLP-33		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.635**	10.000	100-200	1.125E-04	0.01	ASTM I	90	12.000
HLP-34		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.673**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.220
HLP-35		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.644**	10.000	100-200	1.125E-04	0.01	ASTM I	90	12.490
HLP-36		PNNL-13744	T	416.67	0.19	20.000	8333.33	**2.744**	10.000	100-200	1.125E-04	0.01	ASTM I	90	9.750
HLP-37		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.706**	10.000	100-200	1.125E-04	0.01	ASTM I	90	13.230
HLP-38		PNNL-13744	T	416.67	0.19	20.000	8333.33	**2.783**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.720
HLP-39		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.730**	10.000	100-200	1.125E-04	0.01	ASTM I	90	12.660
HLP-40		PNNL-13744	T	416.67	0.19	20.000	8333.33	**2.825**	10.000	100-200	1.125E-04	0.01	ASTM I	90	10.050
HLP-40Q		PNNL-13744	T	416.67	0.19	20.000	8333.33	**2.825**	10.000	100-200	1.125E-04	0.01	ASTM I	90	10.510
HLP-41		PNNL-13744	T	416.67	0.19	20.000	8333.33	**2.814**	10.000	100-200	1.125E-04	0.01	ASTM I	90	13.180
HLP-42		PNNL-13744	T	416.67	0.18	20.000	8333.33	**2.952**	10.000	100-200	1.125E-04	0.01	ASTM I	90	12.320
HLP-42Q		PNNL-13744	T	416.67	0.18	20.000	8333.33	**2.952**	10.000	100-200	1.125E-04	0.01	ASTM I	90	12.420
HLP-43		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.635**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.640
HLP-44		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.639**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.650
HLP-45		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.657**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.560
HLP-46		PNNL-13744	T	416.67	0.21	20.000	8333.33	**2.539**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.000
HLP-47		PNNL-13744	T	416.67	0.21	20.000	8333.33	**2.523**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.720
HLP-48		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.659**	10.000	100-200	1.125E-04	0.01	ASTM I	90	12.200
HLP-49		PNNL-13744	T	416.67	0.19	20.000	8333.33	**2.771**	10.000	100-200	1.125E-04	0.01	ASTM I	90	12.010
HLP-51		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.698**	10.000	100-200	1.125E-04	0.01	ASTM I	90	12.170
HLP-52		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.654**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.000
HLP-53		PNNL-13744	T	416.67	0.20	20.000	8333.33	**2.726**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.000
HLP-54		PNNL-13744	T	416.67	0.21	20.000	8333.33	**2.490**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.540
HLP-55		PNNL-13744	T	416.67	0.22	20.000	8333.33	**2.455**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.180
HLP-58		PNNL-13744	T	0.42	0.20	20.000	8.33	**2.622**	10.000	100-200	1.125E-04	0.01	ASTM I	90	10.71
HLP-58		PNNL-13744	T	4.17	0.20	20.000	83.33	**2.622**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.12
HLP-58		PNNL-13744	T	41.67	0.20	20.000	833.33	**2.622**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.47
HLP-58		PNNL-13744	T	208.33	0.20	20.000	4166.67	**2.622**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.62
HLP-59		PNNL-13744	T	0.42	0.20	20.000	8.33	**2.645**	10.000	100-200	1.125E-04	0.01	ASTM I	90	10.81
HLP-59		PNNL-13744	T	4.17	0.20	20.000	83.33	**2.645**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.24
HLP-59		PNNL-13744	T	41.67	0.20	20.000	833.33	**2.645**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.63
HLP-59		PNNL-13744	T	208.33	0.20	20.000	4166.67	**2.645**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.77
HLP-60		PNNL-13744	T	0.42	0.18	20.000	8.33	**2.932**	10.000	100-200	1.125E-04	0.01	ASTM I	90	10.75
HLP-60		PNNL-13744	T	4.17	0.18	20.000	83.33	**2.932**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.13
HLP-60		PNNL-13744	T	41.67	0.18	20.000	833.33	**2.932**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.56
HLP-60		PNNL-13744	T	208.33	0.18	20.000	4166.67	**2.932**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.51
HLP-61		PNNL-13744	T	0.42	0.20	20.000	8.33	**2.649**	10.000	100-200	1.125E-04	0.01	ASTM I	90	10.84
HLP-61		PNNL-13744	T	4.17	0.20	20.000	83.33	**2.649**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.25

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
HLP-4	3490.000	18500.000			<0.400	40400.000	535.000							
HLP-5	284.000	1280.000			<0.400	3730.000	14.400							
HLP-6	63.100	145.000			<0.400	501.000	<2.90							
HLP-7	96.000	226.000			<0.400	731.000	<2.90							
HLP-8	1040.000	144.000			<0.400	1210.000	<2.90							
HLP-9	79.000	746.000			<0.400	1600.000	<2.90							
HLP-10	193.000	143.000			<0.400	822.000	<2.90							
HLP-11	210.000	300.000			<0.400	904.000	<2.90							
HLP-12	149.000	245.000			<0.400	826.000	<2.90							
HLP-13	207.000	366.000			<0.400	1300.000	<2.90							
HLP-14	1670.000	444.000			<0.400	1330.000	<2.90							
HLP-15	150.000	207.000			<0.400	772.000	<2.90							
HLP-16	167.000	325.000			<0.400	1090.000	<2.90							
HLP-17	164.000	288.000			<0.400	1090.000	<2.90							
HLP-18	207.000	390.000			<0.400	1330.000	<2.90							
HLP-19	101.000	151.000			<0.400	605.000	<2.90							
HLP-20	149.000	261.000			<0.400	904.000	<2.90							
HLP-21	194.000	356.000			<0.400	1160.000	<2.90							
HLP-22	75.600	196.000			<0.400	469.000	<2.90							
HLP-23	179.000	2150.000			<0.400	7170.000	26.400							
HLP-24	112.000	244.000			<0.400	691.000	<2.90							
HLP-25	207.000	320.000			<0.400	1060.000	<2.90							
HLP-26	173.000	338.000			<0.400	1160.000	<2.90							
HLP-27	45200.000	24000.000			1.580	73900.000	615.000							
HLP-28	169.000	360.000			0.419	675.000	<2.90							
HLP-29	30800.000	12700.000			<0.400	57400.000	517.000							
HLP-30	97.700	22.500			<0.400	256.000	<2.90							
HLP-31	289.000	3130.000			<0.400	8970.000	47.000							
HLP-32	92.600	501.000			<0.400	946.000	<2.90							
HLP-33	5410.000	2170.000			<0.400	7130.000	83.300							
HLP-34	169.000	52.100			<0.400	417.000	<2.90							
HLP-35	188.000	1690.000			<0.400	4020.000	45.600							
HLP-36	29.800	912.000			<0.400	1350.000	<2.90							
HLP-37	2460.000	8390.000			<0.400	29100.000	552.000							
HLP-38	63.700	75.300			<0.400	455.000	<2.90							
HLP-39	1030.000	5200.000			<0.400	11800.000	139.000							
HLP-40	61.100	911.000			<0.400	1720.000	<2.90							
HLP-40Q	144.000	3370.000			<0.400	7460.000	71.800							
HLP-41	2740.000	4640.000			<0.400	18800.000	265.000							
HLP-42	500.000	882.000			<0.400	2560.000	2.910							
HLP-42Q	357.000	1510.000			<0.400	3950.000	25.100							
HLP-43	210.000	335.000			<0.400	1160.000	<2.90							
HLP-44	179.000	299.000			<0.400	1000.000	<2.90							
HLP-45	184.000	253.000			<0.400	1010.000	<2.90							
HLP-46	39000.000	10700.000			2.460	53400.000	1040.000							
HLP-47	30300.000	12200.000			118.000	47000.000	673.000							
HLP-48	113.000	397.000			<0.400	1480.000	103.000							
HLP-49	1080.000	458.000			199.000	797.000	6.070							
HLP-51	110.000	257.000			<0.400	1060.000	34.700							
HLP-52	33900.000	5.540			<0.400	68200.000	4050.000							
HLP-53	9040.000	8950.000			108.000	53600.000	3920.000							
HLP-54	127.000	309.000			<0.400	1120.000	<2.90							
HLP-55	1100.000	598.000			<0.400	2200.000	<2.90							
HLP-58	41.230	13.120				77.510		3.880	<0.04		<0.01	<0.07	<0.01	<0.01
HLP-58	91.770	50.720				242.470		6.360	3.270		0.330	0.110	<0.01	<0.01
HLP-58	132.760	106.490				466.860		4.670	1.240		0.290	<0.07	0.320	<0.01
HLP-58	156.000	167.850				674.470		6.340	<0.40		<0.40	<0.70	<0.10	<0.10
HLP-59	40.700	11.880				85.850		2.830	<0.04		<0.01	<0.07	<0.01	<0.01
HLP-59	96.080	40.670				261.700		4.880	<0.04		<0.01	<0.07	<0.01	<0.01
HLP-59	142.480	82.410				415.990		5.840	<0.04		<0.04	<0.07	<0.01	<0.01
HLP-59	178.500	76.250				534.970		8.950	<0.40		<0.40	<0.70	<0.10	<0.10
HLP-60	33.350	9.330				72.900		2.970	<0.04		<0.01	<0.07	<0.01	<0.01
HLP-60	66.490	20.470				181.000		5.380	1.030		<0.01	<0.07	0.340	<0.01
HLP-60	105.440	119.490				324.990		5.910	4.930		<0.04	0.250	5.570	0.300
HLP-60	106.160	38.690				352.510		8.160	<0.40		<0.40	<0.70	<0.10	<0.10
HLP-61	67.240	44.890				149.500		0.710	<0.04		<0.01	<0.07	<0.01	<0.01
HLP-61	131.600	159.500				467.000		1.600	<0.04		<0.01	<0.07	<0.01	<0.01

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
HLP-4				75.52	16.46	-3.138808	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-5				78.40	11.04	22.854188	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-6				73.01	18.26	-9.280063	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-7				79.48	16.11	-7.511938	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-8				74.90	12.9	17.96153	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-9				74.11	13.52	15.726659	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-10				75.70	13.38	13.967786	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-11				80.00	7.46	40.507712	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-12				73.46	15.69	4.513208	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-13				79.01	10.3	26.055425	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-14				77.25	13.6	10.239845	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-15				76.50	13.28	13.249766	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-16				82.81	13.71	0.703127	Indeterminate	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-17				76.92	13.25	12.74573	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-18				76.03	13.67	11.800769	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-19				76.06	13.34	13.616438	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-20				79.10	13.45	8.12054	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-21				74.77	13.6	14.216525	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-22				80.00	14.69	-0.325882	Indeterminate	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-23				75.67	12.83	17.122181	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-24				76.50	14.03	9.013916	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-25				76.21	13.06	14.957297	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-26				74.86	12.65	19.43762	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-27				84.84	12.6	3.71708	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-28				79.90	15.92	-7.112326	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
HLP-29				77.93	14.92	1.694369	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-30				69.55	18.58	-5.539249	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-31				83.60	8.5	28.8614	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-32				74.91	11.26	27.207887	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-33				81.19	11.08	18.154511	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-34				71.84	14.17	15.695534	Potential ϕ-sep	Low alkali	Mid Al	HOMOGENEOUS	High Ti
HLP-35				70.20	18.97	-8.784166	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-36				63.97	22.3	-17.601535	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-37				64.58	21.31	-12.988348	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-38				57.09	24.6	-19.559395	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-39				68.95	14.39	19.087133	Potential ϕ-sep	High alkali	Mid Al	Potential ϕ-sep.	High Ti
HLP-40				64.11	17.66	8.379767	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-40Q				62.51	17.41	12.357317	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-41				63.50	16.91	13.593752	Potential ϕ-sep	High alkali	Mid Al	Potential ϕ-sep.	High Ti
HLP-42				56.68	19.93	7.473266	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-42Q				57.29	20.99	0.508463	Indeterminate	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-43				77.22	12.93	14.071976	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-44				77.22	13	13.67663	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-45				77.54	13.16	12.259862	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-46				81.48	16.11	-10.718938	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
HLP-47				83.16	11.98	9.912596	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-48				66.58	17.87	3.233084	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-49				63.96	23.43	-23.967514	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
HLP-51				71.33	14.56	14.310677	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-52				75.20	15.14	4.829408	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-53				68.60	21.19	-18.756682	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-54				83.24	12.26	8.202932	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
HLP-55				87.54	9.45	17.1782	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
HLP-58				77.81	14.13	6.348551	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-58				77.81	14.13	6.348551	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-58				77.81	14.13	6.348551	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-58				77.81	14.13	6.348551	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-59				73.09	16.7	-0.597775	Indeterminate	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-59				73.09	16.7	-0.597775	Indeterminate	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-59				73.09	16.7	-0.597775	Indeterminate	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-59				73.09	16.7	-0.597775	Indeterminate	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-60				63.76	13.71	31.249802	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-60				63.76	13.71	31.249802	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-60				63.76	13.71	31.249802	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-60				63.76	13.71	31.249802	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-61				72.81	8.98	43.452221	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-61				72.81	8.98	43.452221	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
HLP-4	HOMOGENEOUS	8.740	12.400	0.00	0.000	0.00	0.00	0.240	0.00	0.00	0.00	0.00	7.720	0.520	0.00	0.000
HLP-5	HOMOGENEOUS	4.240	10.300	0.00	0.000	0.00	0.00	0.270	0.00	0.00	0.00	0.00	6.800	0.500	0.00	0.000
HLP-6	HOMOGENEOUS	12.300	8.890	0.00	0.000	0.00	0.00	0.140	0.00	0.00	0.00	0.00	5.960	0.420	0.00	0.000
HLP-7	HOMOGENEOUS	9.790	9.450	0.00	0.000	0.00	0.00	0.200	0.00	0.00	0.00	0.00	6.320	0.430	0.00	0.000
HLP-8	HOMOGENEOUS	7.060	5.940	0.00	0.000	0.00	0.00	0.090	0.00	0.00	0.00	0.00	5.840	0.560	0.00	0.000
HLP-9	HOMOGENEOUS	7.120	11.800	0.00	0.000	0.00	0.00	0.210	0.00	0.00	0.00	0.00	6.400	0.410	0.00	0.000
HLP-10	HOMOGENEOUS	7.040	8.920	0.00	0.000	0.00	0.00	0.220	0.00	0.00	0.00	0.00	6.330	0.480	0.00	0.010
HLP-11	HOMOGENEOUS	6.910	10.600	0.00	0.000	0.00	0.00	0.210	0.00	0.00	0.00	0.00	0.550	0.400	0.00	0.000
HLP-12	HOMOGENEOUS	6.440	10.200	0.00	0.050	0.00	0.00	0.230	0.00	0.00	0.00	0.00	9.200	0.460	0.00	0.000
HLP-13	HOMOGENEOUS	6.440	10.200	0.00	0.060	0.00	0.00	0.240	0.00	0.00	0.00	0.00	3.800	0.410	0.00	0.000
HLP-14	HOMOGENEOUS	7.230	10.100	0.00	0.060	0.00	0.00	0.240	0.00	0.00	0.00	0.00	6.310	0.450	0.00	0.000
HLP-15	HOMOGENEOUS	6.520	9.720	0.00	0.070	0.00	0.00	0.260	0.00	0.00	0.00	0.00	6.690	0.380	0.00	0.000
HLP-16	HOMOGENEOUS	6.790	10.000	0.00	0.080	0.00	0.00	0.260	0.00	0.00	0.00	0.00	6.840	0.410	0.00	0.000
HLP-17	HOMOGENEOUS	6.840	9.860	0.00	0.000	0.00	0.00	0.230	0.00	0.00	0.00	0.00	6.360	0.360	0.00	0.050
HLP-18	HOMOGENEOUS	7.450	10.200	0.00	0.000	0.00	0.00	0.260	0.00	0.00	0.00	0.00	6.220	0.430	0.00	0.000
HLP-19	HOMOGENEOUS	6.940	9.630	0.00	0.000	0.00	0.00	0.250	0.00	0.00	0.00	0.00	6.400	0.430	0.00	0.000
HLP-20	HOMOGENEOUS	7.190	10.100	0.00	0.000	0.00	0.00	0.260	0.00	0.00	0.00	0.00	6.260	0.400	0.00	0.000
HLP-21	HOMOGENEOUS	6.890	10.200	0.00	0.000	0.00	0.00	0.250	0.00	0.00	0.00	0.00	6.710	0.370	0.00	0.000
HLP-22	HOMOGENEOUS	7.670	11.000	0.00	0.000	0.00	0.00	0.270	0.00	0.00	0.00	0.00	7.020	0.300	0.00	0.000
HLP-23	HOMOGENEOUS	6.920	9.650	0.00	0.000	0.00	0.00	0.270	0.00	0.00	0.00	0.00	5.910	0.420	0.00	0.000
HLP-24	HOMOGENEOUS	7.440	10.000	0.00	0.000	0.00	0.00	0.240	0.00	0.00	0.00	0.00	6.590	0.400	0.00	0.000
HLP-25	HOMOGENEOUS	6.760	10.100	0.00	0.010	0.00	0.00	0.210	0.00	0.00	0.00	0.00	6.270	0.410	0.00	0.020
HLP-26	HOMOGENEOUS	6.680	9.430	0.00	0.000	0.00	0.00	0.210	0.00	0.00	0.00	0.00	5.970	0.430	0.00	0.000
HLP-27	HOMOGENEOUS	12.000	12.300	0.00	0.000	0.00	0.00	0.260	0.00	0.00	0.00	0.00	0.600	0.440	0.00	0.000
HLP-28	HOMOGENEOUS	12.100	13.000	0.00	0.000	0.00	0.00	0.220	0.00	0.00	0.00	0.00	3.820	0.00	0.00	0.000
HLP-29	HOMOGENEOUS	11.800	6.510	0.00	0.000	0.00	0.00	0.250	0.00	0.00	0.00	0.00	3.120	0.420	0.00	0.000
HLP-30	HOMOGENEOUS	12.200	6.560	0.00	0.000	0.00	0.00	0.230	0.00	0.00	0.00	0.00	6.380	0.290	0.00	0.000
HLP-31	HOMOGENEOUS	4.200	12.300	0.00	0.000	0.00	0.00	0.240	0.00	0.00	0.00	0.00	4.300	0.400	0.00	0.000
HLP-32	HOMOGENEOUS	4.210	12.900	0.00	0.000	0.00	0.00	0.250	0.00	0.00	0.00	0.00	7.050	0.310	0.00	0.000
HLP-33	HOMOGENEOUS	4.160	6.440	0.00	0.000	0.00	0.00	0.300	0.00	0.00	0.00	0.00	6.920	0.450	0.00	0.000
HLP-34	Potential ϕ-sep.	3.970	6.240	0.00	0.000	0.00	0.00	0.200	0.00	0.00	0.00	0.00	10.200	0.300	0.00	0.000
HLP-35	HOMOGENEOUS	11.500	12.100	0.00	0.000	0.00	0.00	0.220	0.00	0.00	0.00	0.00	7.470	0.500	0.00	0.000
HLP-36	HOMOGENEOUS	12.000	12.600	0.00	0.000	0.00	0.00	0.170	0.00	0.00	0.00	0.00	10.300	0.270	0.00	0.000
HLP-37	HOMOGENEOUS	11.600	6.780	0.00	0.000	0.00	0.00	0.190	0.00	0.00	0.00	0.00	9.710	0.400	0.00	0.000
HLP-38	HOMOGENEOUS	12.000	6.090	0.00	0.000	0.00	0.00	0.170	0.00	0.00	0.00	0.00	12.600	0.300	0.00	0.000
HLP-39	Potential ϕ-sep.	3.990	12.600	0.00	0.000	0.00	0.00	0.230	0.00	0.00	0.00	0.00	10.400	0.450	0.00	0.000
HLP-40	HOMOGENEOUS	4.260	12.400	0.00	0.000	0.00	0.00	0.180	0.00	0.00	0.00	0.00	13.400	0.310	0.00	0.000
HLP-40Q	HOMOGENEOUS	4.010	12.700	0.00	0.000	0.00	0.00	0.200	0.00	0.00	0.00	0.00	13.400	0.310	0.00	0.000
HLP-41	Potential ϕ-sep.	3.910	6.470	0.00	0.000	0.00	0.00	0.220	0.00	0.00	0.00	0.00	13.000	0.430	0.00	0.000
HLP-42	HOMOGENEOUS	4.130	6.460	0.00	0.000	0.00	0.00	0.170	0.00	0.00	0.00	0.00	15.800	0.420	0.00	0.000
HLP-42Q	HOMOGENEOUS	4.090	6.320	0.00	0.000	0.00	0.00	0.190	0.00	0.00	0.00	0.00	16.800	0.370	0.00	0.100
HLP-43	HOMOGENEOUS	6.690	9.850	0.00	0.010	0.00	0.00	0.230	0.00	0.00	0.00	0.00	6.230	0.470	0.00	0.000
HLP-44	HOMOGENEOUS	6.930	9.970	0.00	0.000	0.00	0.00	0.210	0.00	0.00	0.00	0.00	6.070	0.350	0.00	0.000
HLP-45	HOMOGENEOUS	7.100	10.100	0.00	0.000	0.00	0.00	0.220	0.00	0.00	0.00	0.00	6.060	0.340	0.00	0.000
HLP-46	HOMOGENEOUS	11.700	5.500	0.00	3.920	0.00	0.00	0.160	0.00	0.00	0.00	0.00	0.490	0.280	0.00	0.000
HLP-47	HOMOGENEOUS	9.420	7.640	0.00	0.520	0.00	0.00	0.320	0.00	0.00	0.00	0.00	2.040	1.400	0.00	0.000
HLP-48	HOMOGENEOUS	11.500	8.930	0.00	0.000	0.00	0.00	0.140	0.00	0.00	0.00	0.00	6.370	2.750	0.00	0.000
HLP-49	HOMOGENEOUS	7.760	8.740	0.00	6.960	0.00	0.00	0.240	0.00	0.00	0.00	0.00	8.710	0.360	0.00	0.000
HLP-51	HOMOGENEOUS	9.680	9.260	0.00	0.000	0.00	0.00	0.140	0.00	0.00	0.00	0.00	2.940	2.070	0.00	1.940
HLP-52	HOMOGENEOUS	9.630	0.100	0.00	2.510	0.00	0.00	0.210	0.00	0.00	0.00	0.00	3.000	1.800	0.00	0.000
HLP-53	HOMOGENEOUS	9.310	5.460	0.00	4.210	0.00	0.00	0.140	0.00	0.00	0.00	0.00	7.670	2.750	0.00	0.000
HLP-54	HOMOGENEOUS	11.700	8.760	0.00	0.000	0.00	0.00	0.160	0.00	0.00	0.00	0.00	0.560	0.280	0.00	0.000
HLP-55	HOMOGENEOUS	8.870	8.920	0.00	0.000	0.00	0.00	0.170	0.00	0.00	0.00	0.00	0.580	0.320	0.00	0.000
HLP-58	HOMOGENEOUS	6.630	9.980	0.00	2.020	0.00	0.00	0.080	0.00	0.00	0.00	0.00	5.450	0.450	0.00	0.010
HLP-58	HOMOGENEOUS	6.630	9.980	0.00	2.020	0.00	0.00	0.080	0.00	0.00	0.00	0.00	5.450	0.450	0.00	0.010
HLP-58	HOMOGENEOUS	6.630	9.980	0.00	2.020	0.00	0.00	0.080	0.00	0.00	0.00	0.00	5.450	0.450	0.00	0.010
HLP-58	HOMOGENEOUS	6.630	9.980	0.00	2.020	0.00	0.00	0.080	0.00	0.00	0.00	0.00	5.450	0.450	0.00	0.010
HLP-59	HOMOGENEOUS	6.590	9.320	0.00	4.680	0.00	0.00	0.080	0.00	0.00	0.00	0.00	5.400	0.450	0.00	0.010
HLP-59	HOMOGENEOUS	6.590	9.320	0.00	4.680	0.00	0.00	0.080	0.00	0.00	0.00	0.00	5.400	0.450	0.00	0.010
HLP-59	HOMOGENEOUS	6.590	9.320	0.00	4.680	0.00	0.00	0.080	0.00	0.00	0.00	0.00	5.400	0.450	0.00	0.010
HLP-59	HOMOGENEOUS	6.590	9.320	0.00	4.680	0.00	0.00	0.080	0.00	0.00	0.00	0.00	5.400	0.450	0.00	0.010
HLP-60	HOMOGENEOUS	11.810	12.250	0.00	0.020	0.00	0.00	0.100	0.00	0.00	0.00	0.00	1.850	0.380	0.00	0.010
HLP-60	HOMOGENEOUS	11.810	12.250	0.00	0.020	0.00	0.00	0.100	0.00	0.00	0.00	0.00	1.850	0.380	0.00	0.010
HLP-60	HOMOGENEOUS	11.810	12.250	0.00	0.020	0.00	0.00	0.100	0.00	0.00	0.00	0.00	1.850	0.380	0.00	0.010
HLP-60	HOMOGENEOUS	11.810	12.250	0.00	0.020	0.00	0.00	0.100	0.00	0.00	0.00	0.00	1.850	0.380	0.00	0.010
HLP-61	HOMOGENEOUS	4.080	12.520	0.00	4.740	0.00	0.00	0.100	0.00	0.00	0.00	0.00	0.130	4.780	0.00	0.010
HLP-61	HOMOGENEOUS	4.080	12.520	0.00	4.740	0.00	0.00	0.100	0.00	0.00	0.00	0.00	0.130	4.780	0.00	0.010

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
HLP-4	0.000	1.680	0.00	0.00	22.200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.400	0.00	0.00	0.00
HLP-5	0.000	1.450	0.00	0.00	20.300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.300	0.00	0.00	0.00
HLP-6	0.000	1.340	0.00	0.00	19.100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.600	0.00	0.00	0.00
HLP-7	0.000	1.460	0.00	0.00	19.300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.300	0.00	0.00	0.00
HLP-8	0.000	1.310	0.00	0.00	19.500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.900	0.00	0.00	0.00
HLP-9	0.000	1.290	0.00	0.00	18.600	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.300	0.00	0.00	0.00
HLP-10	0.000	1.360	0.00	0.00	18.400	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.900	0.00	0.00	0.00
HLP-11	0.000	1.230	0.00	0.00	18.200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.800	0.00	0.00	0.00
HLP-12	0.000	1.230	0.00	0.00	18.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.800	0.00	0.00	0.00
HLP-13	0.000	1.510	0.00	0.00	18.500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.900	0.00	0.00	0.00
HLP-14	0.000	1.530	0.00	0.00	19.400	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.300	0.00	0.00	0.00
HLP-15	0.000	1.540	0.00	0.00	18.600	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.800	0.00	0.00	0.00
HLP-16	0.000	1.610	0.00	0.00	19.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.400	0.00	0.00	0.00
HLP-17	0.000	1.530	0.00	0.00	18.400	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.300	0.00	0.00	0.00
HLP-18	0.000	1.540	0.00	0.00	19.200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.200	0.00	0.00	0.00
HLP-19	0.000	1.470	0.00	0.00	17.800	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.200	0.00	0.00	0.00
HLP-20	0.000	0.000	0.00	0.00	19.300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.300	0.00	0.00	0.00
HLP-21	0.000	3.930	0.00	0.00	18.300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.900	0.00	0.00	0.00
HLP-22	0.000	1.660	0.00	0.00	15.400	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.300	0.00	0.00	0.00
HLP-23	0.000	1.470	0.00	0.00	21.500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.100	0.00	0.00	0.00
HLP-24	0.000	1.630	0.00	0.00	17.200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.900	0.00	0.00	0.00
HLP-25	0.000	1.540	0.00	0.00	18.500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.200	0.00	0.00	0.00
HLP-26	0.000	1.450	0.00	0.00	18.200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.800	0.00	0.00	0.00
HLP-27	0.000	0.000	0.00	0.00	21.700	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.400	0.00	0.00	0.00
HLP-28	0.000	0.800	0.00	0.00	15.100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.800	0.00	0.00	0.00
HLP-29	0.000	0.690	0.00	0.00	21.500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.500	0.00	0.00	0.00
HLP-30	0.000	1.500	0.00	0.00	15.400	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.300	0.00	0.00	0.00
HLP-31	0.000	0.840	0.00	0.00	22.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.900	0.00	0.00	0.00
HLP-32	0.000	1.660	0.00	0.00	15.700	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.000	0.00	0.00	0.00
HLP-33	0.000	1.570	0.00	0.00	22.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.300	0.00	0.00	0.00
HLP-34	0.000	2.100	0.00	0.00	14.300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.000	0.00	0.00	0.00
HLP-35	0.000	1.680	0.00	0.00	21.600	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.000	0.00	0.00	0.00
HLP-36	0.000	2.410	0.00	0.00	15.500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.600	0.00	0.00	0.00
HLP-37	0.000	2.190	0.00	0.00	21.800	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.600	0.00	0.00	0.00
HLP-38	0.000	3.150	0.00	0.00	15.300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.400	0.00	0.00	0.00
HLP-39	0.000	2.590	0.00	0.00	21.500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.400	0.00	0.00	0.00
HLP-40	0.000	3.650	0.00	0.00	16.300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.100	0.00	0.00	0.00
HLP-40Q	0.000	3.460	0.00	0.00	15.400	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.100	0.00	0.00	0.00
HLP-41	0.000	3.200	0.00	0.00	21.600	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.000	0.00	0.00	0.00
HLP-42	0.000	4.090	0.00	0.00	15.600	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.200	0.00	0.00	0.00
HLP-42Q	0.000	4.050	0.00	0.00	15.500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.100	0.00	0.00	0.00
HLP-43	0.000	1.330	0.00	0.00	18.500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.400	0.00	0.00	0.00
HLP-44	0.000	1.460	0.00	0.00	18.600	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.300	0.00	0.00	0.00
HLP-45	0.000	1.550	0.00	0.00	18.500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.600	0.00	0.00	0.00
HLP-46	0.000	0.000	0.00	0.00	18.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	57.700	0.00	0.00	0.00
HLP-47	0.120	0.110	0.00	0.00	18.900	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.100	0.00	0.00	0.00
HLP-48	0.000	1.830	0.00	0.00	18.500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.400	0.00	0.00	0.00
HLP-49	4.110	2.810	0.00	0.00	9.650	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.100	0.00	0.00	0.00
HLP-51	0.000	0.920	0.00	0.00	18.800	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.200	0.00	0.00	0.00
HLP-52	0.000	1.080	0.00	0.00	27.500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.800	0.00	0.00	0.00
HLP-53	2.290	1.930	0.00	0.00	18.600	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.500	0.00	0.00	0.00
HLP-54	0.000	0.000	0.00	0.00	17.800	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.400	0.00	0.00	0.00
HLP-55	0.000	0.000	0.00	0.00	17.700	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.600	0.00	0.00	0.00
HLP-58	0.130	1.430	0.00	0.020	19.030	0.00	0.00	0.00	0.080	0.00	0.00	0.00	0.00	48.220	0.00	0.00	0.00
HLP-58	0.130	1.430	0.00	0.020	19.030	0.00	0.00	0.00	0.080	0.00	0.00	0.00	0.00	48.220	0.00	0.00	0.00
HLP-58	0.130	1.430	0.00	0.020	19.030	0.00	0.00	0.00	0.080	0.00	0.00	0.00	0.00	48.220	0.00	0.00	0.00
HLP-58	0.130	1.430	0.00	0.020	19.030	0.00	0.00	0.00	0.080	0.00	0.00	0.00	0.00	48.220	0.00	0.00	0.00
HLP-59	0.130	1.380	0.00	0.020	18.370	0.00	0.00	0.00	0.050	0.00	0.00	0.00	0.00	44.820	0.00	0.00	0.00
HLP-59	0.130	1.380	0.00	0.020	18.370	0.00	0.00	0.00	0.050	0.00	0.00	0.00	0.00	44.820	0.00	0.00	0.00
HLP-59	0.130	1.380	0.00	0.020	18.370	0.00	0.00	0.00	0.050	0.00	0.00	0.00	0.00	44.820	0.00	0.00	0.00
HLP-59	0.130	1.380	0.00	0.020	18.370	0.00	0.00	0.00	0.050	0.00	0.00	0.00	0.00	44.820	0.00	0.00	0.00
HLP-60	0.130	3.900	0.00	0.020	15.690	0.00	0.00	0.00	0.680	0.00	0.00	0.00	0.00	35.310	0.00	0.00	0.00
HLP-60	0.130	3.900	0.00	0.020	15.690	0.00	0.00	0.00	0.680	0.00	0.00	0.00	0.00	35.310	0.00	0.00	0.00
HLP-60	0.130	3.900	0.00	0.020	15.690	0.00	0.00	0.00	0.680	0.00	0.00	0.00	0.00	35.310	0.00	0.00	0.00
HLP-60	0.130	3.900	0.00	0.020	15.690	0.00	0.00	0.00	0.680	0.00	0.00	0.00	0.00	35.310	0.00	0.00	0.00
HLP-61	0.140	3.870	0.00	0.020	15.920	0.00	0.00	0.00	0.070	0.00	0.00	0.00	0.00	39.450	0.00	0.00	0.00
HLP-61	0.140	3.870	0.00	0.020	15.920	0.00	0.00	0.00	0.070	0.00	0.00	0.00	0.00	39.450	0.00	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
HLP-4	0.00	0.00	3.560	0.00	0.00	1.74	1.74	0.00	100.94		
HLP-5	0.00	0.00	3.170	0.00	0.00	1.56	1.45	0.00	97.34		
HLP-6	0.00	0.00	2.940	0.00	0.00	1.42	1.35	0.00	98.46		
HLP-7	0.00	0.00	3.150	0.00	0.00	1.56	1.55	0.00	103.51		
HLP-8	0.00	0.00	3.040	0.00	0.00	1.46	1.44	0.00	95.14		
HLP-9	0.00	0.00	2.870	0.00	0.00	1.51	1.22	0.00	94.73		
HLP-10	0.00	0.00	3.090	0.00	0.00	1.49	1.55	0.00	96.79		
HLP-11	0.00	0.00	2.830	0.00	0.00	1.48	1.38	0.00	94.59		
HLP-12	0.00	0.00	2.750	0.00	0.00	1.45	1.34	0.00	96.15		
HLP-13	0.00	0.00	2.950	0.00	0.00	1.53	1.34	0.00	96.88		
HLP-14	0.00	0.00	0.000	0.00	0.00	1.55	1.43	0.00	95.60		
HLP-15	0.00	0.00	5.910	0.00	0.00	1.51	1.06	0.00	100.06		
HLP-16	0.00	0.00	3.180	0.00	0.00	0	1.3	0.00	102.87		
HLP-17	0.00	0.00	3.000	0.00	0.00	3.96	1.3	0.00	100.19		
HLP-18	0.00	0.00	3.180	0.00	0.00	1.54	0	0.00	96.22		
HLP-19	0.00	0.00	2.980	0.00	0.00	1.5	5.64	0.00	101.24		
HLP-20	0.00	0.00	3.200	0.00	0.00	1.6	1.51	0.00	99.12		
HLP-21	0.00	0.00	3.030	0.00	0.00	1.68	1.34	0.00	98.60		
HLP-22	0.00	0.00	3.270	0.00	0.00	1.65	1.26	0.00	102.80		
HLP-23	0.00	0.00	2.900	0.00	0.00	1.47	1.38	0.00	95.99		
HLP-24	0.00	0.00	3.240	0.00	0.00	1.6	1.51	0.00	98.75		
HLP-25	0.00	0.00	2.660	0.00	0.00	1.49	1.48	0.00	96.65		
HLP-26	0.00	0.00	2.860	0.00	0.00	1.4	1.5	0.00	94.93		
HLP-27	0.00	0.00	0.000	0.00	0.00	0	0	0.00	97.70		
HLP-28	0.00	0.00	1.740	0.00	0.00	0.92	0.75	0.00	100.25		
HLP-29	0.00	0.00	1.410	0.00	0.00	0.73	0.64	0.00	96.57		
HLP-30	0.00	0.00	3.200	0.00	0.00	1.55	1.43	0.00	96.04		
HLP-31	0.00	0.00	1.780	0.00	0.00	0.94	0.7	0.00	96.60		
HLP-32	0.00	0.00	3.570	0.00	0.00	1.86	1.6	0.00	95.11		
HLP-33	0.00	0.00	3.230	0.00	0.00	1.67	1.31	0.00	100.35		
HLP-34	0.00	0.00	4.700	0.00	0.00	2.32	2	0.00	97.33		
HLP-35	0.00	0.00	3.610	0.00	0.00	1.83	1.73	0.00	98.24		
HLP-36	0.00	0.00	5.490	0.00	0.00	2.69	2.44	0.00	99.47		
HLP-37	0.00	0.00	5.040	0.00	0.00	2.46	2.28	0.00	98.05		
HLP-38	0.00	0.00	6.880	0.00	0.00	3.33	3.38	0.00	98.60		
HLP-39	0.00	0.00	5.500	0.00	0.00	2.72	2.62	0.00	97.00		
HLP-40	0.00	0.00	7.650	0.00	0.00	3.73	3.44	0.00	100.42		
HLP-40Q	0.00	0.00	7.280	0.00	0.00	3.62	3.16	0.00	97.64		
HLP-41	0.00	0.00	6.780	0.00	0.00	3.48	3.19	0.00	97.28		
HLP-42	0.00	0.00	8.660	0.00	0.00	4.17	3.78	0.00	97.48		
HLP-42Q	0.00	0.00	8.310	0.00	0.00	4.29	3.27	0.00	98.39		
HLP-43	0.00	0.00	2.860	0.00	0.00	1.4	1.5	0.00	97.47		
HLP-44	0.00	0.00	3.120	0.00	0.00	1.51	1.22	0.00	97.74		
HLP-45	0.00	0.00	2.930	0.00	0.00	1.46	1.34	0.00	98.20		
HLP-46	0.00	0.00	0.000	0.00	0.00	0	0	0.00	97.75		
HLP-47	0.00	0.00	0.090	0.00	0.00	0	0.94	0.00	96.60		
HLP-48	0.00	0.00	2.450	0.00	0.00	4.1	2.04	0.00	95.01		
HLP-49	0.00	0.00	0.000	0.00	0.00	3.93	2.73	0.00	97.10		
HLP-51	0.00	0.00	2.370	0.00	0.00	2.51	3.9	0.00	95.73		
HLP-52	0.00	0.00	0.370	0.00	0.00	0	2.54	0.00	94.54		
HLP-53	0.00	0.00	0.000	0.00	0.00	3.09	2.76	0.00	97.71		
HLP-54	0.00	0.00	0.000	0.00	0.00	0	0.07	0.00	95.73		
HLP-55	0.00	0.00	0.000	0.00	0.00	0	0	0.00	97.16		
HLP-58	0.00	0.00	3.010	0.00	0.00	1.430	1.460	0.00	99.43		
HLP-58	0.00	0.00	3.010	0.00	0.00	1.430	1.460	0.00	99.43		
HLP-58	0.00	0.00	3.010	0.00	0.00	1.430	1.460	0.00	99.43		
HLP-58	0.00	0.00	3.010	0.00	0.00	1.430	1.460	0.00	99.43		
HLP-59	0.00	0.00	2.880	0.00	0.00	1.430	1.520	0.00	97.13		
HLP-59	0.00	0.00	2.880	0.00	0.00	1.430	1.520	0.00	97.13		
HLP-59	0.00	0.00	2.880	0.00	0.00	1.430	1.520	0.00	97.13		
HLP-59	0.00	0.00	2.880	0.00	0.00	1.430	1.520	0.00	97.13		
HLP-60	0.00	0.00	8.570	0.00	0.00	0.020	4.140	0.00	94.88		
HLP-60	0.00	0.00	8.570	0.00	0.00	0.020	4.140	0.00	94.88		
HLP-60	0.00	0.00	8.570	0.00	0.00	0.020	4.140	0.00	94.88		
HLP-60	0.00	0.00	8.570	0.00	0.00	0.020	4.140	0.00	94.88		
HLP-61	0.00	0.00	8.460	0.00	0.00	3.990	0.070	0.00	98.35		
HLP-61	0.00	0.00	8.460	0.00	0.00	3.990	0.070	0.00	98.35		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
HLP-61		PNNL-13744	T	41.67	0.20	20.000	833.33	**2.649**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.54
HLP-61		PNNL-13744	T	208.33	0.20	20.000	4166.67	**2.649**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.61
HLP-62		PNNL-13744	T	0.42	0.20	20.000	8.33	**2.680**	10.000	100-200	1.125E-04	0.01	ASTM I	90	9.91
HLP-62		PNNL-13744	T	4.17	0.20	20.000	83.33	**2.680**	10.000	100-200	1.125E-04	0.01	ASTM I	90	10.14
HLP-62		PNNL-13744	T	41.67	0.20	20.000	833.33	**2.680**	10.000	100-200	1.125E-04	0.01	ASTM I	90	10.40
HLP-62		PNNL-13744	T	208.33	0.20	20.000	4166.67	**2.680**	10.000	100-200	1.125E-04	0.01	ASTM I	90	10.32
HLP-63		PNNL-13744	T	0.42	0.19	20.000	8.33	**2.767**	10.000	100-200	1.125E-04	0.01	ASTM I	90	12.24
HLP-63		PNNL-13744	T	4.17	0.19	20.000	83.33	**2.767**	10.000	100-200	1.125E-04	0.01	ASTM I	90	12.53
HLP-63		PNNL-13744	T	41.67	0.19	20.000	833.33	**2.767**	10.000	100-200	1.125E-04	0.01	ASTM I	90	12.84
HLP-63		PNNL-13744	T	208.33	0.19	20.000	4166.67	**2.767**	10.000	100-200	1.125E-04	0.01	ASTM I	90	12.98
HLP-64		PNNL-13744	T	0.42	0.20	20.000	8.33	**2.633**	10.000	100-200	1.125E-04	0.01	ASTM I	90	10.97
HLP-64		PNNL-13744	T	4.17	0.20	20.000	83.33	**2.633**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.68
HLP-64		PNNL-13744	T	41.67	0.20	20.000	833.33	**2.633**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.80
HLP-64		PNNL-13744	T	208.33	0.20	20.000	4166.67	**2.633**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.93
HLP-65		PNNL-13744	T	0.42	0.20	20.000	8.33	**2.649**	10.000	100-200	1.125E-04	0.01	ASTM I	90	10.56
HLP-65		PNNL-13744	T	4.17	0.20	20.000	83.33	**2.649**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.03
HLP-65		PNNL-13744	T	41.67	0.20	20.000	833.33	**2.649**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.47
HLP-65		PNNL-13744	T	208.33	0.20	20.000	4166.67	**2.649**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.75
HLP-66		PNNL-13744	T	0.42	0.21	20.000	8.33	**2.582**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.53
HLP-66		PNNL-13744	T	4.17	0.21	20.000	83.33	**2.582**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.89
HLP-66		PNNL-13744	T	41.67	0.21	20.000	833.33	**2.582**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.63
HLP-66		PNNL-13744	T	208.33	0.21	20.000	4166.67	**2.582**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.71
HLP-67		PNNL-13744	T	0.42	0.20	20.000	8.33	**2.712**	10.000	100-200	1.125E-04	0.01	ASTM I	90	12.23
HLP-67		PNNL-13744	T	4.17	0.20	20.000	83.33	**2.712**	10.000	100-200	1.125E-04	0.01	ASTM I	90	12.44
HLP-67		PNNL-13744	T	41.67	0.20	20.000	833.33	**2.712**	10.000	100-200	1.125E-04	0.01	ASTM I	90	12.65
HLP-67		PNNL-13744	T	208.33	0.20	20.000	4166.67	**2.712**	10.000	100-200	1.125E-04	0.01	ASTM I	90	12.66
HLP-68		PNNL-13744	T	0.42	0.19	20.000	8.33	**2.795**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.19
HLP-68		PNNL-13744	T	4.17	0.19	20.000	83.33	**2.795**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.57
HLP-68		PNNL-13744	T	41.67	0.19	20.000	833.33	**2.795**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.98
HLP-68		PNNL-13744	T	208.33	0.19	20.000	4166.67	**2.795**	10.000	100-200	1.125E-04	0.01	ASTM I	90	12.11
HLP-69		PNNL-13744	T	0.42	0.20	20.000	8.33	**2.605**	10.000	100-200	1.125E-04	0.01	ASTM I	90	10.26
HLP-69		PNNL-13744	T	4.17	0.20	20.000	83.33	**2.605**	10.000	100-200	1.125E-04	0.01	ASTM I	90	10.68
HLP-69		PNNL-13744	T	41.67	0.20	20.000	833.33	**2.605**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.15
HLP-69		PNNL-13744	T	208.33	0.20	20.000	4166.67	**2.605**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.20
HLP-70		PNNL-13744	T	0.42	0.20	20.000	8.33	**2.638**	10.000	100-200	1.125E-04	0.01	ASTM I	90	12.34
HLP-70		PNNL-13744	T	4.17	0.20	20.000	83.33	**2.638**	10.000	100-200	1.125E-04	0.01	ASTM I	90	12.62
HLP-70		PNNL-13744	T	208.33	0.20	20.000	4166.67	**2.638**	10.000	100-200	1.125E-04	0.01	ASTM I	90	13.20
HLP-71		PNNL-13744	T	0.42	0.20	20.000	8.33	**2.716**	10.000	100-200	1.125E-04	0.01	ASTM I	90	12.34
HLP-71		PNNL-13744	T	4.17	0.20	20.000	83.33	**2.716**	10.000	100-200	1.125E-04	0.01	ASTM I	90	12.70
HLP-71		PNNL-13744	T	41.67	0.20	20.000	833.33	**2.716**	10.000	100-200	1.125E-04	0.01	ASTM I	90	12.83
HLP-72		PNNL-13744	T	0.42	0.20	20.000	8.33	**2.663**	10.000	100-200	1.125E-04	0.01	ASTM I	90	10.02
HLP-72		PNNL-13744	T	4.17	0.20	20.000	83.33	**2.663**	10.000	100-200	1.125E-04	0.01	ASTM I	90	9.89
HLP-72		PNNL-13744	T	41.67	0.20	20.000	833.33	**2.663**	10.000	100-200	1.125E-04	0.01	ASTM I	90	9.58
HLP-72		PNNL-13744	T	208.33	0.20	20.000	4166.67	**2.663**	10.000	100-200	1.125E-04	0.01	ASTM I	90	9.71
HLP-73		PNNL-13744	T	0.42	0.20	20.000	8.33	**2.612**	10.000	100-200	1.125E-04	0.01	ASTM I	90	9.90
HLP-73		PNNL-13744	T	4.17	0.20	20.000	83.33	**2.612**	10.000	100-200	1.125E-04	0.01	ASTM I	90	10.00
HLP-73		PNNL-13744	T	41.67	0.20	20.000	833.33	**2.612**	10.000	100-200	1.125E-04	0.01	ASTM I	90	10.26
HLP-73		PNNL-13744	T	208.33	0.20	20.000	4166.67	**2.612**	10.000	100-200	1.125E-04	0.01	ASTM I	90	10.33
HLP-74		PNNL-13744	T	0.42	0.20	20.000	8.33	**2.680**	10.000	100-200	1.125E-04	0.01	ASTM I	90	9.73
HLP-74		PNNL-13744	T	4.17	0.20	20.000	83.33	**2.680**	10.000	100-200	1.125E-04	0.01	ASTM I	90	9.92
HLP-74		PNNL-13744	T	41.67	0.20	20.000	833.33	**2.680**	10.000	100-200	1.125E-04	0.01	ASTM I	90	9.77
HLP-74		PNNL-13744	T	208.33	0.20	20.000	4166.67	**2.680**	10.000	100-200	1.125E-04	0.01	ASTM I	90	9.82
HLP-75		PNNL-13744	T	0.42	0.20	20.000	8.33	**2.681**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.01
HLP-75		PNNL-13744	T	4.17	0.20	20.000	83.33	**2.681**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.47
HLP-75		PNNL-13744	T	41.67	0.20	20.000	833.33	**2.681**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.88
HLP-75		PNNL-13744	T	208.33	0.20	20.000	4166.67	**2.681**	10.000	100-200	1.125E-04	0.01	ASTM I	90	12.02
HLP-76		PNNL-13744	T	0.42	0.21	20.000	8.33	**2.554**	10.000	100-200	1.125E-04	0.01	ASTM I	90	10.86
HLP-76		PNNL-13744	T	4.17	0.21	20.000	83.33	**2.554**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.38
HLP-76		PNNL-13744	T	41.67	0.21	20.000	833.33	**2.554**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.80
HLP-76		PNNL-13744	T	208.33	0.21	20.000	4166.67	**2.554**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.81
HLP-77		PNNL-13744	T	0.42	0.21	20.000	8.33	**2.561**	10.000	100-200	1.125E-04	0.01	ASTM I	90	10.82
HLP-77		PNNL-13744	T	4.17	0.21	20.000	83.33	**2.561**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.34
HLP-77		PNNL-13744	T	41.67	0.21	20.000	833.33	**2.561**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.79
HLP-77		PNNL-13744	T	208.33	0.21	20.000	4166.67	**2.561**	10.000	100-200	1.125E-04	0.01	ASTM I	90	11.90
HLP-01		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.649**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.31
HLP-02		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.702**	1.50	100-200	1.125E-04	0.015	ASTM I	90	11.68
HLP-03		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.636**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.22

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
HLP-61	196.420	300.920				852.660		0.740	<0.04		<0.04	<0.07	<0.01	<0.01
HLP-61	235.900	438.320				1239.600		2.880	<0.40		<0.40	<0.70	<0.10	<0.10
HLP-62	37.240	22.830				65.740		0.210	<0.04		<0.01	<0.07	<0.01	<0.01
HLP-62	62.320	45.830				146.990		1.050	<0.04		<0.01	<0.07	<0.01	<0.01
HLP-62	84.380	83.860				237.390		<0.09	<0.04		<0.04	<0.07	<0.01	<0.01
HLP-62	81.800	101.140				1007.500		2.180	<0.40		<0.40	<0.70	<0.10	<0.10
HLP-63	231.830	184.010				1169.500		5.510	1.220		<0.01	<0.07	<0.01	<0.01
HLP-63	753.800	692.000				4545.000		13.150	<0.04		<0.01	<0.07	<0.01	<0.01
HLP-63	3040.000	2425.000				13700.000		17.120	5.680		<0.04	0.230	<0.01	<0.01
HLP-63	7370.000	7610.000				34200.000		37.800	<0.40		<0.40	<0.70	<0.10	<0.10
HLP-64	40.950	7.930				76.690		0.570	<0.04		<0.01	<0.07	<0.01	<0.01
HLP-64	619.000	546.600				2323.100		0.470	<0.04		<0.01	<0.07	<0.01	<0.01
HLP-64	251.670	1009.300				3993.300		<0.09	<0.04		<0.04	<0.07	<0.01	<0.01
HLP-64	727.690	1161.200				3890.600		2.100	<0.40		<0.40	<0.70	<0.10	<0.10
HLP-65	65.500	14.790				94.840		0.710	0.380		<0.01	<0.07	<0.01	<0.01
HLP-65	160.200	36.730				274.120		2.570	5.200		1.150	<0.07	<0.01	<0.01
HLP-65	252.390	61.470				450.680		1.360	<0.04		<0.04	<0.07	<0.01	<0.01
HLP-65	289.970	62.210				521.810		3.680	<0.40		<0.40	<0.70	<0.10	<0.10
HLP-66	658.910	475.490				1649.900		<0.09	0.320		<0.01	<0.07	<0.01	<0.01
HLP-66	237.900	1570.000				5049.000		1.360	0.440		<0.01	<0.07	<0.01	<0.01
HLP-66	1998.900	4582.700				14879.000		12.710	2.240		<0.04	<0.07	<0.01	<0.01
HLP-66	13600.000	8460.000				20000.000		62.800	<0.40		<0.40	<0.70	<0.10	<0.10
HLP-67	195.420	574.990				2064.800		1.320	0.870		<0.01	<0.07	1.240	<0.01
HLP-67	237.400	1150.000				4039.600		4.320	1.350		<0.01	<0.07	4.300	<0.01
HLP-67	246.380	1833.000				6613.200		10.200	0.640		<0.04	<0.07	8.440	<0.01
HLP-67	1341.100	3831.300				10368.000		10.560	<0.40		<0.40	<0.70	3.83	<0.10
HLP-68	23.540	6.810				83.610		8.300	<0.04		<0.01	<0.07	<0.01	<0.01
HLP-68	46.930	18.750				207.500		16.700	0.440		<0.01	<0.07	<0.01	<0.01
HLP-68	76.600	50.420				449.510		23.550	0.230		<0.04	<0.07	<0.01	<0.01
HLP-68	82.450	40.760				611.500		25.220	<0.40		<0.40	<0.70	<0.10	<0.10
HLP-69	31.450	3.940				36.250		6.290	<0.04		<0.01	<0.07	<0.01	<0.01
HLP-69	59.400	11.920				85.920		11.550	<0.04		<0.01	0.410	<0.01	<0.01
HLP-69	78.170	19.490				155.540		13.100	<0.04		<0.04	0.530	0.810	<0.01
HLP-69	80.750	21.960				204.000		14.500	<0.40		<0.40	<0.70	<0.10	<0.10
HLP-70	460.420	229.470				2119.400		9.570	<0.04		<0.01	<0.07	<0.01	<0.01
HLP-70	953.400	684.500				5425.500		23.350	<0.04		<0.01	<0.07	<0.01	<0.01
HLP-70	19000.000	12300.000				66400.000		124.000	<0.40		<0.40	<0.70	<0.10	<0.10
HLP-71	82.210	4504.000				11298.000		30.390	<0.04		<0.01	<0.07	<0.01	<0.01
HLP-71	117.700	8844.000				21800.000		85.060	<0.04		<0.01	<0.07	0.640	<0.01
HLP-71	589.090	9959.000				31462.000		65.400	<0.04		<0.04	<0.07	113.500	<0.01
HLP-72	19.550	13.840				50.000		6.740	0.370		<0.01	<0.07	<0.01	<0.01
HLP-72	27.580	89.540				180.490		9.880	0.260		2.150	<0.07	<0.01	<0.01
HLP-72	19.980	482.000				808.290		5.230	<0.04		3.090	<0.07	<0.01	<0.01
HLP-72	11.430	950.870				1440.000		6.080	<0.40		<0.40	<0.70	<0.10	<0.10
HLP-73	18.800	187.490				324.000		3.570	<0.04		<0.01	<0.07	<0.01	<0.01
HLP-73	26.650	957.600				1603.300		2.830	<0.04		<0.01	<0.07	<0.01	<0.01
HLP-73	40.400	4037.600				6568.600		<0.09	<0.04		<0.04	<0.07	<0.01	<0.01
HLP-73	70.460	4664.600				1925.400		2.210	<0.40		<0.40	<0.70	<0.10	<0.10
HLP-74	20.440	34.160				78.790		5.290	<0.04		<0.01	<0.07	<0.01	<0.01
HLP-74	30.280	163.900				341.470		6.570	0.040		<0.01	<0.07	<0.01	<0.01
HLP-74	32.200	576.000				1010.000		1.760	<0.04		<0.04	<0.07	<0.01	<0.01
HLP-74	26.950	537.460				1185.000		3.480	<0.40		<0.40	<0.70	<0.10	<0.10
HLP-75	41.640	14.750				109.500		5.710	0.140		<0.01	<0.07	<0.01	<0.01
HLP-75	86.230	53.820				319.990		9.980	0.680		<0.01	<0.07	<0.01	<0.01
HLP-75	124.000	141.570				617.770		10.230	<0.04		<0.04	<0.07	<0.01	<0.01
HLP-75	170.950	195.810				942.830		8.770	<0.40		<0.40	<0.70	<0.10	<0.10
HLP-76	43.650	11.100				97.440		5.130	0.900		<0.01	<0.07	<0.01	<0.01
HLP-76	99.560	47.080				339.090		9.490	1.400		<0.01	<0.07	<0.01	0.090
HLP-76	162.500	152.000				751.000		10.030	<0.04		<0.04	<0.07	<0.01	<0.01
HLP-76	389.780	273.420				1245.000		2.980	<0.40		<0.40	<0.70	<0.10	<0.10
HLP-77	43.410	12.800				101.500		4.580	0.530		<0.01	<0.07	<0.01	<0.01
HLP-77	98.130	47.920				300.960		8.910	0.850		<0.01	<0.07	<0.01	0.080
HLP-77	146.990	122.850				649.360		10.800	<0.04		<0.04	<0.07	<0.01	<0.01
HLP-77	161.170	269.650				952.630		12.480	<0.40		<0.40	<0.70	<0.10	<0.10
HLP-01	47.400	10.133				63.533		6.923	3.997		0.460	1.643	0.843	0.527
HLP-02	67.367	135.333				514.667		16.100	1.873		0.267	0.307	0.293	<0.1
HLP-03	52.567	10.183				54.433		6.453	4.463		0.550	1.857	0.987	0.700

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
HLP-61				72.81	8.98	43.452221	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-61				72.81	8.98	43.452221	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-62				78.07	8.92	35.356679	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-62				78.07	8.92	35.356679	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-62				78.07	8.92	35.356679	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-62				78.07	8.92	35.356679	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-63				69.10	18.46	-4.139938	HOMOGENEOUS	High alkali	Mid Al	Potential ϕ-sep.	High Ti
HLP-63				69.10	18.46	-4.139938	HOMOGENEOUS	High alkali	Mid Al	Potential ϕ-sep.	High Ti
HLP-63				69.10	18.46	-4.139938	HOMOGENEOUS	High alkali	Mid Al	Potential ϕ-sep.	High Ti
HLP-63				69.10	18.46	-4.139938	HOMOGENEOUS	High alkali	Mid Al	Potential ϕ-sep.	High Ti
HLP-64				79.75	4.23	59.150981	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-64				79.75	4.23	59.150981	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-64				79.75	4.23	59.150981	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-64				79.75	4.23	59.150981	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-65				76.78	18.58	-17.132554	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
HLP-65				76.78	18.58	-17.132554	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
HLP-65				76.78	18.58	-17.132554	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
HLP-65				76.78	18.58	-17.132554	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
HLP-66				88.11	9.69	14.908733	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-66				88.11	9.69	14.908733	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-66				88.11	9.69	14.908733	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-66				88.11	9.69	14.908733	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-67				76.16	8.58	40.339616	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-67				76.16	8.58	40.339616	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-67				76.16	8.58	40.339616	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-67				76.16	8.58	40.339616	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-68				65.09	30.04	-63.111427	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-68				65.09	30.04	-63.111427	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-68				65.09	30.04	-63.111427	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-68				65.09	30.04	-63.111427	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-69				77.43	11.72	20.569079	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-69				77.43	11.72	20.569079	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-69				77.43	11.72	20.569079	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-69				77.43	11.72	20.569079	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-70				73.55	16.61	-0.827083	Indeterminate	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-70				73.55	16.61	-0.827083	Indeterminate	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-70				73.55	16.61	-0.827083	Indeterminate	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-71				66.66	16.97	8.187824	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-71				66.66	16.97	8.187824	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-71				66.66	16.97	8.187824	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-72				60.10	19.54	4.191938	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-72				60.10	19.54	4.191938	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-72				60.10	19.54	4.191938	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-72				60.10	19.54	4.191938	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-73				67.99	25.37	-41.386351	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-73				67.99	25.37	-41.386351	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-73				67.99	25.37	-41.386351	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-73				67.99	25.37	-41.386351	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-74				64.58	27.77	-49.473136	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
HLP-74				64.58	27.77	-49.473136	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
HLP-74				64.58	27.77	-49.473136	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
HLP-74				64.58	27.77	-49.473136	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
HLP-75				73.85	15.88	2.814761	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-75				73.85	15.88	2.814761	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-75				73.85	15.88	2.814761	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-75				73.85	15.88	2.814761	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-76				84.51	12.18	6.618311	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-76				84.51	12.18	6.618311	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-76				84.51	12.18	6.618311	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-76				84.51	12.18	6.618311	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-77				86.06	11.83	6.109616	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-77				86.06	11.83	6.109616	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-77				86.06	11.83	6.109616	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-77				86.06	11.83	6.109616	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-01				76.52	13.59	**11.466878**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-02				72.99	16.58	**0.240311**	Indeterminate	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-03				78.90	13.14	**10.192058**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
HLP-61	HOMOGENEOUS	4.080	12.520	0.00	4.740	0.00	0.00	0.100	0.00	0.00	0.00	0.00	0.130	4.780	0.00	0.010
HLP-61	HOMOGENEOUS	4.080	12.520	0.00	4.740	0.00	0.00	0.100	0.00	0.00	0.00	0.00	0.130	4.780	0.00	0.010
HLP-62	HOMOGENEOUS	4.030	12.780	0.00	4.670	0.00	0.00	0.070	0.00	0.00	0.00	0.00	0.190	0.370	0.00	0.010
HLP-62	HOMOGENEOUS	4.030	12.780	0.00	4.670	0.00	0.00	0.070	0.00	0.00	0.00	0.00	0.190	0.370	0.00	0.010
HLP-62	HOMOGENEOUS	4.030	12.780	0.00	4.670	0.00	0.00	0.070	0.00	0.00	0.00	0.00	0.190	0.370	0.00	0.010
HLP-62	HOMOGENEOUS	4.030	12.780	0.00	4.670	0.00	0.00	0.070	0.00	0.00	0.00	0.00	0.190	0.370	0.00	0.010
HLP-63	Potential ϕ-sep.	3.900	6.000	0.00	0.010	0.00	0.00	0.080	0.00	0.00	0.00	0.00	14.520	0.380	0.00	0.010
HLP-63	Potential ϕ-sep.	3.900	6.000	0.00	0.010	0.00	0.00	0.080	0.00	0.00	0.00	0.00	14.520	0.380	0.00	0.010
HLP-63	Potential ϕ-sep.	3.900	6.000	0.00	0.010	0.00	0.00	0.080	0.00	0.00	0.00	0.00	14.520	0.380	0.00	0.010
HLP-63	Potential ϕ-sep.	3.900	6.000	0.00	0.010	0.00	0.00	0.080	0.00	0.00	0.00	0.00	14.520	0.380	0.00	0.010
HLP-64	HOMOGENEOUS	4.040	6.090	0.00	0.000	0.00	0.00	0.070	0.00	0.00	0.00	0.00	0.160	4.600	0.00	0.010
HLP-64	HOMOGENEOUS	4.040	6.090	0.00	0.000	0.00	0.00	0.070	0.00	0.00	0.00	0.00	0.160	4.600	0.00	0.010
HLP-64	HOMOGENEOUS	4.040	6.090	0.00	0.000	0.00	0.00	0.070	0.00	0.00	0.00	0.00	0.160	4.600	0.00	0.010
HLP-64	HOMOGENEOUS	4.040	6.090	0.00	0.000	0.00	0.00	0.070	0.00	0.00	0.00	0.00	0.160	4.600	0.00	0.010
HLP-65	HOMOGENEOUS	3.990	6.020	0.00	4.660	0.00	0.00	0.080	0.00	0.00	0.00	0.00	9.900	0.370	0.00	0.010
HLP-65	HOMOGENEOUS	3.990	6.020	0.00	4.660	0.00	0.00	0.080	0.00	0.00	0.00	0.00	9.900	0.370	0.00	0.010
HLP-65	HOMOGENEOUS	3.990	6.020	0.00	4.660	0.00	0.00	0.080	0.00	0.00	0.00	0.00	9.900	0.370	0.00	0.010
HLP-65	HOMOGENEOUS	3.990	6.020	0.00	4.660	0.00	0.00	0.080	0.00	0.00	0.00	0.00	9.900	0.370	0.00	0.010
HLP-66	HOMOGENEOUS	4.180	12.570	0.00	0.040	0.00	0.00	0.090	0.00	0.00	0.00	0.00	5.440	0.410	0.00	0.010
HLP-66	HOMOGENEOUS	4.180	12.570	0.00	0.040	0.00	0.00	0.090	0.00	0.00	0.00	0.00	5.440	0.410	0.00	0.010
HLP-66	HOMOGENEOUS	4.180	12.570	0.00	0.040	0.00	0.00	0.090	0.00	0.00	0.00	0.00	5.440	0.410	0.00	0.010
HLP-66	HOMOGENEOUS	4.180	12.570	0.00	0.040	0.00	0.00	0.090	0.00	0.00	0.00	0.00	5.440	0.410	0.00	0.010
HLP-67	HOMOGENEOUS	4.100	12.320	0.00	0.020	0.00	0.00	0.090	0.00	0.00	0.00	0.00	4.430	4.730	0.00	0.010
HLP-67	HOMOGENEOUS	4.100	12.320	0.00	0.020	0.00	0.00	0.090	0.00	0.00	0.00	0.00	4.430	4.730	0.00	0.010
HLP-67	HOMOGENEOUS	4.100	12.320	0.00	0.020	0.00	0.00	0.090	0.00	0.00	0.00	0.00	4.430	4.730	0.00	0.010
HLP-67	HOMOGENEOUS	4.100	12.320	0.00	0.020	0.00	0.00	0.090	0.00	0.00	0.00	0.00	4.430	4.730	0.00	0.010
HLP-68	HOMOGENEOUS	9.410	6.240	0.00	4.700	0.00	0.00	0.080	0.00	0.00	0.00	0.00	15.900	4.640	0.00	0.010
HLP-68	HOMOGENEOUS	9.410	6.240	0.00	4.700	0.00	0.00	0.080	0.00	0.00	0.00	0.00	15.900	4.640	0.00	0.010
HLP-68	HOMOGENEOUS	9.410	6.240	0.00	4.700	0.00	0.00	0.080	0.00	0.00	0.00	0.00	15.900	4.640	0.00	0.010
HLP-68	HOMOGENEOUS	9.410	6.240	0.00	4.700	0.00	0.00	0.080	0.00	0.00	0.00	0.00	15.900	4.640	0.00	0.010
HLP-69	HOMOGENEOUS	11.310	6.110	0.00	0.000	0.00	0.00	0.070	0.00	0.00	0.00	0.00	0.380	0.380	0.00	0.010
HLP-69	HOMOGENEOUS	11.310	6.110	0.00	0.000	0.00	0.00	0.070	0.00	0.00	0.00	0.00	0.380	0.380	0.00	0.010
HLP-69	HOMOGENEOUS	11.310	6.110	0.00	0.000	0.00	0.00	0.070	0.00	0.00	0.00	0.00	0.380	0.380	0.00	0.010
HLP-69	HOMOGENEOUS	11.310	6.110	0.00	0.000	0.00	0.00	0.070	0.00	0.00	0.00	0.00	0.380	0.380	0.00	0.010
HLP-70	HOMOGENEOUS	11.790	6.160	0.00	4.560	0.00	0.00	0.070	0.00	0.00	0.00	0.00	0.230	4.970	0.00	0.010
HLP-70	HOMOGENEOUS	11.790	6.160	0.00	4.560	0.00	0.00	0.070	0.00	0.00	0.00	0.00	0.230	4.970	0.00	0.010
HLP-70	HOMOGENEOUS	11.790	6.160	0.00	4.560	0.00	0.00	0.070	0.00	0.00	0.00	0.00	0.230	4.970	0.00	0.010
HLP-71	HOMOGENEOUS	11.840	5.900	0.00	4.650	0.00	0.00	0.090	0.00	0.00	0.00	0.00	0.450	0.370	0.00	0.010
HLP-71	HOMOGENEOUS	11.840	5.900	0.00	4.650	0.00	0.00	0.090	0.00	0.00	0.00	0.00	0.450	0.370	0.00	0.010
HLP-71	HOMOGENEOUS	11.840	5.900	0.00	4.650	0.00	0.00	0.090	0.00	0.00	0.00	0.00	0.450	0.370	0.00	0.010
HLP-72	HOMOGENEOUS	4.010	6.150	0.00	0.170	0.00	0.00	0.080	0.00	0.00	0.00	0.00	15.330	0.370	0.00	0.010
HLP-72	HOMOGENEOUS	4.010	6.150	0.00	0.170	0.00	0.00	0.080	0.00	0.00	0.00	0.00	15.330	0.370	0.00	0.010
HLP-72	HOMOGENEOUS	4.010	6.150	0.00	0.170	0.00	0.00	0.080	0.00	0.00	0.00	0.00	15.330	0.370	0.00	0.010
HLP-72	HOMOGENEOUS	4.010	6.150	0.00	0.170	0.00	0.00	0.080	0.00	0.00	0.00	0.00	15.330	0.370	0.00	0.010
HLP-73	HOMOGENEOUS	11.810	12.200	0.00	0.040	0.00	0.00	0.090	0.00	0.00	0.00	0.00	13.490	4.780	0.00	0.010
HLP-73	HOMOGENEOUS	11.810	12.200	0.00	0.040	0.00	0.00	0.090	0.00	0.00	0.00	0.00	13.490	4.780	0.00	0.010
HLP-73	HOMOGENEOUS	11.810	12.200	0.00	0.040	0.00	0.00	0.090	0.00	0.00	0.00	0.00	13.490	4.780	0.00	0.010
HLP-73	HOMOGENEOUS	11.810	12.200	0.00	0.040	0.00	0.00	0.090	0.00	0.00	0.00	0.00	13.490	4.780	0.00	0.010
HLP-74	HOMOGENEOUS	11.930	12.450	0.00	4.730	0.00	0.00	0.080	0.00	0.00	0.00	0.00	11.080	0.420	0.00	0.010
HLP-74	HOMOGENEOUS	11.930	12.450	0.00	4.730	0.00	0.00	0.080	0.00	0.00	0.00	0.00	11.080	0.420	0.00	0.010
HLP-74	HOMOGENEOUS	11.930	12.450	0.00	4.730	0.00	0.00	0.080	0.00	0.00	0.00	0.00	11.080	0.420	0.00	0.010
HLP-74	HOMOGENEOUS	11.930	12.450	0.00	4.730	0.00	0.00	0.080	0.00	0.00	0.00	0.00	11.080	0.420	0.00	0.010
HLP-75	HOMOGENEOUS	7.620	9.430	0.00	2.380	0.00	0.00	0.090	0.00	0.00	0.00	0.00	5.850	2.640	0.00	0.010
HLP-75	HOMOGENEOUS	7.620	9.430	0.00	2.380	0.00	0.00	0.090	0.00	0.00	0.00	0.00	5.850	2.640	0.00	0.010
HLP-75	HOMOGENEOUS	7.620	9.430	0.00	2.380	0.00	0.00	0.090	0.00	0.00	0.00	0.00	5.850	2.640	0.00	0.010
HLP-75	HOMOGENEOUS	7.620	9.430	0.00	2.380	0.00	0.00	0.090	0.00	0.00	0.00	0.00	5.850	2.640	0.00	0.010
HLP-76	HOMOGENEOUS	9.970	7.850	0.00	0.540	0.00	0.00	0.190	0.00	0.00	0.00	0.00	1.570	1.640	0.00	0.010
HLP-76	HOMOGENEOUS	9.970	7.850	0.00	0.540	0.00	0.00	0.190	0.00	0.00	0.00	0.00	1.570	1.640	0.00	0.010
HLP-76	HOMOGENEOUS	9.970	7.850	0.00	0.540	0.00	0.00	0.190	0.00	0.00	0.00	0.00	1.570	1.640	0.00	0.010
HLP-76	HOMOGENEOUS	9.970	7.850	0.00	0.540	0.00	0.00	0.190	0.00	0.00	0.00	0.00	1.570	1.640	0.00	0.010
HLP-77	HOMOGENEOUS	9.580	7.900	0.00	0.490	0.00	0.00	0.180	0.00	0.00	0.00	0.00	1.670	1.560	0.00	0.010
HLP-77	HOMOGENEOUS	9.580	7.900	0.00	0.490	0.00	0.00	0.180	0.00	0.00	0.00	0.00	1.670	1.560	0.00	0.010
HLP-77	HOMOGENEOUS	9.580	7.900	0.00	0.490	0.00	0.00	0.180	0.00	0.00	0.00	0.00	1.670	1.560	0.00	0.010
HLP-77	HOMOGENEOUS	9.580	7.900	0.00	0.490	0.00	0.00	0.180	0.00	0.00	0.00	0.00	1.670	1.560	0.00	0.010
HLP-01	HOMOGENEOUS	7.040	8.920	0.00	0.010	0.00	0.00	0.250	0.00	0.00	0.00	0.00	6.520	0.400	0.00	0.020
HLP-02	HOMOGENEOUS	8.950	11.400	0.00	0.000	0.00	0.00	0.220	0.00	0.00	0.00	0.00	7.630	0.590	0.00	0.000
HLP-03	HOMOGENEOUS	7.080	9.090	0.00	0.000	0.00	0.00	0.190	0.00	0.00	0.00	0.00	6.060	0.410	0.00	0.000

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
HLP-61	0.140	3.870	0.00	0.020	15.920	0.00	0.00	0.00	0.070	0.00	0.00	0.00	0.00	39.450	0.00	0.00	0.00
HLP-61	0.140	3.870	0.00	0.020	15.920	0.00	0.00	0.00	0.070	0.00	0.00	0.00	0.00	39.450	0.00	0.00	0.00
HLP-62	0.120	0.000	0.00	0.020	16.410	0.00	0.00	0.00	0.070	0.00	0.00	0.00	0.00	48.390	0.00	0.00	0.00
HLP-62	0.120	0.000	0.00	0.020	16.410	0.00	0.00	0.00	0.070	0.00	0.00	0.00	0.00	48.390	0.00	0.00	0.00
HLP-62	0.120	0.000	0.00	0.020	16.410	0.00	0.00	0.00	0.070	0.00	0.00	0.00	0.00	48.390	0.00	0.00	0.00
HLP-62	0.120	0.000	0.00	0.020	16.410	0.00	0.00	0.00	0.070	0.00	0.00	0.00	0.00	48.390	0.00	0.00	0.00
HLP-63	0.110	3.910	0.00	0.020	25.650	0.00	0.00	0.00	0.080	0.00	0.00	0.00	0.00	36.960	0.00	0.00	0.00
HLP-63	0.110	3.910	0.00	0.020	25.650	0.00	0.00	0.00	0.080	0.00	0.00	0.00	0.00	36.960	0.00	0.00	0.00
HLP-63	0.110	3.910	0.00	0.020	25.650	0.00	0.00	0.00	0.080	0.00	0.00	0.00	0.00	36.960	0.00	0.00	0.00
HLP-63	0.110	3.910	0.00	0.020	25.650	0.00	0.00	0.00	0.080	0.00	0.00	0.00	0.00	36.960	0.00	0.00	0.00
HLP-64	0.110	3.920	0.00	0.020	15.990	0.00	0.00	0.00	1.060	0.00	0.00	0.00	0.00	52.960	0.00	0.00	0.00
HLP-64	0.110	3.920	0.00	0.020	15.990	0.00	0.00	0.00	1.060	0.00	0.00	0.00	0.00	52.960	0.00	0.00	0.00
HLP-64	0.110	3.920	0.00	0.020	15.990	0.00	0.00	0.00	1.060	0.00	0.00	0.00	0.00	52.960	0.00	0.00	0.00
HLP-64	0.110	3.920	0.00	0.020	15.990	0.00	0.00	0.00	1.060	0.00	0.00	0.00	0.00	52.960	0.00	0.00	0.00
HLP-65	0.110	3.980	0.00	0.020	16.880	0.00	0.00	0.00	1.980	0.00	0.00	0.00	0.00	53.400	0.00	0.00	0.00
HLP-65	0.110	3.980	0.00	0.020	16.880	0.00	0.00	0.00	1.980	0.00	0.00	0.00	0.00	53.400	0.00	0.00	0.00
HLP-65	0.110	3.980	0.00	0.020	16.880	0.00	0.00	0.00	1.980	0.00	0.00	0.00	0.00	53.400	0.00	0.00	0.00
HLP-65	0.110	3.980	0.00	0.020	16.880	0.00	0.00	0.00	1.980	0.00	0.00	0.00	0.00	53.400	0.00	0.00	0.00
HLP-66	0.130	0.000	0.00	0.020	23.490	0.00	0.00	0.00	0.040	0.00	0.00	0.00	0.00	51.510	0.00	0.00	0.00
HLP-66	0.130	0.000	0.00	0.020	23.490	0.00	0.00	0.00	0.040	0.00	0.00	0.00	0.00	51.510	0.00	0.00	0.00
HLP-66	0.130	0.000	0.00	0.020	23.490	0.00	0.00	0.00	0.040	0.00	0.00	0.00	0.00	51.510	0.00	0.00	0.00
HLP-66	0.130	0.000	0.00	0.020	23.490	0.00	0.00	0.00	0.040	0.00	0.00	0.00	0.00	51.510	0.00	0.00	0.00
HLP-67	0.130	0.000	0.00	0.020	23.720	0.00	0.00	0.00	0.550	0.00	0.00	0.00	0.00	35.260	0.00	0.00	0.00
HLP-67	0.130	0.000	0.00	0.020	23.720	0.00	0.00	0.00	0.550	0.00	0.00	0.00	0.00	35.260	0.00	0.00	0.00
HLP-67	0.130	0.000	0.00	0.020	23.720	0.00	0.00	0.00	0.550	0.00	0.00	0.00	0.00	35.260	0.00	0.00	0.00
HLP-67	0.130	0.000	0.00	0.020	23.720	0.00	0.00	0.00	0.550	0.00	0.00	0.00	0.00	35.260	0.00	0.00	0.00
HLP-68	0.120	0.000	0.00	0.020	16.310	0.00	0.00	0.00	0.060	0.00	0.00	0.00	0.00	37.780	0.00	0.00	0.00
HLP-68	0.120	0.000	0.00	0.020	16.310	0.00	0.00	0.00	0.060	0.00	0.00	0.00	0.00	37.780	0.00	0.00	0.00
HLP-68	0.120	0.000	0.00	0.020	16.310	0.00	0.00	0.00	0.060	0.00	0.00	0.00	0.00	37.780	0.00	0.00	0.00
HLP-68	0.120	0.000	0.00	0.020	16.310	0.00	0.00	0.00	0.060	0.00	0.00	0.00	0.00	37.780	0.00	0.00	0.00
HLP-69	0.110	0.000	0.00	0.020	16.940	0.00	0.00	0.00	0.090	0.00	0.00	0.00	0.00	53.890	0.00	0.00	0.00
HLP-69	0.110	0.000	0.00	0.020	16.940	0.00	0.00	0.00	0.090	0.00	0.00	0.00	0.00	53.890	0.00	0.00	0.00
HLP-69	0.110	0.000	0.00	0.020	16.940	0.00	0.00	0.00	0.090	0.00	0.00	0.00	0.00	53.890	0.00	0.00	0.00
HLP-69	0.110	0.000	0.00	0.020	16.940	0.00	0.00	0.00	0.090	0.00	0.00	0.00	0.00	53.890	0.00	0.00	0.00
HLP-70	0.120	0.000	0.00	0.020	24.310	0.00	0.00	0.00	1.930	0.00	0.00	0.00	0.00	37.990	0.00	0.00	0.00
HLP-70	0.120	0.000	0.00	0.020	24.310	0.00	0.00	0.00	1.930	0.00	0.00	0.00	0.00	37.990	0.00	0.00	0.00
HLP-70	0.120	0.000	0.00	0.020	24.310	0.00	0.00	0.00	1.930	0.00	0.00	0.00	0.00	37.990	0.00	0.00	0.00
HLP-71	0.130	3.910	0.00	0.020	24.470	0.00	0.00	0.00	0.040	0.00	0.00	0.00	0.00	35.790	0.00	0.00	0.00
HLP-71	0.130	3.910	0.00	0.020	24.470	0.00	0.00	0.00	0.040	0.00	0.00	0.00	0.00	35.790	0.00	0.00	0.00
HLP-71	0.130	3.910	0.00	0.020	24.470	0.00	0.00	0.00	0.040	0.00	0.00	0.00	0.00	35.790	0.00	0.00	0.00
HLP-72	0.150	0.040	0.00	0.020	16.420	0.00	0.00	0.00	0.870	0.00	0.00	0.00	0.00	37.010	0.00	0.00	0.00
HLP-72	0.150	0.040	0.00	0.020	16.420	0.00	0.00	0.00	0.870	0.00	0.00	0.00	0.00	37.010	0.00	0.00	0.00
HLP-72	0.150	0.040	0.00	0.020	16.420	0.00	0.00	0.00	0.870	0.00	0.00	0.00	0.00	37.010	0.00	0.00	0.00
HLP-72	0.150	0.040	0.00	0.020	16.420	0.00	0.00	0.00	0.870	0.00	0.00	0.00	0.00	37.010	0.00	0.00	0.00
HLP-73	0.130	3.910	0.00	0.020	15.560	0.00	0.00	0.00	0.050	0.00	0.00	0.00	0.00	35.320	0.00	0.00	0.00
HLP-73	0.130	3.910	0.00	0.020	15.560	0.00	0.00	0.00	0.050	0.00	0.00	0.00	0.00	35.320	0.00	0.00	0.00
HLP-73	0.130	3.910	0.00	0.020	15.560	0.00	0.00	0.00	0.050	0.00	0.00	0.00	0.00	35.320	0.00	0.00	0.00
HLP-73	0.130	3.910	0.00	0.020	15.560	0.00	0.00	0.00	0.050	0.00	0.00	0.00	0.00	35.320	0.00	0.00	0.00
HLP-74	0.140	0.000	0.00	0.020	15.730	0.00	0.00	0.00	2.010	0.00	0.00	0.00	0.00	35.840	0.00	0.00	0.00
HLP-74	0.140	0.000	0.00	0.020	15.730	0.00	0.00	0.00	2.010	0.00	0.00	0.00	0.00	35.840	0.00	0.00	0.00
HLP-74	0.140	0.000	0.00	0.020	15.730	0.00	0.00	0.00	2.010	0.00	0.00	0.00	0.00	35.840	0.00	0.00	0.00
HLP-74	0.140	0.000	0.00	0.020	15.730	0.00	0.00	0.00	2.010	0.00	0.00	0.00	0.00	35.840	0.00	0.00	0.00
HLP-75	0.280	1.950	0.00	0.020	19.250	0.00	0.00	0.00	0.800	0.00	0.00	0.00	0.00	42.250	0.00	0.00	0.00
HLP-75	0.280	1.950	0.00	0.020	19.250	0.00	0.00	0.00	0.800	0.00	0.00	0.00	0.00	42.250	0.00	0.00	0.00
HLP-75	0.280	1.950	0.00	0.020	19.250	0.00	0.00	0.00	0.800	0.00	0.00	0.00	0.00	42.250	0.00	0.00	0.00
HLP-75	0.280	1.950	0.00	0.020	19.250	0.00	0.00	0.00	0.800	0.00	0.00	0.00	0.00	42.250	0.00	0.00	0.00
HLP-76	0.180	0.090	0.00	0.090	19.380	0.00	0.00	0.00	0.520	0.00	0.00	0.00	0.00	55.460	0.00	0.00	0.00
HLP-76	0.180	0.090	0.00	0.090	19.380	0.00	0.00	0.00	0.520	0.00	0.00	0.00	0.00	55.460	0.00	0.00	0.00
HLP-76	0.180	0.090	0.00	0.090	19.380	0.00	0.00	0.00	0.520	0.00	0.00	0.00	0.00	55.460	0.00	0.00	0.00
HLP-76	0.180	0.090	0.00	0.090	19.380	0.00	0.00	0.00	0.520	0.00	0.00	0.00	0.00	55.460	0.00	0.00	0.00
HLP-77	0.190	0.060	0.00	0.080	20.290	0.00	0.00	0.00	0.520	0.00	0.00	0.00	0.00	56.120	0.00	0.00	0.00
HLP-77	0.190	0.060	0.00	0.080	20.290	0.00	0.00	0.00	0.520	0.00	0.00	0.00	0.00	56.120	0.00	0.00	0.00
HLP-77	0.190	0.060	0.00	0.080	20.290	0.00	0.00	0.00	0.520	0.00	0.00	0.00	0.00	56.120	0.00	0.00	0.00
HLP-77	0.190	0.060	0.00	0.080	20.290	0.00	0.00	0.00	0.520	0.00	0.00	0.00	0.00	56.120	0.00	0.00	0.00
HLP-01	0.000	1.410	0.00	0.00	18.400	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.800	0.00	0.00	0.00
HLP-02	0.000	1.810	0.00	0.00	25.800	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.200	0.00	0.00	0.00
HLP-03	0.000	1.360	0.00	0.00	17.900	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.500	0.00	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
HLP-61	0.00	0.00	8.460	0.00	0.00	3.990	0.070	0.00	98.35		
HLP-61	0.00	0.00	8.460	0.00	0.00	3.990	0.070	0.00	98.35		
HLP-62	0.00	0.00	8.560	0.00	0.00	0.000	5.520	0.00	101.21		
HLP-62	0.00	0.00	8.560	0.00	0.00	0.000	5.520	0.00	101.21		
HLP-62	0.00	0.00	8.560	0.00	0.00	0.000	5.520	0.00	101.21		
HLP-62	0.00	0.00	8.560	0.00	0.00	0.000	5.520	0.00	101.21		
HLP-63	0.00	0.00	8.830	0.00	0.00	0.000	0.060	0.00	100.52		
HLP-63	0.00	0.00	8.830	0.00	0.00	0.000	0.060	0.00	100.52		
HLP-63	0.00	0.00	8.830	0.00	0.00	0.000	0.060	0.00	100.52		
HLP-63	0.00	0.00	8.830	0.00	0.00	0.000	0.060	0.00	100.52		
HLP-64	0.00	0.00	0.000	0.00	0.00	3.730	4.240	0.00	97.00		
HLP-64	0.00	0.00	0.000	0.00	0.00	3.730	4.240	0.00	97.00		
HLP-64	0.00	0.00	0.000	0.00	0.00	3.730	4.240	0.00	97.00		
HLP-64	0.00	0.00	0.000	0.00	0.00	3.730	4.240	0.00	97.00		
HLP-65	0.00	0.00	0.000	0.00	0.00	0.000	0.040	0.00	101.44		
HLP-65	0.00	0.00	0.000	0.00	0.00	0.000	0.040	0.00	101.44		
HLP-65	0.00	0.00	0.000	0.00	0.00	0.000	0.040	0.00	101.44		
HLP-65	0.00	0.00	0.000	0.00	0.00	0.000	0.040	0.00	101.44		
HLP-66	0.00	0.00	0.040	0.00	0.00	0.010	0.020	0.00	98.00		
HLP-66	0.00	0.00	0.040	0.00	0.00	0.010	0.020	0.00	98.00		
HLP-66	0.00	0.00	0.040	0.00	0.00	0.010	0.020	0.00	98.00		
HLP-66	0.00	0.00	0.040	0.00	0.00	0.010	0.020	0.00	98.00		
HLP-67	0.00	0.00	0.010	0.00	0.00	3.950	3.790	0.00	93.13		
HLP-67	0.00	0.00	0.010	0.00	0.00	3.950	3.790	0.00	93.13		
HLP-67	0.00	0.00	0.010	0.00	0.00	3.950	3.790	0.00	93.13		
HLP-67	0.00	0.00	0.010	0.00	0.00	3.950	3.790	0.00	93.13		
HLP-68	0.00	0.00	0.000	0.00	0.00	0.000	5.630	0.00	100.90		
HLP-68	0.00	0.00	0.000	0.00	0.00	0.000	5.630	0.00	100.90		
HLP-68	0.00	0.00	0.000	0.00	0.00	0.000	5.630	0.00	100.90		
HLP-68	0.00	0.00	0.000	0.00	0.00	0.000	5.630	0.00	100.90		
HLP-69	0.00	0.00	8.790	0.00	0.00	3.940	0.070	0.00	102.11		
HLP-69	0.00	0.00	8.790	0.00	0.00	3.940	0.070	0.00	102.11		
HLP-69	0.00	0.00	8.790	0.00	0.00	3.940	0.070	0.00	102.11		
HLP-69	0.00	0.00	8.790	0.00	0.00	3.940	0.070	0.00	102.11		
HLP-70	0.00	0.00	8.430	0.00	0.00	0.000	0.050	0.00	100.64		
HLP-70	0.00	0.00	8.430	0.00	0.00	0.000	0.050	0.00	100.64		
HLP-70	0.00	0.00	8.430	0.00	0.00	0.000	0.050	0.00	100.64		
HLP-71	0.00	0.00	0.010	0.00	0.00	3.930	6.120	0.00	97.73		
HLP-71	0.00	0.00	0.010	0.00	0.00	3.930	6.120	0.00	97.73		
HLP-71	0.00	0.00	0.010	0.00	0.00	3.930	6.120	0.00	97.73		
HLP-72	0.00	0.00	8.560	0.00	0.00	3.860	3.850	0.00	96.90		
HLP-72	0.00	0.00	8.560	0.00	0.00	3.860	3.850	0.00	96.90		
HLP-72	0.00	0.00	8.560	0.00	0.00	3.860	3.850	0.00	96.90		
HLP-72	0.00	0.00	8.560	0.00	0.00	3.860	3.850	0.00	96.90		
HLP-73	0.00	0.00	0.020	0.00	0.00	0.010	0.010	0.00	97.45		
HLP-73	0.00	0.00	0.020	0.00	0.00	0.010	0.010	0.00	97.45		
HLP-73	0.00	0.00	0.020	0.00	0.00	0.010	0.010	0.00	97.45		
HLP-73	0.00	0.00	0.020	0.00	0.00	0.010	0.010	0.00	97.45		
HLP-74	0.00	0.00	0.000	0.00	0.00	4.010	0.000	0.00	98.45		
HLP-74	0.00	0.00	0.000	0.00	0.00	4.010	0.000	0.00	98.45		
HLP-74	0.00	0.00	0.000	0.00	0.00	4.010	0.000	0.00	98.45		
HLP-74	0.00	0.00	0.000	0.00	0.00	4.010	0.000	0.00	98.45		
HLP-75	0.00	0.00	3.660	0.00	0.00	1.970	2.530	0.00	100.73		
HLP-75	0.00	0.00	3.660	0.00	0.00	1.970	2.530	0.00	100.73		
HLP-75	0.00	0.00	3.660	0.00	0.00	1.970	2.530	0.00	100.73		
HLP-75	0.00	0.00	3.660	0.00	0.00	1.970	2.530	0.00	100.73		
HLP-76	0.00	0.00	0.130	0.00	0.00	0.010	1.110	0.00	98.74		
HLP-76	0.00	0.00	0.130	0.00	0.00	0.010	1.110	0.00	98.74		
HLP-76	0.00	0.00	0.130	0.00	0.00	0.010	1.110	0.00	98.74		
HLP-76	0.00	0.00	0.130	0.00	0.00	0.010	1.110	0.00	98.74		
HLP-77	0.00	0.00	0.080	0.00	0.00	0.000	1.010	0.00	99.74		
HLP-77	0.00	0.00	0.080	0.00	0.00	0.000	1.010	0.00	99.74		
HLP-77	0.00	0.00	0.080	0.00	0.00	0.000	1.010	0.00	99.74		
HLP-77	0.00	0.00	0.080	0.00	0.00	0.000	1.010	0.00	99.74		
HLP-01	0.00	0.00	3.000	0.00	0.00	1.460	1.540	0.00	97.77		
HLP-02	0.00	0.00	3.860	0.00	0.00	1.880	1.880	0.00	99.22		
HLP-03	0.00	0.00	2.890	0.00	0.00	1.430	1.360	0.00	99.27		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
HLP-04		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.683**	1.50	100-200	1.125E-04	0.015	ASTM I	90	11.29
HLP-05		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.676**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.35
HLP-06		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.561**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.27
HLP-07		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.603**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.29
HLP-08		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.692**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.84
HLP-09		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.601**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.29
HLP-10		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.623**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.60
HLP-11		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.563**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.57
HLP-12		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.682**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.32
HLP-13		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.607**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.52
HLP-14		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.588**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.64
HLP-15		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.628**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.44
HLP-16		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.592**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.55
HLP-17		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.657**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.46
HLP-18		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.600**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.61
HLP-19		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.669**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.55
HLP-20		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.626**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.54
HLP-21		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.615**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.56
HLP-22		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.590**	1.50	100-200	1.125E-04	0.015	ASTM I	90	9.80
HLP-23		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.629**	1.50	100-200	1.125E-04	0.015	ASTM I	90	11.17
HLP-24		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.609**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.14
HLP-25		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.641**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.50
HLP-26		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.642**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.45
HLP-27		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.505**	1.50	100-200	1.125E-04	0.015	ASTM I	90	11.36
HLP-28		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.517**	1.50	100-200	1.125E-04	0.015	ASTM I	90	9.59
HLP-29		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.569**	1.50	100-200	1.125E-04	0.015	ASTM I	90	11.07
HLP-30		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.599**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.17
HLP-31		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.624**	1.50	100-200	1.125E-04	0.015	ASTM I	90	11.40
HLP-32		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.625**	1.50	100-200	1.125E-04	0.015	ASTM I	90	9.84
HLP-33		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.635**	1.50	100-200	1.125E-04	0.015	ASTM I	90	11.35
HLP-34		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.673**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.20
HLP-35		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.644**	1.50	100-200	1.125E-04	0.015	ASTM I	90	11.16
HLP-36		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.744**	1.50	100-200	1.125E-04	0.015	ASTM I	90	9.88
HLP-37		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.706**	1.50	100-200	1.125E-04	0.015	ASTM I	90	11.60
HLP-38		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.783**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.54
HLP-39		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.730**	1.50	100-200	1.125E-04	0.015	ASTM I	90	11.46
HLP-41		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.814**	1.50	100-200	1.125E-04	0.015	ASTM I	90	12.20
HLP-43		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.635**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.49
HLP-44		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.639**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.48
HLP-45		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.657**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.46
HLP-46		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.539**	1.50	100-200	1.125E-04	0.015	ASTM I	90	11.36
HLP-47		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.523**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.90
HLP-48		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.687**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.93
HLP-49		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.771**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.57
HLP-51		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.722**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.87
HLP-52		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.654**	1.50	100-200	1.125E-04	0.015	ASTM I	90	12.68
HLP-54		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.490**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.33
HLP-55		PNNL-13101	SS	7.00	0.03	2.000	14.00	**2.455**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.32
HLP-58		**PNNL-13744**	SS	7.00	0.03	2.000	14.00	**2.622**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.46
HLP-59		**PNNL-13744**	SS	7.00	0.03	2.000	14.00	**2.645**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.74
HLP-60		**PNNL-13744**	SS	7.00	0.03	2.000	14.00	**2.932**	1.50	100-200	1.125E-04	0.015	ASTM I	90	---
HLP-61		**PNNL-13744**	SS	7.00	0.03	2.000	14.00	**2.649**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.57
HLP-62		**PNNL-13744**	SS	7.00	0.03	2.000	14.00	**2.680**	1.50	100-200	1.125E-04	0.015	ASTM I	90	9.97
HLP-63		**PNNL-13744**	SS	7.00	0.03	2.000	14.00	**2.766**	1.50	100-200	1.125E-04	0.015	ASTM I	90	11.86
HLP-64		**PNNL-13744**	SS	7.00	0.03	2.000	14.00	**2.633**	1.50	100-200	1.125E-04	0.015	ASTM I	90	11.19
HLP-65		**PNNL-13744**	SS	7.00	0.03	2.000	14.00	**2.649**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.57
HLP-66		**PNNL-13744**	SS	7.00	0.03	2.000	14.00	**2.582**	1.50	100-200	1.125E-04	0.015	ASTM I	90	11.54
HLP-67		**PNNL-13744**	SS	7.00	0.03	2.000	14.00	**2.712**	1.50	100-200	1.125E-04	0.015	ASTM I	90	12.20
HLP-68		**PNNL-13744**	SS	7.00	0.03	2.000	14.00	**2.795**	1.50	100-200	1.125E-04	0.015	ASTM I	90	11.19
HLP-69		**PNNL-13744**	SS	7.00	0.03	2.000	14.00	**2.605**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.30
HLP-71		**PNNL-13744**	SS	7.00	0.03	2.000	14.00	**2.716**	1.50	100-200	1.125E-04	0.015	ASTM I	90	12.47
HLP-72		**PNNL-13744**	SS	7.00	0.03	2.000	14.00	**2.663**	1.50	100-200	1.125E-04	0.015	ASTM I	90	9.89
HLP-74		**PNNL-13744**	SS	7.00	0.03	2.000	14.00	**2.680**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.18
HLP-75		**PNNL-13744**	SS	7.00	0.03	2.000	14.00	**2.681**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.97
HLP-76		**PNNL-13744**	SS	7.00	0.03	2.000	14.00	**2.554**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.80
HLP-77		**PNNL-13744**	SS	7.00	0.03	2.000	14.00	**2.561**	1.50	100-200	1.125E-04	0.015	ASTM I	90	10.76

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
HLP-04	68.967	85.567				247.000		12.800	4.247		0.873	1.553	1.213	0.667
HLP-05	119.333	49.367				156.333		0.000	2.763		0.460	0.730	0.690	0.127
HLP-06	48.867	11.033				50.233		13.300	4.023		0.467	1.563	0.860	0.597
HLP-07	49.100	11.467				55.367		9.483	4.117		0.507	1.647	0.927	0.627
HLP-08	62.100	7.285				81.050		8.610	4.905		0.710	1.945	1.135	0.745
HLP-09	45.167	22.967				81.700		8.870	3.867		0.447	0.981	0.877	0.477
HLP-10	56.833	10.467				69.467		8.137	4.533		0.600	1.790	1.063	0.747
HLP-11	60.133	18.500				81.267		7.250	0.180		0.680	2.373	0.900	1.457
HLP-12	59.067	14.633				58.300		8.027	4.563		0.353	0.940	0.520	0.300
HLP-13	57.630	17.730				81.300		7.280	2.570		0.840	1.810	1.170	0.680
HLP-14	56.700	27.700				102.670		6.670	2.380		0.370	<0.100	0.520	0.240
HLP-15	59.930	12.670				61.430		8.260	4.640		0.800	3.910	1.110	0.770
HLP-16	58.030	14.070				67.430		8.230	6.000		1.010	2.310	<0.400	0.670
HLP-17	53.070	16.230				73.770		5.920	1.090		<0.100	0.360	0.690	<0.100
HLP-18	70.000	19.830				84.630		9.290	8.530		1.780	3.540	2.640	0.000
HLP-19	43.270	9.900				51.130		6.150	0.500		<0.100	<0.100	<0.400	<0.100
HLP-20	57.500	14.300				61.770		8.220	7.000		<0.100	2.960	1.510	1.140
HLP-21	63.030	21.870				83.070		5.470	1.070		0.320	0.270	<0.400	<0.100
HLP-22	51.130	9.730				33.700		6.370	1.990		0.190	0.670	0.130	0.130
HLP-23	80.830	35.330				160.330		9.660	7.550		1.700	2.820	2.100	0.740
HLP-24	54.900	12.970				57.630		7.280	2.870		0.360	1.090	0.450	0.310
HLP-25	56.800	16.470				75.900		8.140	3.400		0.420	1.050	0.580	0.210
HLP-26	63.430	19.930				68.670		0.930	4.910		0.720	1.820	1.230	0.510
HLP-27	71.600	104.230				333.670		16.700	0.230		<0.100	<0.100	<0.400	<0.100
HLP-28	56.970	11.930				29.670		11.630	2.870		<0.100	1.050	0.250	0.150
HLP-29	81.100	8.990				117.970		20.100	4.510		0.750	1.950	1.420	0.740
HLP-30	45.870	3.510				34.900		11.630	1.530		0.190	0.870	0.960	0.050
HLP-31	443.670	300.000				981.000		<2.00	<0.200		0.190	0.090	0.680	<0.100
HLP-32	54.030	21.330				49.530		3.460	<0.200		<0.100	<0.100	0.600	<0.100
HLP-33	246.670	44.930				351.000		2.390	8.720		2.010	2.880	3.960	1.200
HLP-34	55.930	8.500				51.630		3.840	<0.200		<0.100	<0.100	0.480	<0.100
HLP-35	44.000	60.330				210.330		15.600	<0.200		0.190	0.220	0.960	<0.100
HLP-36	31.700	19.300				49.500		11.900	<0.200		<0.100	<0.100	0.560	<0.100
HLP-37	81.170	28.900				235.000		49.930	14.370		4.630	<0.100	8.270	<0.100
HLP-38	37.130	8.880				51.600		14.370	<0.200		<0.100	<0.100	0.330	<0.100
HLP-39	78.770	101.930				300.330		4.090	<0.200		<0.100	<0.100	0.430	<0.100
HLP-41	214.670	148.330				913.670		3.610	1.660		1.440	<0.100	1.920	<0.100
HLP-43	51.300	15.230				60.670		7.580	4.200		0.550	1.880	1.910	0.570
HLP-44	48.430	17.230				72.900		6.840	1.530		0.250	0.850	1.100	0.190
HLP-45	48.330	15.830				68.030		7.150	2.030		0.380	1.030	1.150	0.350
HLP-46	37.570	<1.80				90.870		8.690	<0.200		<0.100	<0.100	0.400	<0.100
HLP-47	46.300	15.700				93.630		8.300	<0.200		<0.100	<0.100	0.190	0.520
HLP-48	36.670	20.230				92.300		11.300	<0.200		<0.100	<0.100	1.140	<0.100
HLP-49	21.970	8.950				24.800		4.040	<0.200		<0.100	<0.100	<0.400	<0.100
HLP-51	34.570	11.570				67.130		9.050	<0.200		<0.100	<0.100	0.460	<0.100
HLP-52	165.000	<1.800				1440.000		42.230	1.260		<0.100	<0.100	0.540	<0.100
HLP-54	64.800	15.600				86.070		5.670	<0.200		<0.100	<0.100	0.440	<0.100
HLP-55	42.070	5.220				49.400		10.600	<0.200		<0.100	<0.100	0.390	<0.100
HLP-58	39.700	9.900				55.030		4.080	0.090		<0.04	<0.07	<0.01	<0.01
HLP-59	38.700	10.500				62.730		2.400	<0.04		<0.04	<0.07	<0.01	<0.01
HLP-60	35.470	6.600				53.130		4.330	0.068		<0.04	<0.07	<0.01	<0.01
HLP-61	48.500	21.470				73.400		0.450	<0.04		<0.04	<0.07	<0.01	<0.01
HLP-62	30.330	11.630				38.030		0.680	<0.04		<0.04	<0.07	<0.01	<0.01
HLP-63	216.330	58.400				522.000		6.450	6.160		3.510	0.340	<0.01	<0.01
HLP-64	173.330	73.330				350.330		<0.10	<0.04		<0.04	<0.07	<0.01	<0.01
HLP-65	69.530	10.430				72.030		0.960	<0.04		<0.04	<0.07	<0.01	<0.01
HLP-66	714.000	437.670				1463.330		0.360	0.600		<0.04	<0.07	<0.01	<0.01
HLP-67	183.000	357.670				1253.330		1.730	0.600		<0.04	<0.07	<0.01	<0.01
HLP-68	22.270	6.900				59.000		8.370	<0.04		<0.04	<0.07	<0.01	<0.01
HLP-69	41.670	4.880				30.800		8.830	<0.04		<0.04	0.340	<0.01	<0.01
HLP-71	86.630	953.000				2460.000		52.700	<0.04		<0.04	<0.07	<0.01	<0.01
HLP-72	25.400	13.800				43.300		9.960	<0.04		<0.04	<0.07	<0.01	<0.01
HLP-74	19.530	11.570				41.500		7.570	<0.04		<0.04	<0.07	<0.01	<0.01
HLP-75	39.730	11.170				76.000		6.520	0.053		<0.04	0.072	<0.01	<0.01
HLP-76	41.330	7.110				57.270		7.360	1.110		<0.04	0.078	<0.01	0.500
HLP-77	41.830	6.970				57.030		7.480	1.160		<0.04	0.075	<0.01	0.520

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
HLP-04				75.52	16.46	**-3.138808**	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-05				78.40	11.04	**22.854188**	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-06				73.01	18.26	**-9.280063**	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-07				79.48	16.11	**-7.511938**	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-08				74.90	12.9	**17.96153**	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-09				74.11	13.52	**15.726659**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-10				75.70	13.38	**13.967786**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-11				80.00	7.46	**40.507712**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-12				73.46	15.69	**4.513208**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-13				79.01	10.3	**26.055425**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-14				77.25	13.6	**10.239845**	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-15				76.50	13.28	**13.249766**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-16				82.81	13.71	**0.703127**	Indeterminate	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-17				76.92	13.25	**12.74573**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-18				76.03	13.67	**11.800769**	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-19				76.06	13.34	**13.616438**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-20				79.10	13.45	**8.12054**	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-21				74.77	13.6	**14.216525**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-22				80.00	14.69	**-0.325882**	Indeterminate	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-23				75.67	12.83	**17.122181**	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-24				76.50	14.03	**9.013916**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-25				76.21	13.06	**14.957297**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-26				74.86	12.65	**19.43762**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-27				84.84	12.6	**3.71708**	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-28				79.90	16.14	**-8.354842**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
HLP-29				77.93	14.92	**1.694369**	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-30				69.55	18.58	**-5.539249**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-31				83.60	8.5	**28.8614**	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-32				74.91	11.26	**27.207887**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-33				81.19	11.08	**18.154511**	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-34				71.84	14.17	**15.695534**	Potential ϕ-sep	Low alkali	Mid Al	HOMOGENEOUS	High Ti
HLP-35				70.20	18.97	**-8.784166**	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-36				63.97	22.3	**-17.601535**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-37				64.58	21.31	**-12.988348**	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-38				57.09	24.6	**-19.559395**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-39				68.95	14.39	**19.087133**	Potential ϕ-sep	High alkali	Mid Al	Potential ϕ-sep.	High Ti
HLP-41				63.50	16.91	**13.593752**	Potential ϕ-sep	High alkali	Mid Al	Potential ϕ-sep.	High Ti
HLP-43				77.22	12.93	**14.071976**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-44				77.22	13	**13.67663**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-45				77.54	13.16	**12.259862**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-46				81.48	16.11	**-10.718938**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
HLP-47				83.16	11.98	**9.912596**	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-48				66.58	17.87	**3.233084**	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-49				63.96	23.43	**-23.967514**	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
HLP-51				71.33	14.56	**14.310677**	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-52				75.20	15.14	**4.829408**	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-54				83.24	12.26	**8.202932**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
HLP-55				87.54	9.45	**17.1782**	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	Low Ti
HLP-58				77.81	14.13	6.348551	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-59				73.09	16.7	-0.597775	Indeterminate	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-60				63.76	13.71	31.249802	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-61				72.81	8.98	43.452221	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-62				78.07	8.92	35.356679	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-63				69.10	18.46	-4.139938	HOMOGENEOUS	High alkali	Mid Al	Potential ϕ-sep.	High Ti
HLP-64				79.75	4.23	59.150981	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-65				76.78	18.58	-17.132554	HOMOGENEOUS	Low alkali	Mid Al	HOMOGENEOUS	Low Ti
HLP-66				88.11	9.69	14.908733	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-67				76.16	8.58	40.339616	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-68				65.09	30.04	-63.111427	HOMOGENEOUS	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-69				77.43	11.72	20.569079	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-71				66.66	16.97	8.187824	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-72				60.10	19.54	4.191938	Potential ϕ-sep	Low alkali	High Al	HOMOGENEOUS	High Ti
HLP-74				64.58	27.77	-49.473136	HOMOGENEOUS	Low alkali	High Al	HOMOGENEOUS	Low Ti
HLP-75				73.85	15.88	2.814761	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	High Ti
HLP-76				84.51	12.18	6.618311	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti
HLP-77				86.06	11.83	6.109616	Potential ϕ-sep	High alkali	High Al	HOMOGENEOUS	Low Ti

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
HLP-04	HOMOGENEOUS	8.740	12.400	0.00	0.000	0.00	0.00	0.240	0.00	0.00	0.00	0.00	7.720	0.520	0.00	0.000
HLP-05	HOMOGENEOUS	4.240	10.300	0.00	0.000	0.00	0.00	0.270	0.00	0.00	0.00	0.00	6.800	0.500	0.00	0.000
HLP-06	HOMOGENEOUS	12.300	8.890	0.00	0.000	0.00	0.00	0.140	0.00	0.00	0.00	0.00	5.960	0.420	0.00	0.000
HLP-07	HOMOGENEOUS	9.790	9.450	0.00	0.000	0.00	0.00	0.200	0.00	0.00	0.00	0.00	6.320	0.430	0.00	0.000
HLP-08	HOMOGENEOUS	7.060	5.940	0.00	0.000	0.00	0.00	0.190	0.00	0.00	0.00	0.00	5.840	0.560	0.00	0.000
HLP-09	HOMOGENEOUS	7.120	11.800	0.00	0.000	0.00	0.00	0.210	0.00	0.00	0.00	0.00	6.400	0.410	0.00	0.000
HLP-10	HOMOGENEOUS	7.040	8.920	0.00	0.000	0.00	0.00	0.220	0.00	0.00	0.00	0.00	6.330	0.480	0.00	0.010
HLP-11	HOMOGENEOUS	6.910	10.600	0.00	0.000	0.00	0.00	0.210	0.00	0.00	0.00	0.00	0.550	0.400	0.00	0.000
HLP-12	HOMOGENEOUS	6.440	10.200	0.00	0.050	0.00	0.00	0.230	0.00	0.00	0.00	0.00	9.200	0.460	0.00	0.000
HLP-13	HOMOGENEOUS	6.440	10.200	0.00	0.060	0.00	0.00	0.240	0.00	0.00	0.00	0.00	3.800	0.410	0.00	0.000
HLP-14	HOMOGENEOUS	7.230	10.100	0.00	0.060	0.00	0.00	0.240	0.00	0.00	0.00	0.00	6.310	0.450	0.00	0.000
HLP-15	HOMOGENEOUS	6.520	9.720	0.00	0.070	0.00	0.00	0.260	0.00	0.00	0.00	0.00	6.690	0.380	0.00	0.000
HLP-16	HOMOGENEOUS	6.790	10.000	0.00	0.080	0.00	0.00	0.260	0.00	0.00	0.00	0.00	6.840	0.410	0.00	0.000
HLP-17	HOMOGENEOUS	6.840	9.860	0.00	0.000	0.00	0.00	0.230	0.00	0.00	0.00	0.00	6.360	0.360	0.00	0.050
HLP-18	HOMOGENEOUS	7.450	10.200	0.00	0.000	0.00	0.00	0.260	0.00	0.00	0.00	0.00	6.220	0.430	0.00	0.000
HLP-19	HOMOGENEOUS	6.940	9.630	0.00	0.000	0.00	0.00	0.250	0.00	0.00	0.00	0.00	6.400	0.430	0.00	0.000
HLP-20	HOMOGENEOUS	7.190	10.100	0.00	0.000	0.00	0.00	0.260	0.00	0.00	0.00	0.00	6.260	0.400	0.00	0.000
HLP-21	HOMOGENEOUS	6.890	10.200	0.00	0.000	0.00	0.00	0.250	0.00	0.00	0.00	0.00	6.710	0.370	0.00	0.000
HLP-22	HOMOGENEOUS	7.670	11.000	0.00	0.000	0.00	0.00	0.270	0.00	0.00	0.00	0.00	7.020	0.300	0.00	0.000
HLP-23	HOMOGENEOUS	6.920	9.650	0.00	0.000	0.00	0.00	0.270	0.00	0.00	0.00	0.00	5.910	0.420	0.00	0.000
HLP-24	HOMOGENEOUS	7.440	10.000	0.00	0.000	0.00	0.00	0.240	0.00	0.00	0.00	0.00	6.590	0.400	0.00	0.000
HLP-25	HOMOGENEOUS	6.760	10.100	0.00	0.010	0.00	0.00	0.210	0.00	0.00	0.00	0.00	6.270	0.410	0.00	0.020
HLP-26	HOMOGENEOUS	6.680	9.430	0.00	0.000	0.00	0.00	0.210	0.00	0.00	0.00	0.00	5.970	0.430	0.00	0.000
HLP-27	HOMOGENEOUS	12.000	12.300	0.00	0.000	0.00	0.00	0.260	0.00	0.00	0.00	0.00	0.600	0.440	0.00	0.000
HLP-28	HOMOGENEOUS	12.100	13.000	0.00	0.220	0.00	0.00	0.000	0.00	0.00	0.00	0.00	3.820	0.000	0.00	0.000
HLP-29	HOMOGENEOUS	11.800	6.510	0.00	0.000	0.00	0.00	0.250	0.00	0.00	0.00	0.00	3.120	0.420	0.00	0.000
HLP-30	HOMOGENEOUS	12.200	6.560	0.00	0.000	0.00	0.00	0.230	0.00	0.00	0.00	0.00	6.380	0.290	0.00	0.000
HLP-31	HOMOGENEOUS	4.200	12.300	0.00	0.000	0.00	0.00	0.240	0.00	0.00	0.00	0.00	4.300	0.400	0.00	0.000
HLP-32	HOMOGENEOUS	4.210	12.900	0.00	0.000	0.00	0.00	0.250	0.00	0.00	0.00	0.00	7.050	0.310	0.00	0.000
HLP-33	HOMOGENEOUS	4.160	6.440	0.00	0.000	0.00	0.00	0.300	0.00	0.00	0.00	0.00	6.920	0.450	0.00	0.000
HLP-34	Potential ϕ-sep.	3.970	6.240	0.00	0.000	0.00	0.00	0.200	0.00	0.00	0.00	0.00	10.200	0.300	0.00	0.000
HLP-35	HOMOGENEOUS	11.500	12.100	0.00	0.000	0.00	0.00	0.220	0.00	0.00	0.00	0.00	7.470	0.500	0.00	0.000
HLP-36	HOMOGENEOUS	12.000	12.600	0.00	0.000	0.00	0.00	0.170	0.00	0.00	0.00	0.00	10.300	0.270	0.00	0.000
HLP-37	HOMOGENEOUS	11.600	6.780	0.00	0.000	0.00	0.00	0.190	0.00	0.00	0.00	0.00	9.710	0.400	0.00	0.000
HLP-38	HOMOGENEOUS	12.000	6.090	0.00	0.000	0.00	0.00	0.170	0.00	0.00	0.00	0.00	12.600	0.300	0.00	0.000
HLP-39	Potential ϕ-sep.	3.990	12.600	0.00	0.000	0.00	0.00	0.230	0.00	0.00	0.00	0.00	10.400	0.450	0.00	0.000
HLP-41	Potential ϕ-sep.	3.910	6.470	0.00	0.000	0.00	0.00	0.220	0.00	0.00	0.00	0.00	13.000	0.430	0.00	0.000
HLP-43	HOMOGENEOUS	6.690	9.850	0.00	0.010	0.00	0.00	0.230	0.00	0.00	0.00	0.00	6.230	0.470	0.00	0.000
HLP-44	HOMOGENEOUS	6.930	9.970	0.00	0.000	0.00	0.00	0.210	0.00	0.00	0.00	0.00	6.070	0.350	0.00	0.000
HLP-45	HOMOGENEOUS	7.100	10.100	0.00	0.000	0.00	0.00	0.220	0.00	0.00	0.00	0.00	6.060	0.340	0.00	0.000
HLP-46	HOMOGENEOUS	11.700	5.500	0.00	3.920	0.00	0.00	0.160	0.00	0.00	0.00	0.00	0.490	0.280	0.00	0.000
HLP-47	HOMOGENEOUS	9.420	7.640	0.00	0.520	0.00	0.00	0.320	0.00	0.00	0.00	0.00	2.040	1.400	0.00	0.000
HLP-48	HOMOGENEOUS	11.500	8.930	0.00	0.000	0.00	0.00	0.140	0.00	0.00	0.00	0.00	6.370	2.750	0.00	0.000
HLP-49	HOMOGENEOUS	7.760	8.740	0.00	6.960	0.00	0.00	0.240	0.00	0.00	0.00	0.00	8.710	0.360	0.00	0.000
HLP-51	HOMOGENEOUS	9.680	9.260	0.00	0.000	0.00	0.00	0.140	0.00	0.00	0.00	0.00	2.940	2.070	0.00	1.940
HLP-52	HOMOGENEOUS	9.630	0.100	0.00	2.510	0.00	0.00	0.210	0.00	0.00	0.00	0.00	3.000	1.800	0.00	0.000
HLP-54	HOMOGENEOUS	11.700	8.760	0.00	0.000	0.00	0.00	0.160	0.00	0.00	0.00	0.00	0.560	0.280	0.00	0.000
HLP-55	HOMOGENEOUS	8.870	8.920	0.00	0.000	0.00	0.00	0.170	0.00	0.00	0.00	0.00	0.580	0.320	0.00	0.000
HLP-58	HOMOGENEOUS	6.630	9.980	0.00	2.020	0.00	0.00	0.080	0.00	0.00	0.00	0.00	5.450	0.450	0.00	0.010
HLP-59	HOMOGENEOUS	6.590	9.320	0.00	4.680	0.00	0.00	0.080	0.00	0.00	0.00	0.00	5.400	0.450	0.00	0.010
HLP-60	HOMOGENEOUS	11.810	12.250	0.00	0.020	0.00	0.00	0.1	0.00	0.00	0.00	0.00	1.850	0.380	0.00	0.010
HLP-61	HOMOGENEOUS	4.080	12.520	0.00	4.740	0.00	0.00	0.100	0.00	0.00	0.00	0.00	0.130	4.780	0.00	0.010
HLP-62	HOMOGENEOUS	4.030	12.780	0.00	4.670	0.00	0.00	0.070	0.00	0.00	0.00	0.00	0.190	0.370	0.00	0.010
HLP-63	Potential ϕ-sep.	3.900	6.000	0.00	0.010	0.00	0.00	0.080	0.00	0.00	0.00	0.00	14.520	0.380	0.00	0.010
HLP-64	HOMOGENEOUS	4.040	6.090	0.00	0.000	0.00	0.00	0.070	0.00	0.00	0.00	0.00	0.160	4.600	0.00	0.010
HLP-65	HOMOGENEOUS	3.990	6.020	0.00	4.660	0.00	0.00	0.080	0.00	0.00	0.00	0.00	9.900	0.370	0.00	0.010
HLP-66	HOMOGENEOUS	4.180	12.570	0.00	0.040	0.00	0.00	0.090	0.00	0.00	0.00	0.00	5.440	0.410	0.00	0.010
HLP-67	HOMOGENEOUS	4.100	12.320	0.00	0.020	0.00	0.00	0.090	0.00	0.00	0.00	0.00	4.430	4.730	0.00	0.010
HLP-68	HOMOGENEOUS	9.410	6.240	0.00	4.700	0.00	0.00	0.080	0.00	0.00	0.00	0.00	15.900	4.640	0.00	0.010
HLP-69	HOMOGENEOUS	11.310	6.110	0.00	0.000	0.00	0.00	0.070	0.00	0.00	0.00	0.00	0.380	0.380	0.00	0.010
HLP-71	HOMOGENEOUS	11.840	5.900	0.00	4.650	0.00	0.00	0.090	0.00	0.00	0.00	0.00	0.450	0.370	0.00	0.010
HLP-72	HOMOGENEOUS	4.010	6.150	0.00	0.170	0.00	0.00	0.080	0.00	0.00	0.00	0.00	15.330	0.370	0.00	0.010
HLP-74	HOMOGENEOUS	11.930	12.450	0.00	4.730	0.00	0.00	0.080	0.00	0.00	0.00	0.00	11.080	0.420	0.00	0.010
HLP-75	HOMOGENEOUS	7.620	9.430	0.00	2.380	0.00	0.00	0.090	0.00	0.00	0.00	0.00	5.850	2.640	0.00	0.010
HLP-76	HOMOGENEOUS	9.970	7.850	0.00	0.540	0.00	0.00	0.190	0.00	0.00	0.00	0.00	1.570	1.640	0.00	0.010
HLP-77	HOMOGENEOUS	9.580	7.900	0.00	0.490	0.00	0.00	0.180	0.00	0.00	0.00	0.00	1.670	1.560	0.00	0.010

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
HLP-04	0.000	1.680	0.00	0.00	22.200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.400	0.00	0.00	0.00
HLP-05	0.000	1.450	0.00	0.00	20.300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.300	0.00	0.00	0.00
HLP-06	0.000	1.340	0.00	0.00	19.100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.600	0.00	0.00	0.00
HLP-07	0.000	1.460	0.00	0.00	19.300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.300	0.00	0.00	0.00
HLP-08	0.000	1.310	0.00	0.00	19.500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.900	0.00	0.00	0.00
HLP-09	0.000	1.290	0.00	0.00	18.600	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.300	0.00	0.00	0.00
HLP-10	0.000	1.360	0.00	0.00	18.400	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.900	0.00	0.00	0.00
HLP-11	0.000	1.230	0.00	0.00	18.200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.800	0.00	0.00	0.00
HLP-12	0.000	1.230	0.00	0.00	18.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.800	0.00	0.00	0.00
HLP-13	0.000	1.510	0.00	0.00	18.500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.900	0.00	0.00	0.00
HLP-14	0.000	1.530	0.00	0.00	19.400	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.300	0.00	0.00	0.00
HLP-15	0.000	1.540	0.00	0.00	18.600	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.800	0.00	0.00	0.00
HLP-16	0.000	1.610	0.00	0.00	19.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.400	0.00	0.00	0.00
HLP-17	0.000	1.530	0.00	0.00	18.400	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.300	0.00	0.00	0.00
HLP-18	0.000	1.540	0.00	0.00	19.200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.200	0.00	0.00	0.00
HLP-19	0.000	1.470	0.00	0.00	17.800	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.200	0.00	0.00	0.00
HLP-20	0.000	0.000	0.00	0.00	19.300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.300	0.00	0.00	0.00
HLP-21	0.000	3.930	0.00	0.00	18.300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.900	0.00	0.00	0.00
HLP-22	0.000	1.660	0.00	0.00	15.400	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.300	0.00	0.00	0.00
HLP-23	0.000	1.470	0.00	0.00	21.500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.100	0.00	0.00	0.00
HLP-24	0.000	1.630	0.00	0.00	17.200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.900	0.00	0.00	0.00
HLP-25	0.000	1.540	0.00	0.00	18.500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.200	0.00	0.00	0.00
HLP-26	0.000	1.450	0.00	0.00	18.200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.800	0.00	0.00	0.00
HLP-27	0.000	0.000	0.00	0.00	21.700	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.400	0.00	0.00	0.00
HLP-28	0.000	0.800	0.00	0.00	15.100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.800	0.00	0.00	0.00
HLP-29	0.000	0.690	0.00	0.00	21.500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.500	0.00	0.00	0.00
HLP-30	0.000	1.500	0.00	0.00	15.400	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.300	0.00	0.00	0.00
HLP-31	0.000	0.840	0.00	0.00	22.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.900	0.00	0.00	0.00
HLP-32	0.000	1.660	0.00	0.00	15.700	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.000	0.00	0.00	0.00
HLP-33	0.000	1.570	0.00	0.00	22.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.300	0.00	0.00	0.00
HLP-34	0.000	2.100	0.00	0.00	14.300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.000	0.00	0.00	0.00
HLP-35	0.000	1.680	0.00	0.00	21.600	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.000	0.00	0.00	0.00
HLP-36	0.000	2.410	0.00	0.00	15.500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.600	0.00	0.00	0.00
HLP-37	0.000	2.190	0.00	0.00	21.800	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.600	0.00	0.00	0.00
HLP-38	0.000	3.150	0.00	0.00	15.300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.400	0.00	0.00	0.00
HLP-39	0.000	2.590	0.00	0.00	21.500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.400	0.00	0.00	0.00
HLP-41	0.000	3.200	0.00	0.00	21.600	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.000	0.00	0.00	0.00
HLP-43	0.000	1.330	0.00	0.00	18.500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.400	0.00	0.00	0.00
HLP-44	0.000	1.460	0.00	0.00	18.600	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.300	0.00	0.00	0.00
HLP-45	0.000	1.550	0.00	0.00	18.500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.600	0.00	0.00	0.00
HLP-46	0.000	0.000	0.00	0.00	18.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	57.700	0.00	0.00	0.00
HLP-47	0.120	0.110	0.00	0.00	18.900	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55.100	0.00	0.00	0.00
HLP-48	0.000	1.830	0.00	0.00	18.500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.400	0.00	0.00	0.00
HLP-49	4.110	2.810	0.00	0.00	9.650	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.100	0.00	0.00	0.00
HLP-51	0.000	0.920	0.00	0.00	18.800	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41.200	0.00	0.00	0.00
HLP-52	0.000	1.080	0.00	0.00	27.500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.800	0.00	0.00	0.00
HLP-54	0.000	0.000	0.00	0.00	17.800	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.400	0.00	0.00	0.00
HLP-55	0.000	0.000	0.00	0.00	17.700	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.600	0.00	0.00	0.00
HLP-58	0.130	1.430	0.00	0.020	19.030	0.00	0.00	0.00	0.080	0.00	0.00	0.00	0.00	48.220	0.00	0.00	0.00
HLP-59	0.130	1.380	0.00	0.020	18.370	0.00	0.00	0.00	0.050	0.00	0.00	0.00	0.00	44.820	0.00	0.00	0.00
HLP-60	0.130	3.900	0.00	0.020	15.690	0.00	0.00	0.00	0.680	0.00	0.00	0.00	0.00	35.310	0.00	0.00	0.00
HLP-61	0.140	3.870	0.00	0.020	15.920	0.00	0.00	0.00	0.070	0.00	0.00	0.00	0.00	39.450	0.00	0.00	0.00
HLP-62	0.120	0.000	0.00	0.020	16.410	0.00	0.00	0.00	0.070	0.00	0.00	0.00	0.00	48.390	0.00	0.00	0.00
HLP-63	0.110	3.910	0.00	0.020	25.650	0.00	0.00	0.00	0.080	0.00	0.00	0.00	0.00	36.960	0.00	0.00	0.00
HLP-64	0.110	3.920	0.00	0.020	15.990	0.00	0.00	0.00	1.060	0.00	0.00	0.00	0.00	52.960	0.00	0.00	0.00
HLP-65	0.110	3.980	0.00	0.020	16.880	0.00	0.00	0.00	1.980	0.00	0.00	0.00	0.00	53.400	0.00	0.00	0.00
HLP-66	0.130	0.000	0.00	0.020	23.490	0.00	0.00	0.00	0.040	0.00	0.00	0.00	0.00	51.510	0.00	0.00	0.00
HLP-67	0.130	0.000	0.00	0.020	23.720	0.00	0.00	0.00	0.550	0.00	0.00	0.00	0.00	35.260	0.00	0.00	0.00
HLP-68	0.120	0.000	0.00	0.020	16.310	0.00	0.00	0.00	0.060	0.00	0.00	0.00	0.00	37.780	0.00	0.00	0.00
HLP-69	0.110	0.000	0.00	0.020	16.940	0.00	0.00	0.00	0.090	0.00	0.00	0.00	0.00	53.890	0.00	0.00	0.00
HLP-71	0.130	3.910	0.00	0.020	24.470	0.00	0.00	0.00	0.040	0.00	0.00	0.00	0.00	35.790	0.00	0.00	0.00
HLP-72	0.150	0.040	0.00	0.020	16.420	0.00	0.00	0.00	0.870	0.00	0.00	0.00	0.00	37.010	0.00	0.00	0.00
HLP-74	0.140	0.000	0.00	0.020	15.730	0.00	0.00	0.00	2.010	0.00	0.00	0.00	0.00	35.840	0.00	0.00	0.00
HLP-75	0.280	1.950	0.00	0.020	19.250	0.00	0.00	0.00	0.800	0.00	0.00	0.00	0.00	42.250	0.00	0.00	0.00
HLP-76	0.180	0.090	0.00	0.090	19.380	0.00	0.00	0.00	0.520	0.00	0.00	0.00	0.00	55.460	0.00	0.00	0.00
HLP-77	0.190	0.060	0.00	0.080	20.290	0.00	0.00	0.00	0.520	0.00	0.00	0.00	0.00	56.120	0.00	0.00	0.00

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
HLP-04	0.00	0.00	3.560	0.00	0.00	1.740	1.740	0.00	100.94		
HLP-05	0.00	0.00	3.170	0.00	0.00	1.560	1.450	0.00	97.34		
HLP-06	0.00	0.00	2.940	0.00	0.00	1.420	1.350	0.00	98.46		
HLP-07	0.00	0.00	3.150	0.00	0.00	1.560	1.550	0.00	103.51		
HLP-08	0.00	0.00	3.040	0.00	0.00	1.460	1.440	0.00	95.24		
HLP-09	0.00	0.00	2.870	0.00	0.00	1.510	1.220	0.00	94.73		
HLP-10	0.00	0.00	3.090	0.00	0.00	1.490	1.550	0.00	96.79		
HLP-11	0.00	0.00	2.830	0.00	0.00	1.480	1.380	0.00	94.59		
HLP-12	0.00	0.00	2.750	0.00	0.00	1.450	1.340	0.00	96.15		
HLP-13	0.00	0.00	2.950	0.00	0.00	1.530	1.340	0.00	96.88		
HLP-14	0.00	0.00	0.000	0.00	0.00	1.550	1.430	0.00	95.60		
HLP-15	0.00	0.00	5.910	0.00	0.00	1.510	1.060	0.00	100.06		
HLP-16	0.00	0.00	3.180	0.00	0.00	0.000	1.300	0.00	102.87		
HLP-17	0.00	0.00	3.000	0.00	0.00	3.960	1.300	0.00	100.19		
HLP-18	0.00	0.00	3.180	0.00	0.00	1.540	0.000	0.00	96.22		
HLP-19	0.00	0.00	2.980	0.00	0.00	1.500	5.640	0.00	101.24		
HLP-20	0.00	0.00	3.200	0.00	0.00	1.600	1.510	0.00	99.12		
HLP-21	0.00	0.00	3.030	0.00	0.00	1.680	1.340	0.00	98.60		
HLP-22	0.00	0.00	3.270	0.00	0.00	1.650	1.260	0.00	102.80		
HLP-23	0.00	0.00	2.900	0.00	0.00	1.470	1.380	0.00	95.99		
HLP-24	0.00	0.00	3.240	0.00	0.00	1.600	1.510	0.00	98.75		
HLP-25	0.00	0.00	2.660	0.00	0.00	1.490	1.480	0.00	96.65		
HLP-26	0.00	0.00	2.860	0.00	0.00	1.400	1.500	0.00	94.93		
HLP-27	0.00	0.00	0.000	0.00	0.00	0.000	0.000	0.00	97.70		
HLP-28	0.00	0.00	1.740	0.00	0.00	0.920	0.750	0.00	100.25		
HLP-29	0.00	0.00	1.410	0.00	0.00	0.730	0.640	0.00	96.57		
HLP-30	0.00	0.00	3.200	0.00	0.00	1.550	1.430	0.00	96.04		
HLP-31	0.00	0.00	1.780	0.00	0.00	0.940	0.700	0.00	96.60		
HLP-32	0.00	0.00	3.570	0.00	0.00	1.860	1.600	0.00	95.11		
HLP-33	0.00	0.00	3.230	0.00	0.00	1.670	1.310	0.00	100.35		
HLP-34	0.00	0.00	4.700	0.00	0.00	2.320	2.000	0.00	97.33		
HLP-35	0.00	0.00	3.610	0.00	0.00	1.830	1.730	0.00	98.24		
HLP-36	0.00	0.00	5.490	0.00	0.00	2.690	2.440	0.00	99.47		
HLP-37	0.00	0.00	5.040	0.00	0.00	2.460	2.280	0.00	98.05		
HLP-38	0.00	0.00	6.880	0.00	0.00	3.330	3.380	0.00	98.60		
HLP-39	0.00	0.00	5.500	0.00	0.00	2.720	2.620	0.00	97.00		
HLP-41	0.00	0.00	6.780	0.00	0.00	3.480	3.190	0.00	97.28		
HLP-43	0.00	0.00	2.860	0.00	0.00	1.400	1.500	0.00	97.47		
HLP-44	0.00	0.00	3.120	0.00	0.00	1.510	1.220	0.00	97.74		
HLP-45	0.00	0.00	2.930	0.00	0.00	1.460	1.340	0.00	98.20		
HLP-46	0.00	0.00	0.000	0.00	0.00	0.000	0.000	0.00	97.75		
HLP-47	0.00	0.00	0.090	0.00	0.00	0.000	0.940	0.00	96.60		
HLP-48	0.00	0.00	2.450	0.00	0.00	4.100	2.040	0.00	95.01		
HLP-49	0.00	0.00	0.000	0.00	0.00	3.930	2.730	0.00	97.10		
HLP-51	0.00	0.00	2.370	0.00	0.00	2.510	3.900	0.00	95.73		
HLP-52	0.00	0.00	0.370	0.00	0.00	0.000	2.540	0.00	94.54		
HLP-54	0.00	0.00	0.000	0.00	0.00	0.000	0.070	0.00	95.73		
HLP-55	0.00	0.00	0.000	0.00	0.00	0.000	0.000	0.00	97.16		
HLP-58	0.00	0.00	3.010	0.00	0.00	1.430	1.460	0.00	99.43		
HLP-59	0.00	0.00	2.880	0.00	0.00	1.430	1.520	0.00	97.13		
HLP-60	0.00	0.00	8.570	0.00	0.00	0.020	4.140	0.00	94.88		
HLP-61	0.00	0.00	8.460	0.00	0.00	3.990	0.070	0.00	98.35		
HLP-62	0.00	0.00	8.560	0.00	0.00	0.000	5.520	0.00	101.21		
HLP-63	0.00	0.00	8.830	0.00	0.00	0.000	0.060	0.00	100.52		
HLP-64	0.00	0.00	0.000	0.00	0.00	3.730	4.240	0.00	97.00		
HLP-65	0.00	0.00	0.000	0.00	0.00	0.000	0.040	0.00	101.44		
HLP-66	0.00	0.00	0.040	0.00	0.00	0.010	0.020	0.00	98.00		
HLP-67	0.00	0.00	0.010	0.00	0.00	3.950	3.790	0.00	93.13		
HLP-68	0.00	0.00	0.000	0.00	0.00	0.000	5.630	0.00	100.90		
HLP-69	0.00	0.00	8.790	0.00	0.00	3.940	0.070	0.00	102.11		
HLP-71	0.00	0.00	0.010	0.00	0.00	3.930	6.120	0.00	97.73		
HLP-72	0.00	0.00	8.560	0.00	0.00	3.860	3.850	0.00	96.90		
HLP-74	0.00	0.00	0.000	0.00	0.00	4.010	0.000	0.00	98.45		
HLP-75	0.00	0.00	3.660	0.00	0.00	1.970	2.530	0.00	100.73		
HLP-76	0.00	0.00	0.130	0.00	0.00	0.010	1.110	0.00	98.74		
HLP-77	0.00	0.00	0.080	0.00	0.00	0.000	1.010	0.00	99.74		

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Type	Reference	Test Vessel Type (Teflon or Stainless Steel)	Nominal Test Duration (days)	SA =(6*mass)/ density*diameter of particle (m^2)	SA/V (m^2/L)	(SA/V)*time (m^2-day/L)	Density (g/cc)	Nominal Mass Glass (g)	Nominal Mesh Size of Glass	Geometric Diameter of Average Particle (m)	Nominal Volume (L) Leachant Used	Type of Leachant	Nominal Temperature (°C)	pH
min:	0	0	0	0.42	0.020012508	1.081	3.913575214	2.373	1	0	0.000039	0.005	0	25	7.39
max:	0	0	0	7426.00	0.817369093	39.113	30938.72229	3.004	40	0	0.0002135	0.4	0	200	13.66

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Si (ppm)	B (ppm)	Ca (ppm)	Cr (ppm)	Li (ppm)	Na (ppm)	K (ppm)	Al (ppm)	Fe (ppm)	Mo (ppm)	Mg (ppm)	Ti (ppm)	Zn (ppm)	Zr (ppm)
min:	2.2595	0.0775	0	0.395114089	0	3.4525	0	0	0	0.81	0.00	0	0	0
max:	45200	35230.62	136.1	346.084	6750	76318.23	10223.1	1812.178	1485.899667	9219.73	10.88	47	115.33	76
	2.26	0.08	0.01	0.40	0.03	3.45	0.13	0.03	0.00	0.81	0.00	0.01	0.01	0.01

Table 11: ALTGLASS Version 3.0 database.

Glass ID	U(ppm)	Reaction Phase(s) Observed	Analytic Method Used To Study Reaction Phase Formation	x discriminator	y discriminator	Phase separation criterion value	Original THERMO discriminator	Predicted to be Low (<19.3 wt% alkali) or High Alkali?	Al_2O_3 Indicator	Potential For Phase Separation (original ROC)	TiO_2 Indicator
min:	0.0805	0	0					0			
max:	8.31	0	0					0			
	0.08										

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Potential For Phase Separation (TiO_2 ROC)	Al2O3	B2O3	BaO	CaO	CeO2	Ce2O3	Cr2O3	Cs2O	CuO	Cu2O	FeO	Fe2O3	K2O	Gd2O3	La2O3
min:		0.192729	0.1	0.01	0.01	1.1	0.02	0.01	0.03	0.01	0.112428	0.07	0.009	0.012045	0.074097938	0.01
max:		21.28711	18.47809149	1.34232	12.814	2.069377098	0.74	1.142082621	2.338679597	0.22	0.197873	8.81	21.85915	8.079	6.392390899	1.94
		0.193	0.100	0.010	0.010	1.100	0.020	0.010	0.030	0.010	0.112	0.070	0.009	0.012	0.074	0.010

Table 11: ALTGLASS Version 3.0 database.

Glass ID	Li2O	MgO	MnO	MoO3	Na2O	Nd2O3	NiO	PO4	P2O5	PbO	Pd	Pr2O3	RuO2	SiO2	Sm2O3	SO4	SrO
min:	0.001	0.016582	0.03	0.01	1.40128	0.01	0.21	0.416	0.04	0.02	0.88	0.52	0.43	32.77	0.36	0.026	0.011056
max:	14.67	7.7	3.34	3.529280119	27.5	**8.58676**	2.97	0.745	2.64	0.03	0.88	0.992167102	1.7	60.6	0.807907497	0.077	0.680343156
	0.001	0.017	0.030	0.010	1.401	0.010	0.210	0.416	0.040	0.020	0.880	0.520	0.430	32.770	0.360	0.026	0.011

Table 11: ALTGLASS Version 3.0 database.

Glass ID	TeO2	ThO2	TiO2	U3O8	Y2O3	ZnO	ZrO2	Others	Sum Oxides		
min:	0.16	3.34	0.01	0.55	0.02	0.01	0.01	0.05	91.525554		
max:	0.389779933	4.5	8.83	4.42	0.469153301	5.815	6.12	5.807	**108.138607**		
	0.160	3.340	0.010	0.550	0.020	0.010	0.010	0.050	91.526		

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