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A STATISTICAL REVIEW OF DWPF LABORATORY MEASUREMENTS GENERATED DURING THE PROCESSING OF BATCHES 300 THROUGH 356

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August 2006

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Prepared for the U.S. Department of Energy Under Contract Number DEAC09-96SR18500

SRNL
SAVANNAH RIVER NATIONAL LABORATORY

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EXECUTIVE SUMMARY

In this report, the Statistical Consulting Section (SCS) of the Savannah River National Laboratory (SRNL) provides summaries and comparisons of composition measurements for glass samples that were generated during the processing of batches 300 through 356 at the Defense Waste Processing Facility (DWPF). These analyses, which include measurements of samples from the Sludge Receipt and Adjustment Tank (SRAT) and the Slurry Mix Evaporator (SME) as well as samples of glass standards, were provided to SCS by the DWPF Laboratory (DWPF Lab) of Waste Laboratory Services. The comparisons made by SCS were extensive given that these data allowed for contrasts between preparation methods and between the two spectrometers that are currently in use at the DWPF Lab. In addition to general comparisons, specific questions that were posed in the Technical Task Request (TTR) behind this effort were addressed in this report.

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LIST OF ACRONYMS

DWPF	Defense Waste Processing Facility
ICP-AES	Inductively-Coupled Plasma – Atomic Emission Spectroscopy
JMP	Pronounced "jump." It's a statistical software package, a registered trademark of SAS Institute, Inc.
MAR	Measurement Acceptability Region
MFT	Melter Feed Tank
PCCS	Product Composition Control System
PET	Process Engineering Technology
RSD	Relative Standard Deviation
SCS	Statistical Consulting Section
SME	Slurry Mix Evaporator
SRAT	Sludge Receipt and Adjustment Tank
SRNL	Savannah River National Laboratory
SRS	Savannah River Site
TT&QA	Task Technical and Quality Assurance (plan)
TTR	Technical Task Request
WL	Waste Loading

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1.0 INTRODUCTION AND BACKGROUND

The Defense Waste Processing Facility (DWPF) at the Savannah River Site (SRS) in Aiken, South Carolina, has been immobilizing high level radioactive waste (HLW) in borosilicate glass since 1996. Chemical composition analyses of the material being processed at the facility are among the measurements used by the DWPF to manage and control their operation and to ensure that they meet product specifications. These analyses, which include measurements of samples from the Sludge Receipt and Adjustment Tank (SRAT), the Slurry Mix Evaporator (SME), and (on a less frequent basis) the Melter Feed Tank (MFT), are provided by the DWPF Laboratory (DWPF Lab) of Waste Laboratory Services. As part of its conduct of operations (ConOps), the DWPF Lab employs standards to establish and monitor the comprehensive quality control program under which the process sample analyses are conducted.

Statistical reviews of measurement data generated by this program have been conducted in the past by the Statistical Consulting Section (SCS) of the Savannah River National Laboratory (SRNL). Measurements of process samples have been reviewed by Edwards ([1], [2], and [3]) as well as Harris [4] with the latest review by Edwards [3] covering data through process batch 263. The purpose of this report, which was initiated in response to a Technical Task Request (TTR) issued by DWPF Process Engineering [5], is to provide a statistical review of the measurements of standards and process samples generated by the DWPF Lab during the processing of batches 300 through 356. During this processing, the two Leeman spectrometers used by the DWPF Lab generated the measurements for samples prepared by the three methods routinely used by the DWPF Lab [5]. In addition to providing a general assessment of these measurements, the TTR requested that the statistical review address several specific areas of inquiry. These areas, which were identified and discussed in the Task Technical and Quality Assurance Plan (TT&QA plan) [6] that was prepared in response to DWPF's TTR, are highlighted as they are addressed in the sections that follow.

2.0 OVERVIEW OF DATA

The DWPF Lab, through their WG17 server on the SRS computer network, provided SCS the measurement data for this analysis. The measurements were generated by Inductively Coupled Plasma (ICP) – Atomic Emission Spectroscopy (AES) and were grouped into three datasets, each related to the preparation method utilized for the samples being measured. The preparation/dissolution method(s) used was determined by the vessel being sampled: for the SRAT product samples, there was only one preparation/dissolution method used and it was denoted as "Cold Chem;" and for the SME, two different dissolution methods were used, and these were denoted as "Mixed Acid" and "Fusion." Thus, the data were organized into three datasets corresponding to these three preparation or "prep" methods: Cold Chem, Fusion and Mixed Acid. Tables A1, A2, and A3 in Appendix A provide the listings of these data sets. For each, the process batch number corresponding to the measurements is indicated as well as the instrument (the ICP spectrometer or ICP for short) used to generate the data. Two ICPs were used by the DWPF Lab, and they are denoted as M-13 and M-14. The statistical analyses of this study were initiated using all of the data of Tables A1 – A3.

One of the standards utilized in each of the three datasets was the Analytical Reference Glass One (ARG-1). This was the standard of primary interest in this study. It was labeled as Type of Sample "ARGB" in the Cold Chem dataset, "ARGG" in the Fusion dataset, and "ARGC" in the Mixed Acid dataset. ARG-1 is a powered glass that was prepared by Corning Glass and characterized by the Material Characterization Center (MCC) at Pacific Northwest National Laboratory (PNNL). Its reference composition is provided in Table 2-1 in both elemental and oxide weight percents (wt%'s).

Table 2-1 Reference Composition of the ARG-1 Standard

Element	Weight Percent (wt%)	Gravimetric Factor	Oxide	Weight Percent (wt%)
Aluminum (Al)	2.5	1.8895	Al_2O_3	4.7238
Boron (B)	2.69	3.2199	B_2O_3	8.6615
Calcium (Ca)	1.02	1.3992	CaO	1.4272
Chromium (Cr)	0.06	1.4616	Cr_2O_3	0.0877
Copper (Cu)	0.0001	1.2518	CuO	0.0001
Iron (Fe)	9.79	1.4297	Fe_2O_3	13.9968
Potassium (K)	2.25	1.2046	K_2O	2.7104
Lithium (Li)	1.49	2.1529	Li_2O	3.2078
Magnesium (Mg)	0.52	1.6581	MgO	0.8622
Manganese (Mn)	1.46	1.2912	MnO	1.8852
Sodium (Na)	8.53	1.3480	Na_2O	11.4984
Nickel (Ni)	0.83	1.2725	NiO	1.0562
Silicon (Si)	22.39	2.1393	SiO_2	47.8989
Titanium (Ti)	0.69	1.6680	TiO_2	1.1509
Uranium (U)	0	1.1792	U_3O_8	0.0000
Zirconium (ZrO)	0.1	1.3508	ZrO_2	0.1351

The other standard included as a Type of Sample in the three datasets is a (reagent) blank: IN32 for Cold Chem, SM55 for Fusion and SM32 for Mixed Acid. The other data listed in the tables correspond to measurements of process samples (SR04 for SRAT product samples prepared by Cold Chem and SM01 for SME samples prepared by either Fusion or Mixed Acid).

3.0 RESULTS

The information in Section 2 provides the framework for the data that are reviewed in this report. Most, but not all, of the measurement data were generated along with measurements that were reported for SRAT, SME, and MFT samples. A review of the measurements provides an opportunity to investigate and estimate the components or sources of variation in these data. There also are opportunities to estimate bias in the elemental measurements of the standards. All of these aspects of the comparisons of the measurement data are discussed in this section. The specific issues identified in the TT&QA Plan [6] are also addressed in this section.

The statistical analyses were conducted using JMP Version 5.1.2 [7].

3.1 INITIAL ASSESSMENT OF STANDARD AND PROCESS MEASUREMENTS

Tables A1 through A3 list all of the data that were provided to SCS. As a preliminary step in the evaluation of these data, an attempt was made to identify measurements that were potential outliers. Such a need was deemed necessary since some of the measurements provided by the DWPF Lab had been pre-labeled by the Lab as not acceptable. While the exclusion of the more extreme instances of outlying data is seen as having merit, there was an effort made not to be overly aggressive in excluding data from these analyses. Exhibit A1 in Appendix A provides plots of all of the data: sequenced by analyte by type of sample (ARG-1, process sample (either SRAT product or SME), and blank) and grouped by ICP within preparation method. Note that the analytes cover ratios of elements in addition to the 16 elements listed in Tables A1 through A3. The symbols used in these plots identify those data flagged as potential outliers (×) from the other data (♦). Also shown in the exhibit are box plots for each set of data.

The box plot summarizes the distribution of each group of points. The ends of each box mark the 25th and 75th quantiles (i.e., the first and third quartiles). The difference between these quartiles is called the interquartile range. The line across the middle of the box identifies the median of the set of measurements. Each box has lines, sometimes called whiskers, that extend from each end. The whiskers extend from the upper end of the box to the largest measurement that is no more than 1.5 × (interquartile range) above the upper quartile and from the lower end of the box to the smallest measurement that is no less than 1.5 × (interquartile range) below the lower quartile. Measurements that fall beyond the whiskers are potential outliers. If there is no indication of a potential outlier in the group of measurements (based upon this approach), then the endpoints of the box plot are the minimum and maximum values in the group of measurements.

To be slightly more conservative in the approach used to flag potential outliers, a multiplier of 2 was used instead of the 1.5 value. In addition, the measurements were grouped in two different ways: one way was as illustrated in Exhibit A1 and the other (not shown) was to not distinguish between the two ICPs. If a measurement was identified as an outlier by both of these groupings (as indicated in Figure 1) it was flagged using the × symbol and it was excluded from the analyses that follow.

Symbols		Unusual by ICP	Unusual	N Rows
◇	1			53689
◇	2		Potential Outlier	449
◇	3	Potential Outlier		386
×	4	Potential Outlier	Potential Outlier	1096

Figure 3-1. Measurements (over all analytes) Flagged as Potential Outliers

Exhibit A2 in Appendix A provides plots of the data by batch within ICP for each preparation method and sample type and analyte with the potential outlying data excluded. A horizontal line is also shown as part of each of these plots indicating the average measurement over the batches for each ICP. In addition to the 16 elements and the numerous ratios, a sum of oxides plot is also provided as part of this exhibit. The results are presented by analyte grouping in alphabetical order.

3.2 COMPARISONS OF ARG-1 MEASUREMENTS

ARG-1 measurements provide the opportunity for the most comprehensive set of comparisons across the three preparation methods and the two ICPs (i.e., M-13 and M-14). Exhibit A3 in Appendix A provides comparisons of the average of the ARG-1 measurements by batch (for those batches with two ARG-1 measurements for the given analyte) across the preparation and ICP combinations for each analyte. In this exhibit the horizontal line represents the "known" ARG-1 value of the analyte. Once again, a box plot is superimposed over each set of measurement data. For this exhibit, tabulated information is provided below each plot. Included in this information is an Analysis of Variance (ANOVA) that tests for a significant difference in underlying average values of the sets of measurements for each analyte. A significant difference (at a 5% significance level) is indicated by the "Prob > F" value's being less than or equal to 0.05 in this information. If such a difference is indicated, the "Means Comparisons" portion of the information may be scanned to identify (based upon a lettering scheme) those means that differ.

For example, consider the first plot and corresponding information of Exhibit A3, ARG-1 Al comparisons. Note that almost all of the measurements fall below the reference value for Al (the horizontal line of the plot). Also, note that the average Al concentrations range from a low of 2.299 wt% for Mixed Acid/M-13 to a high of 2.401 wt% for Fusion/M-13. Thus, the Mixed Acid/M-13 average is

~ 4.2% below the average for Fusion/M-13. The ANOVA's "Prob > F" value is given as "<.0001" indicating a statistically significant difference among the underlying means for these data. The lower portion of the information provides the "Means Comparisons" which lists the average of the sets of measurements in descending order. The lettering scheme indicates that the Fusion/M-13 average differs (statistically, at the 5% significance level) from the Cold Chem/M-14 average and the other preparation/ICP combinations that yielded smaller averages. Also, it may be noted that the Mixed Acid/M-13 average differed from the Mixed Acid/M-14 average and the other preparation/ICP combinations that yielded larger averages. Thus, statistically significant differences in the underlying mean measurements for the Al concentrations are indicated in these results in spite of all of the differences for the sample averages being no greater than 4.2%. The information for the other analytes may be interpreted in a similar fashion.

3.3 ICP COMPARISONS USING COLD CHEM PROCESS SAMPLES

Comparisons of the M-13 versus M-14 ICPs may be conducted using all of the SRAT product measurement data since the compositions of these process batches remain relatively stable during the processing of the sludge batch. Specifically, waste loading targets and other processing decisions do not affect the compositions of the SRAT. Exhibit A4 in Appendix A provides "head-to-head" comparisons between the two ICPs using the average measurements by batch of the process samples prepared using Cold Chem.

For each analyte covered in the exhibit, there is a plot of the batch averages for each ICP. Superimposed on the data are "mean diamonds" generated by JMP. Each of these diamonds graphically represents a 95% confidence interval for the mean of the data (using a pooled estimate of the standard deviation). The information provided below the plot shows the results of statistical tests for differences between the two sets of data. Under the "t Test" heading, a value for "Prob > |t|" of 0.05 or less indicates a statistical difference between the two underlying means for the ICPs at a significance level of 0.05. Identical results are also provided through the "Prob > F" value of the "Analysis of Variance" portion of the information, which is also provided by JMP. A set of "Tests that the Variances are Equal" is also provided as part of the JMP output. One may use the line of results corresponding to the "Levene" test and the rule that a value for "Prob > F" less than or equal to 0.05 implies a statistically significant difference to check for a difference between the two underlying variances for the ICPs at a significance level of 0.05.

The information of Exhibit A4 may be summarized as: there is an indication of a significant difference in the means for Cr, Cu, Fe/Al, K, Li, and Sum of Oxides and in the variances for Al/Ca, Fe/Ni, K, and Na. Note that for the Sum of Oxides, the M-14 yields, on average, about a 1.6 wt% lower sum than the M-13 for the SRAT product samples.

3.4 PREPARATION COMPARISONS BY ICP USING SME SAMPLE MEASUREMENTS

Exhibit A5 in Appendix A provides comparisons between Fusion and Mixed Acid using the averages of SME measurements by batch for each analyte and each ICP. The information provided in this exhibit parallels that that was provided in Exhibit A4 except that for Exhibit A5 the differences being investigated are between the two preparations methods (Fusion and Mixed Acid). The information in Exhibit A5 may be summarized as follows: there is an indication of a significant difference in the Fusion and Mixed Acid means for Al/Ca, Cu, Fe, Fe/Ca, Fe/Li, Fe/Ni, Fe/U, K, Mn/Mg, Si, Ti, U, and U/Ca and in the variances for Al/Ca, Ca, Cu, Fe, K, and U/Ca for M-13. There is an indication of a significant difference in the Fusion and Mixed Acid means for Al, Al/Ca, Ca, Fe/Al, Fe/Ca, Fe/Mg, Fe/Mn, Fe/Ni, Fe/U, Li, Mg, Mn/Mg, Ni, Si, U, and U/Ca and in the variances for Fe/Mn and Li for the M-14.

3.5 COMPARISONS OF ELEMENTAL RATIOS FOR PROCESS SAMPLES BY PREPARATION METHOD AND ICP

Exhibit A6 in Appendix A provides comparisons of elemental ratios for the batch averages by preparation method and ICP. By restricting the investigation to the analytes that represent ratios of the elements comparisons can be made across all preparations and ICPs. The plots and information in this exhibit parallel those of Exhibit A3.

3.6 ANALYSIS OF VARIANCE BY PREPARATION METHOD, ICP, AND ANALYTE

Exhibit A7 in Appendix A provides an analysis of variance (ANOVA) for the measurements by type of sample (for this analysis, ARG-1 and the process samples, either SME or SRAT product), preparation method, ICP, and analyte. For each of these categories of measurements, the data used for this analysis were all of the batches for which a complete set of measurements were available for that type of measurement. Thus, for ARG-1 Al determined by Cold Chem and using the M-13 ICP, if two measurements were available for a batch, those measurements were included in the analysis, and similarly for the other preparation/ICP combinations and using 6 measurements to identify a qualifying batch of process samples. The purpose of the ANOVA was to estimate the sources of variation in the data: the within batch variation and the between batch variation. These estimates provide the components of variance for each of these categories of measurements.

In Exhibit 7, the estimated components of variance are provided: the between batch variance is designated as the "Batch" component and the within batch variance is designated as the "Residual" component. In addition to these estimated variances, the percentages of the total variance attributed to the two components are also given in the exhibit.

For the ARG-1 measurements, the information in the exhibit provides an opportunity to look at the potential for bias as well as to estimate the overall uncertainty (bias and precision errors) for a single measurement at a confidence level of 95%. Table 3-1 summarizes information from Exhibit A7, provides the reference composition for ARG-1, determines a 95% confidence interval for the mean measurement value, and estimates the uncertainty of a single measurement at 95% confidence. As an example, consider a single Al measurement by Cold Chem with the M-13 ICP. The lower bound on the uncertainty interval is 7.91% and the upper bound is 11.39%. Thus, based upon the ARG-1 data, the true Al value could be 7.91% lower than the measurement or 11.39% higher, with 95% confidence.

ANOVA's were also conducted for the measurements of the process samples (SRAT product and SME). The results from these analyses are also presented in Exhibit A7 and all of the batches for which 6 measurements were available for an analyte were used in the analysis of that analyte. No bias estimates can be developed for these results since the "true" values are not known. However, the components of variance are estimated as part of the ANOVA results. These estimates are summarized in Table 3-2.

Table 3-1 Estimated Components of Variance, Mean Confidence Intervals, and Overall Uncertainty for ARG-1 Measurements

Cold Chem/M-13

	Reference	Average		Estimate of	Estimate of	Estimate of	Estimate of	Estimate of	Estimate of	95% Confidence Interval for Mean		95% Measurement Uncertainty	
Analyte	Value (wt%)	(wt%)	% Bias	Between Var	Within Var	Total Variance	%RSD (B)	%RSD(W)	%RSD(T)	Lower	Upper	% Lower	% Upper
Al	2.5	2.338	-6.49%	0.002726	0.005365	0.008091	2.23%	3.13%	3.85%	2.309	2.367	7.91%	11.38%
Al/Ca	2.451	2.417	-1.38%	0.003266	0.002203	0.005469	2.36%	1.94%	3.06%	2.390	2.444	6.30%	6.78%
Al/Mg	4.808	4.708	-2.08%	0.008766	0.010288	0.019054	1.99%	2.15%	2.93%	4.661	4.755	6.03%	6.78%
Al/Mn	1.712	1.652	-3.53%	0.000178	0.002487	0.002665	0.81%	3.02%	3.13%	1.637	1.666	6.43%	7.88%
B	2.69	2.613	-2.88%	0.00188	0.00403	0.00591	1.66%	2.43%	2.94%	2.588	2.637	6.05%	7.20%
B/Li	1.805	1.816	0.60%	0.002027	0.002878	0.004905	2.48%	2.95%	3.86%	1.793	1.839	8.15%	7.93%
Ca	1.02	0.968	-5.11%	0.001529	0.001472	0.003001	4.04%	3.96%	5.66%	0.949	0.987	11.66%	13.79%
Cr	0.06	0.065	8.86%	0.000032	0.000014	0.000046	8.66%	5.73%	10.38%	0.063	0.068	24.47%	21.34%
Cu	0.0001	0.004	3659.00%	0	0.000019	0.000019	0.00%	115.96%	115.96%	0.003	0.005	271.80%	238.36%
Fe	9.79	9.723	-0.68%	0.02523	0.058054	0.083284	1.63%	2.48%	2.97%	9.631	9.815	6.11%	6.10%
Fe/Al	3.916	4.162	6.28%	0.004437	0.010178	0.014615	1.60%	2.42%	2.90%	4.123	4.201	9.08%	5.97%
Fe/Ca	9.598	9.980	3.98%	0.019172	0.136476	0.155648	1.39%	3.70%	3.95%	9.855	10.105	9.63%	8.18%
Fe/Li	6.57	6.758	2.86%	0.034139	0.03079	0.064929	2.73%	2.60%	3.77%	6.670	6.846	8.76%	7.75%
Fe/Mg	18.827	19.543	3.80%	0.137021	0.099314	0.236335	1.89%	1.61%	2.49%	19.361	19.726	6.90%	5.15%
Fe/Mn	6.705	6.884	2.67%	0	0.011197	0.011197	0.00%	1.54%	1.54%	6.855	6.913	4.38%	3.17%
Fe/Ni	11.795	12.030	2.00%	0.011033	0.047533	0.058566	0.87%	1.81%	2.01%	11.955	12.106	4.88%	4.14%
Fe/U	-												
K	2.25	2.333	3.69%	0.007457	0.041245	0.048702	3.70%	8.70%	9.46%	2.267	2.399	20.47%	19.44%
Li	1.49	1.444	-3.11%	0.001485	0.001213	0.002698	2.67%	2.41%	3.60%	1.425	1.462	7.41%	8.67%
Mg	0.52	0.497	-4.43%	0.000424	0.000186	0.00061	4.14%	2.74%	4.97%	0.488	0.506	10.22%	12.07%
Mn	1.46	1.416	-3.03%	0.000145	0.001545	0.00169	0.85%	2.78%	2.90%	1.404	1.428	5.97%	7.17%
Mn/Mg	2.808	2.849	1.45%	0.00575	0.002821	0.008571	2.66%	1.86%	3.25%	2.814	2.884	7.21%	6.71%
Na	8.53	8.340	-2.23%	0.0058	0.016258	0.022058	0.91%	1.53%	1.78%	8.290	8.390	3.68%	4.67%
Ni	0.83	0.808	-2.62%	0.000068	0.000236	0.000304	1.02%	1.90%	2.16%	0.803	0.814	4.44%	5.57%
Si	22.39	21.860	-2.37%	0.102924	0.263944	0.366868	1.47%	2.35%	2.77%	21.664	22.055	5.71%	6.60%
Ti	0.69	0.672	-2.55%	0.000118	0.000114	0.000232	1.62%	1.59%	2.27%	0.667	0.678	4.67%	5.78%
U													
U/Ca	0	0.096	-	0	0.013895	0.013895	0.00%	122.79%	122.79%	0.068	0.124	283.45%	252.40%
Zr	0.1	0.102	2.17%	0.000022	0.000009	0.000031	4.59%	2.94%	5.45%	0.100	0.104	11.95%	11.22%
Sum Ox	99.3	97.413	-1.90%	2.987575	8.206505	11.19408	1.77%	2.94%	3.43%	96.359	98.466	7.06%	7.68%

Table 3-1 Estimated Components of Variance, Mean Confidence Intervals, and Overall Uncertainty for ARG-1 Measurements *(continued)*

Cold Chem/M-14

	Reference	Average		Estimate of	Estimate of	Estimate of	Estimate of	Estimate of	Estimate of	95% Confidence Interval for Mean		95% Measurement Uncertainty	
Analyte	Value (wt%)	(wt%)	% Bias	Between (B) Batch Variance	Within (W) Batch Variance	Total (T) Variance	%RSD (B)	%RSD(W)	%RSD(T)	Lower	Upper	% Lower	% Upper
Al	2.5	2.340	-6.39%	0.001847	0.003672	0.005519	1.84%	2.59%	3.17%	2.316	2.364	6.52%	10.21%
Al/Ca	2.451	2.407	-1.80%	0.001484	0.003563	0.005047	1.60%	2.48%	2.95%	2.385	2.429	6.06%	6.65%
Al/Mg	4.808	4.839	0.64%	0.016171	0.013193	0.029364	2.63%	2.37%	3.54%	4.783	4.895	7.46%	7.24%
Al/Mn	1.712	1.673	-2.28%	0.001188	0.001052	0.00224	2.06%	1.94%	2.83%	1.657	1.689	5.80%	6.68%
B	2.69	2.595	-3.53%	0.000315	0.003639	0.003954	0.68%	2.32%	2.42%	2.577	2.613	4.97%	6.60%
B/Li	1.805	1.786	-1.07%	0.001349	0.001218	0.002567	2.06%	1.95%	2.84%	1.769	1.802	5.80%	6.14%
Ca	1.02	0.971	-4.85%	0.000314	0.001546	0.00186	1.83%	4.05%	4.44%	0.958	0.983	9.10%	11.12%
Cr	0.06	0.068	13.97%	0.00003	0.000011	0.000041	8.01%	4.85%	9.36%	0.066	0.071	24.63%	19.15%
Cu	0.0001	0.002	1693.00%	0.000004	0.000006	0.00001	111.54%	136.61%	176.37%	0.001	0.003	388.13%	361.27%
Fe	9.79	9.517	-2.79%	0.027879	0.016305	0.044184	1.75%	1.34%	2.21%	9.442	9.592	4.54%	5.83%
Fe/Al	3.916	4.085	4.32%	0.013204	0.004398	0.017602	2.81%	1.62%	3.25%	4.038	4.133	8.51%	6.65%
Fe/Ca	9.598	9.764	1.73%	0.03374	0.100665	0.134405	1.88%	3.25%	3.75%	9.651	9.876	8.21%	7.70%
Fe/Li	6.57	6.548	-0.34%	0.01457	0.016193	0.030763	1.84%	1.94%	2.68%	6.492	6.604	5.50%	5.48%
Fe/Mg	18.827	19.622	4.22%	0.141571	0.069632	0.211203	1.92%	1.34%	2.34%	19.452	19.792	6.89%	4.82%
Fe/Mn	6.705	6.853	2.21%	0.001497	0.005917	0.007414	0.56%	1.12%	1.26%	6.828	6.878	3.60%	2.57%
Fe/Ni	11.795	11.937	1.21%	0.014555	0.028419	0.042974	1.01%	1.41%	1.74%	11.874	12.001	3.95%	3.55%
Fe/U	-												
K	2.25	2.308	2.59%	0	0.018742	0.018742	0.00%	5.93%	5.93%	2.273	2.344	12.79%	12.13%
Li	1.49	1.455	-2.35%	0.000574	0.001668	0.002242	1.65%	2.81%	3.25%	1.440	1.470	6.68%	7.49%
Mg	0.52	0.484	-6.93%	0.000092	0.00022	0.000312	1.98%	3.06%	3.65%	0.478	0.490	7.50%	11.43%
Mn	1.46	1.389	-4.85%	0.000286	0.001045	0.001331	1.22%	2.33%	2.63%	1.378	1.400	5.39%	7.99%
Mn/Mg	2.808	2.870	2.22%	0.002568	0.002346	0.004914	1.77%	1.69%	2.44%	2.846	2.895	5.86%	5.02%
Na	8.53	8.300	-2.70%	0.009452	0.02236	0.031812	1.17%	1.80%	2.15%	8.243	8.356	4.42%	5.61%
Ni	0.83	0.798	-3.88%	0.000176	0.000347	0.000523	1.66%	2.33%	2.87%	0.791	0.805	5.88%	7.68%
Si	22.39	21.885	-2.26%	0.043324	0.313542	0.356866	0.95%	2.56%	2.73%	21.708	22.062	5.61%	6.42%
Ti	0.69	0.671	-2.81%	0.000015	0.000203	0.000218	0.58%	2.12%	2.20%	0.666	0.675	4.53%	5.75%
U	0	0.030		0.000849	0.005408	0.006257	97.40%	245.84%	264.43%	0.007	0.053	569.48%	541.66%
U/Ca	0	0.030		0.001195	0.006067	0.007262	115.11%	259.37%	283.76%	0.005	0.055	609.21%	581.27%
Zr	0.1	0.103	2.68%	0.000022	0.000017	0.000039	4.57%	4.02%	6.08%	0.101	0.105	13.33%	12.48%
Sum Ox	99.3	96.179	-3.14%	0	14.10631	14.10631	0.00%	3.91%	3.91%	95.178	97.180	8.00%	9.07%

Table 3-1 Estimated Components of Variance, Mean Confidence Intervals, and Overall Uncertainty for ARG-1 Measurements *(continued)*

Fusion/M-13

	Reference	Average		Estimate of	Estimate of	Estimate of	Estimate of	Estimate of	Estimate of	95% Confidence Interval for Mean		95% Measurement Uncertainty	
Analyte	Value (wt%)	(wt%)	% Bias	Between Var	Within Var	Total Variance	%RSD (B)	%RSD(W)	%RSD(T)	Lower	Upper	% Lower	% Upper
Al	2.5	2.401	-3.96%	0.002892	0.006025	0.008917	2.24%	3.23%	3.93%	2.376	2.426	7.96%	9.49%
Al/Ca	2.451	2.438	-0.53%	0.001788	0.001601	0.003389	1.73%	1.64%	2.39%	2.421	2.455	4.84%	4.84%
Al/Mg	4.808	4.764	-0.91%	0.008971	0.006851	0.015822	1.99%	1.74%	2.64%	4.728	4.801	5.35%	5.61%
Al/Mn	1.712	1.706	-0.35%	0.000779	0.000791	0.00157	1.64%	1.65%	2.32%	1.695	1.717	4.72%	4.71%
B	2.69	2.617	-2.72%	0.001922	0.006052	0.007974	1.68%	2.97%	3.41%	2.594	2.640	6.91%	7.83%
B/Li	1.805	1.784	-1.16%	0.000324	0.001958	0.002282	1.01%	2.48%	2.68%	1.772	1.796	5.42%	5.72%
Ca	1.02	0.983	-3.59%	0.000736	0.001132	0.001868	2.76%	3.42%	4.40%	0.971	0.995	8.91%	10.20%
Cr	0.06	0.068	13.27%	0.000023	0.000016	0.000039	7.06%	5.89%	9.19%	0.066	0.070	23.52%	18.62%
Cu	0.0001	0.002	1746.00%	0.000012	0.000008	0.00002	187.65%	153.22%	242.26%	0.001	0.003	516.68%	490.43%
Fe	9.79	9.709	-0.83%	0.040073	0.083086	0.123159	2.06%	2.97%	3.61%	9.614	9.804	7.33%	7.33%
Fe/Al	3.916	4.032	2.95%	0.005055	0.005306	0.010361	1.76%	1.81%	2.52%	4.003	4.061	6.25%	5.12%
Fe/Ca	9.598	9.807	2.18%	0.024542	0.070248	0.09479	1.60%	2.70%	3.14%	9.727	9.887	7.01%	6.36%
Fe/Li	6.57	6.614	0.67%	0.012297	0.028217	0.040514	1.68%	2.54%	3.04%	6.561	6.667	6.34%	6.17%
Fe/Mg	18.827	19.166	1.80%	0.005845	0.11381	0.119655	0.40%	1.76%	1.80%	19.083	19.250	4.27%	3.66%
Fe/Mn	6.705	6.868	2.43%	0.003799	0.007128	0.010927	0.90%	1.23%	1.52%	6.839	6.896	4.16%	3.09%
Fe/Ni	11.795	12.052	2.18%	0	0.087972	0.087972	0.00%	2.46%	2.46%	11.983	12.121	5.67%	4.99%
Fe/U	-												
K	2.25	2.198	-2.33%	0.005032	0.012719	0.017751	3.23%	5.13%	6.06%	2.163	2.232	12.27%	12.90%
Li	1.49	1.467	-1.54%	0.000445	0.002301	0.002746	1.44%	3.27%	3.57%	1.454	1.480	7.24%	7.64%
Mg	0.52	0.506	-2.69%	0.000123	0.000256	0.000379	2.19%	3.16%	3.85%	0.501	0.511	7.80%	8.68%
Mn	1.46	1.414	-3.13%	0.000749	0.0023	0.003049	1.94%	3.39%	3.90%	1.400	1.429	7.91%	8.98%
Mn/Mg	2.808	2.793	-0.54%	0.000661	0.002691	0.003352	0.92%	1.86%	2.07%	2.778	2.808	4.20%	4.33%
Na	8.53												
Ni	0.83	0.803	-3.29%	0.0004	0.000528	0.000928	2.49%	2.86%	3.80%	0.794	0.811	7.69%	8.89%
Si	22.39	22.586	0.87%	0.213535	0.420774	0.634309	2.05%	2.87%	3.53%	22.372	22.800	7.37%	7.14%
Ti	0.69	0.671	-2.76%	0.000115	0.000545	0.00066	1.60%	3.48%	3.83%	0.665	0.677	7.75%	8.63%
U	0	0.021		0.00284	0.000899	0.003739	251.01%	141.22%	288.01%	0.003	0.040	612.48%	583.05%
U/Ca	0	0.022		0.002989	0.000987	0.003976	247.24%	142.07%	285.15%	0.003	0.041	606.65%	577.26%
Zr	0.1												
Sum Ox	87.7	87.103	-0.68%	2.020595	9.161029	11.181624	1.63%	3.47%	3.84%	86.270	87.935	7.78%	7.77%

Table 3-1 Estimated Components of Variance, Mean Confidence Intervals, and Overall Uncertainty for ARG-1 Measurements *(continued)*

Fusion/M-14

	Reference	Average		Estimate of	Estimate of	Estimate of	Estimate of	Estimate of	Estimate of	95% Confidence Interval for Mean		95% Measurement Uncertainty	
Analyte	Value (wt%)	(wt%)	% Bias	Between Var	Within Var	Total Variance	%RSD (B)	%RSD(W)	%RSD(T)	Lower	Upper	% Lower	% Upper
Al	2.5	2.392	-4.31%	0.001287	0.004373	0.00566	1.50%	2.76%	3.14%	2.358	2.426	6.79%	9.01%
Al/Ca	2.451	2.475	0.99%	0.001819	0.001839	0.003658	1.72%	1.73%	2.44%	2.442	2.509	5.86%	5.38%
Al/Mg	4.808	4.821	0.27%	0.000327	0.007693	0.00802	0.38%	1.82%	1.86%	4.784	4.858	4.15%	4.01%
Al/Mn	1.712	1.721	0.52%	0.000333	0.000967	0.0013	1.06%	1.81%	2.10%	1.704	1.737	4.76%	4.53%
B	2.69	2.555	-5.01%	0.000335	0.004066	0.004401	0.72%	2.50%	2.60%	2.526	2.585	5.66%	8.56%
B/Li	1.805	1.744	-3.36%	0.000598	0.000387	0.000985	1.40%	1.13%	1.80%	1.728	1.761	3.89%	5.88%
Ca	1.02	0.971	-4.80%	0.000008	0.000565	0.000573	0.29%	2.45%	2.47%	0.960	0.982	5.43%	8.20%
Cr	0.06	0.066	10.06%	0.000026	0.000023	0.000049	7.72%	7.26%	10.60%	0.062	0.070	27.50%	23.10%
Cu	0.0001	-0.001	-810.00%	0.000009	0.000013	0.000022	422.54%	507.82%	660.62%	-0.003	0.002	-1441.25%	-1427.19%
Fe	9.79	9.550	-2.46%	0.030727	0.029682	0.060409	1.84%	1.80%	2.57%	9.426	9.673	5.56%	6.74%
Fe/Al	3.916	3.994	1.98%	0.002222	0.008155	0.010377	1.18%	2.26%	2.55%	3.948	4.040	6.32%	5.51%
Fe/Ca	9.598	9.883	2.97%	0.030124	0.078915	0.109039	1.76%	2.84%	3.34%	9.724	10.042	8.56%	7.28%
Fe/Li	6.57	6.552	-0.28%	0.010526	0.009968	0.020494	1.57%	1.52%	2.18%	6.480	6.624	4.79%	4.72%
Fe/Mg	18.827	19.143	1.68%	0.024027	0.025567	0.049594	0.81%	0.84%	1.16%	19.027	19.259	3.39%	2.53%
Fe/Mn	6.705	6.838	1.99%	0.002191	0.003606	0.005797	0.68%	0.88%	1.11%	6.800	6.877	3.49%	2.43%
Fe/Ni	11.795	12.191	3.36%	0.027218	0.047318	0.074536	1.35%	1.78%	2.24%	12.061	12.322	6.49%	4.84%
Fe/U	-	6.546		0.001865	0.005893	0.007758	0.66%	1.17%	1.35%	6.502	6.590		
K	2.25	2.165	-3.78%	0.020849	0.032443	0.053292	6.67%	8.32%	10.66%	2.054	2.276	23.07%	23.04%
Li	1.49	1.458	-2.14%	0.000877	0.001119	0.001996	2.03%	2.29%	3.06%	1.436	1.480	6.62%	7.58%
Mg	0.52	0.496	-4.55%	0.000114	0.000167	0.000281	2.15%	2.60%	3.38%	0.488	0.505	7.30%	9.71%
Mn	1.46	1.397	-4.30%	0.000399	0.000898	0.001297	1.43%	2.14%	2.58%	1.380	1.415	5.62%	8.04%
Mn/Mg	2.808	2.802	-0.23%	0.00092	0.000842	0.001762	1.08%	1.04%	1.50%	2.781	2.823	3.28%	3.24%
Na	8.53												
Ni	0.83	0.784	-5.59%	0.000021	0.000564	0.000585	0.58%	3.03%	3.09%	0.774	0.794	6.67%	9.82%
Si	22.39	22.414	0.11%	0.084419	0.263206	0.347625	1.30%	2.29%	2.63%	22.145	22.682	5.83%	5.68%
Ti	0.69	0.672	-2.66%	0.000064	0.000174	0.000238	1.19%	1.96%	2.30%	0.664	0.679	5.00%	6.30%
U	0	-0.045		0.003833	0.003878	0.007711	138.01%	138.82%	195.75%	-0.089	-0.001	-422.89%	-466.85%
U/Ca	0	-0.049		0.003646	0.005307	0.008953	123.23%	148.67%	193.10%	-0.095	-0.003	-417.17%	-459.88%
Zr	0.1												
Sum Ox	87.7	86.176	-1.74%	0.780452	3.27123	4.051682	1.03%	2.10%	2.34%	85.278	87.073	5.05%	5.78%

Table 3-1 Estimated Components of Variance, Mean Confidence Intervals, and Overall Uncertainty for ARG-1 Measurements *(continued)*

Mixed Acid/M-13

	Reference	Average		Estimate of	Estimate of	Estimate of	Estimate of	Estimate of	Estimate of	95% Confidence Interval for Mean		95% Measurement Uncertainty	
Analyte	Value (wt%)	(wt%)	% Bias	Between Var	Within Var	Total Variance	%RSD (B)	%RSD(W)	%RSD(T)	Lower	Upper	% Lower	% Upper
Al	2.5	2.299	-8.04%	0.000939	0.001763	0.002702	1.33%	1.83%	2.26%	2.283	2.315	4.62%	10.51%
Al/Ca	2.451	2.313	-5.64%	0.000606	0.001116	0.001722	1.06%	1.44%	1.79%	2.300	2.325	3.66%	7.48%
Al/Mg	4.808	4.519	-6.02%	0.007425	0.008062	0.015487	1.91%	1.99%	2.75%	4.479	4.558	5.62%	9.19%
Al/Mn	1.712	1.654	-3.39%	0.00058	0.000749	0.001329	1.46%	1.65%	2.20%	1.643	1.665	4.50%	6.15%
B	2.69												
B/Li	1.805												
Ca	1.02	0.994	-2.57%	0.000229	0.000282	0.000511	1.52%	1.69%	2.27%	0.987	1.001	4.65%	5.74%
Cr	0.06	0.067	11.34%	0.000041	0.000026	0.000067	9.58%	7.63%	12.25%	0.064	0.070	28.80%	25.02%
Cu	0.0001	-0.003	-3480.00%	0.00006	0.000006	0.000066	229.17%	72.47%	240.36%	-0.006	0.000	-491.58%	-527.76%
Fe	9.79	9.524	-2.72%	0.002008	0.039176	0.041184	0.47%	2.08%	2.13%	9.469	9.579	4.36%	5.51%
Fe/Al	3.916	4.149	5.95%	0.005276	0.006361	0.011637	1.75%	1.92%	2.60%	4.115	4.183	8.34%	5.31%
Fe/Ca	9.598	9.593	-0.05%	0.023985	0.024037	0.048022	1.61%	1.62%	2.28%	9.524	9.663	4.71%	4.67%
Fe/Li	6.57	6.500	-1.07%	0.030624	0.009195	0.039819	2.69%	1.48%	3.07%	6.430	6.570	6.28%	6.28%
Fe/Mg	18.827	18.737	-0.48%	0.041043	0.041294	0.082337	1.08%	1.08%	1.53%	18.646	18.828	3.13%	3.13%
Fe/Mn	6.705	6.859	2.30%	0.004794	0.005737	0.010531	1.01%	1.10%	1.50%	6.827	6.891	4.09%	3.06%
Fe/Ni	11.795	11.829	0.29%	0.031055	0.050373	0.081428	1.49%	1.90%	2.41%	11.740	11.917	5.04%	4.93%
Fe/U	-												
K	2.25	2.007	-10.80%	0.107098	0.059314	0.166412	16.31%	12.13%	20.32%	1.869	2.145	41.57%	45.70%
Li	1.49	1.465	-1.65%	0.001682	0.00638	0.008062	2.80%	5.45%	6.13%	1.448	1.482	12.55%	12.87%
Mg	0.52	0.509	-2.20%	0.000034	0.000116	0.00015	1.15%	2.12%	2.41%	0.505	0.512	4.93%	5.74%
Mn	1.46	1.389	-4.86%	0.000041	0.000735	0.000776	0.46%	1.95%	2.01%	1.381	1.397	4.10%	6.99%
Mn/Mg	2.808	2.732	-2.71%	0.001394	0.001132	0.002526	1.37%	1.23%	1.84%	2.716	2.748	3.76%	5.05%
Na	8.53	8.328	-2.37%	0.003996	0.008399	0.012395	0.76%	1.10%	1.34%	8.290	8.365	2.76%	3.99%
Ni	0.83	0.804	-3.17%	0.000299	0.000341	0.00064	2.15%	2.30%	3.15%	0.796	0.812	6.44%	7.73%
Si	22.39	21.306	-4.84%	0.082177	0.141992	0.224169	1.35%	1.77%	2.22%	21.160	21.453	4.54%	7.35%
Ti	0.69	0.671	-2.69%	0.000163	0.000171	0.000334	1.90%	1.95%	2.72%	0.666	0.677	5.57%	6.65%
U	0	-0.127		0.006857	0.002756	0.009613	65.04%	41.24%	77.01%	-0.161	-0.094	-157.28%	-201.62%
U/Ca	0	-0.122		0.006006	0.002659	0.008665	63.45%	42.22%	76.21%	-0.154	-0.090	-155.87%	-200.55%
Zr	0.1	0.093	-6.53%	0.000044	0.000011	0.000055	7.10%	3.55%	7.93%	0.091	0.096	16.23%	18.97%
Sum Ox	90.6	86.570	-4.45%	0.78431	2.122052	2.906362	1.02%	1.68%	1.97%	86.063	87.077	4.03%	6.61%

Table 3-1 Estimated Components of Variance, Mean Confidence Intervals, and Overall Uncertainty for ARG-1 Measurements *(continued)*

Mixed Acid/M-14

	Reference	Average		Estimate of	Estimate of	Estimate of	Estimate of	Estimate of	Estimate of	95% Confidence Interval for Mean		95% Measurement Uncertainty	
Analyte	Value (wt%)	(wt%)	% Bias	Between Var	Within Var	Total Variance	%RSD (B)	%RSD(W)	%RSD(T)	Lower	Upper	% Lower	% Upper
Al	2.5	2.366	-5.37%	0.000705	0.001819	0.002524	1.12%	1.80%	2.12%	2.348	2.384	4.42%	7.80%
Al/Ca	2.451	2.365	-3.50%	0.000316	0.000886	0.001202	0.75%	1.26%	1.47%	2.353	2.377	3.05%	5.14%
Al/Mg	4.808	4.657	-3.14%	0.005154	0.003236	0.00839	1.54%	1.22%	1.97%	4.620	4.693	4.09%	5.74%
Al/Mn	1.712	1.691	-1.20%	0.00059	0.000321	0.000911	1.44%	1.06%	1.78%	1.679	1.704	3.71%	4.18%
B	2.69												
B/Li	1.805												
Ca	1.02	1.000	-1.92%	0.000083	0.000419	0.000502	0.91%	2.05%	2.24%	0.993	1.008	4.66%	5.39%
Cr	0.06	0.059	-1.18%	0.000022	0.000006	0.000028	7.91%	4.13%	8.92%	0.057	0.062	18.73%	18.56%
Cu	0.0001	-0.005	-5460.00%	0.000028	0.000002	0.00003	98.72%	26.38%	102.19%	-0.008	-0.003	-212.51%	-258.50%
Fe	9.79	9.492	-3.05%	0.037323	0.019055	0.056378	2.04%	1.45%	2.50%	9.396	9.588	5.20%	6.66%
Fe/Al	3.916	4.012	2.46%	0.003916	0.002344	0.00626	1.56%	1.21%	1.97%	3.981	4.044	5.20%	4.10%
Fe/Ca	9.598	9.489	-1.13%	0.01237	0.023461	0.035831	1.17%	1.61%	1.99%	9.421	9.558	4.15%	4.55%
Fe/Li	6.57	6.338	-3.54%	0.014416	0.004065	0.018481	1.89%	1.01%	2.15%	6.281	6.394	4.46%	6.38%
Fe/Mg	18.827	18.682	-0.77%	0.087733	0.038321	0.126054	1.59%	1.05%	1.90%	18.537	18.827	3.95%	4.25%
Fe/Mn	6.705	6.767	0.92%	0.00921	0.004629	0.013839	1.42%	1.01%	1.74%	6.718	6.815	3.98%	3.63%
Fe/Ni	11.795	11.820	0.21%	0.027135	0.03584	0.062975	1.39%	1.60%	2.12%	11.726	11.914	4.53%	4.42%
Fe/U	-												
K	2.25	2.227	-1.03%	0.007624	0.017962	0.025586	3.92%	6.02%	7.18%	2.170	2.284	15.02%	14.94%
Li	1.49	1.498	0.53%	0.000399	0.000564	0.000963	1.33%	1.59%	2.07%	1.486	1.509	4.50%	4.31%
Mg	0.52	0.508	-2.27%	0.000096	0.000081	0.000177	1.93%	1.77%	2.62%	0.503	0.513	5.44%	6.39%
Mn	1.46	1.399	-4.18%	0.000519	0.000601	0.00112	1.63%	1.75%	2.39%	1.386	1.412	4.97%	7.25%
Mn/Mg	2.808	2.753	-1.94%	0.001205	0.000851	0.002056	1.26%	1.06%	1.65%	2.736	2.771	3.42%	4.32%
Na	8.53	8.400	-1.52%	0.005383	0.016489	0.021872	0.87%	1.53%	1.76%	8.344	8.457	3.70%	4.31%
Ni	0.83	0.803	-3.24%	0.000061	0.00024	0.000301	0.97%	1.93%	2.16%	0.797	0.809	4.49%	6.07%
Si	22.39	20.985	-6.27%	0.210354	0.289058	0.499412	2.19%	2.56%	3.37%	20.706	21.264	7.05%	10.68%
Ti	0.69	0.688	-0.29%	0.000024	0.000179	0.000203	0.71%	1.94%	2.07%	0.683	0.693	4.33%	4.31%
U	0	-0.092		0.004201	0.001916	0.006117	70.78%	47.80%	85.41%	-0.123	-0.060	-177.62%	-222.97%
U/Ca	0	-0.092		0.004171	0.002093	0.006264	70.15%	49.70%	85.97%	-0.124	-0.060	-178.79%	-223.91%
Zr	0.1	0.094	-5.80%	0.000017	0.000007	0.000024	4.38%	2.81%	5.20%	0.092	0.096	10.81%	13.61%
Sum Ox	90.6	85.974	-5.11%	2.183376	4.211222	6.394598	1.72%	2.39%	2.94%	85.055	86.892	6.12%	8.89%

Table 3-2 Estimated Components of Variance and Mean Confidence Intervals for Process Samples

Cold Chem/M-13

				Estimate of	Estimate of	Estimate of	Estimate of	Estimate of	Estimate of			95% Confidence Interval for Mean	
Analyte	Process	Average (wt%)	n	Between Variance	Within Variance	Total Variance	%RSD (B)	%RSD(W)	%RSD(T)	MS Between	DoF	Lower	Upper
Al	SRAT	5.142316	114	0.019759	0.037367	0.057126	2.73%	3.76%	4.65%	0.15592	18	5.065	5.220
Al/Ca	SRAT	3.837108	150	0.001677	0.005061	0.006738	1.07%	1.85%	2.14%	0.01512	24	3.816	3.858
Al/Mg	SRAT	3.841868	150	0.008873	0.009367	0.01824	2.45%	2.52%	3.52%	0.0626	24	3.800	3.884
Al/Mn	SRAT	1.619489	144	0.000031	0.000024	0.000055	0.34%	0.30%	0.46%	0.00664	23	1.605	1.634
B	SRAT	0.011891	156	0.000588	0.000032	0.00062	203.92%	47.57%	209.40%	0.00356	25	0.002	0.022
B/Li	SRAT	0.253943	107	1.371449	0.833412	2.204861	461.16%	359.50%	584.73%	8.9852	17	-0.357	0.865
Ca	SRAT	1.342026	114	0.001739	0.001177	0.002916	3.11%	2.56%	4.02%	0.01161	18	1.321	1.363
Cr	SRAT	0.084246	138	0.000036	0.00003	0.000066	7.12%	6.50%	9.64%	0.00025	22	0.081	0.087
Cu	SRAT	0.032562	144	0.000009	0.000008	0.000017	9.21%	8.69%	12.66%	0.00006	23	0.031	0.034
Fe	SRAT	15.06258	126	0.35166	0.589908	0.941568	3.94%	5.10%	6.44%	2.69987	20	14.757	15.368
Fe/Al	SRAT	2.923278	132	0.002235	0.001743	0.003978	1.62%	1.43%	2.16%	0.01515	21	2.901	2.946
Fe/Ca	SRAT	11.15218	138	0.057839	0.058253	0.116092	2.16%	2.16%	3.06%	0.40528	22	11.040	11.265
Fe/Li	SRAT	-											
Fe/Mg	SRAT	11.16104	138	0.058619	0.072505	0.131124	2.17%	2.41%	3.24%	0.42422	22	11.046	11.276
Fe/Mn	SRAT	4.720936	144	0.010697	0.008329	0.019026	2.19%	1.93%	2.92%	0.07251	23	4.675	4.767
Fe/Ni	SRAT	17.38547	132	0.071776	0.048859	0.120635	1.54%	1.27%	2.00%	0.47951	21	17.260	17.511
Fe/U	SRAT	2.701894	144	0.013955	0.004535	0.01849	4.37%	2.49%	5.03%	0.08827	23	2.651	2.753
K	SRAT	0.251314	156	0.032657	0.011443	0.0441	71.91%	42.57%	83.56%	0.020738	25	0.228	0.275
Li	SRAT	0.007727	150	0.000639	0.000034	0.000673	327.14%	75.46%	335.74%	0.00387	24	-0.003	0.018
Mg	SRAT	1.340317	126	0.002395	0.002757	0.005152	3.65%	3.92%	5.36%	0.01713	20	1.316	1.365
Mn	SRAT	3.184317	120	0.014961	0.011639	0.0266	3.84%	3.39%	5.12%	0.10141	19	3.123	3.245
Mn/Mg	SRAT	2.371366	156	0.00105	0.002084	0.003134	1.37%	1.93%	2.36%	0.00839	25	2.356	2.386
Na	SRAT	10.63782	114	0.029301	0.075806	0.105107	1.61%	2.59%	3.05%	0.25161	18	10.539	10.737
Ni	SRAT	0.866895	114	0.001063	0.001277	0.00234	3.76%	4.12%	5.58%	0.00766	18	0.850	0.884
Si	SRAT	1.162522	138	0.012658	0.005145	0.017803	9.68%	6.17%	11.48%	0.08109	22	1.112	1.213
Ti	SRAT	0.014567	150	0.000011	0.000003	0.000014	22.77%	11.89%	25.69%	0.00007	24	0.013	0.016
U	SRAT	5.57614	114	0.042396	0.029745	0.072141	3.69%	3.09%	4.82%	0.28412	18	5.471	5.681
U/Ca	SRAT	4.132033	156	0.0154	0.003869	0.019269	3.00%	1.51%	3.36%	0.09627	25	4.081	4.183
Zr	SRAT	0.077667	144	0.000037	0.000026	0.000063	7.83%	6.57%	10.22%	0.00025	23	0.075	0.080
Sum Ox	SRAT	64.68359	114	3.840858	3.673771	7.514629	3.03%	2.96%	4.24%	26.7189	18	63.666	65.701

Table 3-2 Estimated Components of Variance and Mean Confidence Intervals for Process Samples *(continued)*

Cold Chem/M-14

				Estimate of	Estimate of	Estimate of	Estimate of	Estimate of	Estimate of			95% Confidence Interval for Mean	
Analyte	Process	Average (wt%)	n	Between Variance	Within Variance	Total Variance	%RSD (B)	%RSD(W)	%RSD(T)	MS Between	DoF	Lower	Upper
Al	SRAT	5.092173	168	0.040134	0.071265	0.111399	3.93%	5.24%	6.55%	0.31207	27	5.004	5.181
Al/Ca	SRAT	3.808229	162	0.004894	0.00954	0.014434	1.84%	2.56%	3.15%	0.0389	26	3.776	3.840
Al/Mg	SRAT	3.881657	156	0.005158	0.0176	0.022758	1.85%	3.42%	3.89%	0.04855	25	3.845	3.918
Al/Mn	SRAT	1.623093	150	0.000463	0.000963	0.001426	1.33%	1.91%	2.33%	0.00374	24	1.613	1.633
B	SRAT	0.007577	168	0.000248	0.000015	0.000263	207.84%	51.11%	214.03%	0.0015	27	0.001	0.014
B/Li	SRAT												
Ca	SRAT	1.336208	144	0.001371	0.001742	0.003113	2.77%	3.12%	4.18%	0.00997	23	1.319	1.353
Cr	SRAT	0.08831	168	0.000046	0.000029	0.000075	7.68%	6.10%	9.81%	0.0003	27	0.086	0.091
Cu	SRAT	0.028247	174	0.000011	0.000005	0.000016	11.74%	7.92%	14.16%	0.00007	28	0.027	0.030
Fe	SRAT	14.66683	162	0.467665	0.596778	1.064443	4.66%	5.27%	7.03%	3.40277	26	14.369	14.965
Fe/Al	SRAT	2.88557	162	0.001274	0.002085	0.003359	1.24%	1.58%	2.01%	0.00973	26	2.870	2.902
Fe/Ca	SRAT	10.99948	162	0.084765	0.100118	0.184883	2.65%	2.88%	3.91%	0.60871	26	10.873	11.125
Fe/Li	SRAT	-											
Fe/Mg	SRAT	11.20593	168	0.083785	0.128779	0.212564	2.58%	3.20%	4.11%	0.63149	27	11.080	11.332
Fe/Mn	SRAT	4.686563	168	0.008628	0.006665	0.015293	1.98%	1.74%	2.64%	0.05843	27	4.648	4.725
Fe/Ni	SRAT	17.21092	162	0.017063	0.062958	0.080021	0.76%	1.46%	1.64%	0.16533	26	17.145	17.277
Fe/U	SRAT	2.648256	156	0.005284	0.006448	0.011732	2.74%	3.03%	4.09%	0.03815	25	2.616	2.680
K	SRAT	0.159494	180	0.01001	0.005298	0.015308	62.73%	45.64%	77.57%	0.06536	29	0.121	0.198
Li	SRAT	-0.01106	162	0.000398	0.000059	0.000457	180.38%	69.45%	193.29%	0.00245	26	-0.019	-0.003
Mg	SRAT	1.316891	138	0.001809	0.001484	0.003293	3.23%	2.93%	4.36%	0.01234	22	1.297	1.337
Mn	SRAT	3.12864	150	0.014734	0.013496	0.02823	3.88%	3.71%	5.37%	0.1019	24	3.075	3.182
Mn/Mg	SRAT	2.388462	174	0.000532	0.002697	0.003229	0.97%	2.17%	2.38%	0.00589	28	2.377	2.400
Na	SRAT	10.48891	132	0.122829	0.059293	0.182122	3.34%	2.32%	4.07%	0.79627	21	10.327	10.650
Ni	SRAT	0.852729	144	0.001682	0.001337	0.003019	4.81%	4.29%	6.44%	0.01143	23	0.834	0.871
Si	SRAT	1.078161	174	0.033962	0.00363	0.037592	17.09%	5.59%	17.98%	0.2074	28	1.007	1.149
Ti	SRAT	0.016476	168	0.000013	0.000002	0.000015	21.88%	8.58%	23.51%	0.00008	27	0.015	0.018
U	SRAT	5.506865	156	0.037274	0.048697	0.085971	3.51%	4.01%	5.32%	0.27234	25	5.421	5.593
U/Ca	SRAT	4.141391	168	0.015488	0.008133	0.023621	3.01%	2.18%	3.71%	0.10106	27	4.091	4.192
Zr	SRAT	0.07804	174	0.000033	0.000019	0.000052	7.36%	5.59%	9.24%	0.00022	28	0.076	0.080
Sum Ox	SRAT	62.99344	150	3.657759	6.040064	9.697823	3.04%	3.90%	4.94%	27.9866	24	62.102	63.885

Table 3-2 Estimated Components of Variance and Mean Confidence Intervals for Process Samples *(continued)*

Fusion/M-13

				Estimate of	Estimate of	Estimate of	Estimate of	Estimate of	Estimate of			95% Confidence Interval for Mean	
Analyte	Process	Average (wt%)	n	Between Variance	Within Variance	Total Variance	%RSD (B)	%RSD(W)	%RSD(T)	MS Between	DoF	Lower	Upper
Al	SME	2.956626	198	0.036541	0.015696	0.052237	6.47%	4.24%	7.73%	0.23494	32	2.886	3.027
Al/Ca	SME	4.109778	192	0.014504	0.017205	0.031709	2.93%	3.19%	4.33%	0.10423	31	4.062	4.157
Al/Mg	SME	4.314932	198	0.028375	0.027778	0.056153	3.90%	3.86%	5.49%	0.19803	32	4.251	4.379
Al/Mn	SME	1.878336	198	0.004903	0.002835	0.007738	3.73%	2.83%	4.68%	0.03225	32	1.852	1.904
B	SME	1.448972	180	0.00227	0.002645	0.004915	3.29%	3.55%	4.84%	0.01627	29	1.430	1.468
B/Li	SME	0.658095	204	0.000136	0.000189	0.000325	1.77%	2.09%	2.74%	0.001	33	0.654	0.663
Ca	SME	0.71798	204	0.002711	0.001807	0.004518	7.25%	5.92%	9.36%	0.01807	33	0.699	0.737
Cr	SME	0.055045	198	0.000038	0.000014	0.000052	11.20%	6.80%	13.10%	0.00024	32	0.053	0.057
Cu	SME	0.014146	192	0.000017	0.000001	0.000018	29.15%	7.07%	29.99%	0.00011	31	0.013	0.016
Fe	SME	7.96904	198	0.154136	0.113598	0.267734	4.93%	4.23%	6.49%	1.03841	32	7.822	8.117
Fe/Al	SME	2.692412	204	0.008046	0.002192	0.010238	3.33%	1.74%	3.76%	0.05047	33	2.660	2.724
Fe/Ca	SME	11.08334	192	0.176172	0.12507	0.301242	3.79%	3.19%	4.95%	1.1821	31	10.923	11.243
Fe/Li	SME	3.622828	204	0.065614	0.014899	0.080513	7.07%	3.37%	7.83%	0.40858	33	3.532	3.714
Fe/Mg	SME	11.58352	192	0.179584	0.109651	0.289235	3.66%	2.86%	4.64%	1.18716	31	11.423	11.744
Fe/Mn	SME	5.048998	204	0.020213	0.014434	0.034647	2.82%	2.38%	3.69%	0.13571	33	4.997	5.101
Fe/Ni	SME	17.50425	210	0.160614	0.11932	0.279934	2.29%	1.97%	3.02%	1.083	34	17.358	17.650
Fe/U	SME	3.087834	210	0.019898	0.002703	0.022601	4.57%	1.68%	4.87%	0.12209	34	3.039	3.137
K	SME	0.101844	192	0.01181	0.01163	0.02344	106.71%	105.89%	150.33%	0.08249	31	0.060	0.144
Li	SME	2.202906	180	0.003417	0.005659	0.009076	2.65%	3.41%	4.32%	0.02616	29	2.178	2.228
Mg	SME	0.685966	204	0.00233	0.001461	0.003791	7.04%	5.57%	8.98%	0.01544	33	0.668	0.704
Mn	SME	1.57525	204	0.011374	0.006361	0.017735	6.77%	5.06%	8.45%	0.0746	33	1.536	1.614
Mn/Mg	SME	2.296603	198	0.002186	0.001738	0.003924	2.04%	1.82%	2.73%	0.01485	32	2.279	2.314
Na	SME												
Ni	SME	0.456263	198	0.000668	0.000531	0.001199	5.66%	5.05%	7.59%	0.00454	32	0.447	0.466
Si	SME	23.80898	198	0.47517	1.26271	1.73788	2.90%	4.72%	5.54%	4.11373	32	23.515	24.103
Ti	SME	0.038603	204	0.000059	0.000004	0.000063	19.90%	5.18%	20.56%	0.00036	33	0.036	0.041
U	SME	2.601328	192	0.026761	0.010782	0.037543	6.29%	3.99%	7.45%	0.17135	31	2.540	2.662
U/Ca	SME	3.611818	210	0.053232	0.017015	0.070247	6.39%	3.61%	7.34%	0.33641	34	3.530	3.693
Zr	SME												
Sum Ox	SME	85.72756	192	1.203131	8.418976	9.622107	1.28%	3.38%	3.62%	15.6378	31	85.146	86.310

Table 3-2 Estimated Components of Variance and Mean Confidence Intervals for Process Samples *(continued)*

Fusion/M-14

				Estimate of	Estimate of	Estimate of	Estimate of	Estimate of	Estimate of			95% Confidence Interval for Mean	
Analyte	Process	Average (wt%)	n	Between Variance	Within Variance	Total Variance	%RSD (B)	%RSD(W)	%RSD(T)	MS Between	DoF	Lower	Upper
Al	SME	2.885389	54	0.02575	0.033926	0.059676	5.56%	6.38%	8.47%	0.18842	8	2.749	3.022
Al/Ca	SME	4.178395	60	0.016479	0.013636	0.030115	3.07%	2.79%	4.15%	0.11251	9	4.080	4.276
Al/Mg	SME	4.307171	60	0.007653	0.008472	0.016125	2.03%	2.14%	2.95%	0.05439	9	4.239	4.375
Al/Mn	SME	1.873531	60	0.001112	0.001611	0.002723	1.78%	2.14%	2.79%	0.00828	9	1.847	1.900
B	SME	1.390241	54	0.004578	0.007651	0.012229	4.87%	6.29%	7.95%	0.03512	8	1.331	1.449
B/Li	SME	0.640935	60	0.000115	0.00009	0.000205	1.67%	1.48%	2.23%	0.00078	9	0.633	0.649
Ca	SME	0.687037	54	0.002227	0.002413	0.00464	6.87%	7.15%	9.91%	0.01578	8	0.648	0.726
Cr	SME	0.051067	60	0.000072	0.00005	0.000122	16.62%	13.85%	21.63%	0.00048	9	0.045	0.057
Cu	SME	0.011241	54	0.000017	0.000005	0.000022	36.68%	19.89%	41.73%	0.00011	8	0.008	0.015
Fe	SME	7.678778	54	0.165535	0.277684	0.443219	5.30%	6.86%	8.67%	1.2709	8	7.325	8.033
Fe/Al	SME	2.668255	60	0.002619	0.002124	0.004743	1.92%	1.73%	2.58%	0.01784	9	2.629	2.707
Fe/Ca	SME	11.14501	60	0.106763	0.09468	0.201443	2.93%	2.76%	4.03%	0.73526	9	10.895	11.395
Fe/Li	SME	3.543268	60	0.07665	0.010987	0.087637	7.81%	2.96%	8.35%	0.47089	9	3.343	3.744
Fe/Mg	SME	11.4888	60	0.048626	0.059122	0.107748	1.92%	2.12%	2.86%	0.35088	9	11.316	11.662
Fe/Mn	SME	4.996603	60	0.002514	0.007029	0.009543	1.00%	1.68%	1.96%	0.02211	9	4.953	5.040
Fe/Ni	SME	17.70708	60	0.086331	0.123647	0.209978	1.66%	1.99%	2.59%	0.64163	9	17.473	17.941
Fe/U	SME	2.829664	60	0.010778	0.004097	0.014875	3.67%	2.26%	4.31%	0.06876	9	2.753	2.906
K	SME	0.1152	60	0.014837	0.016934	0.031771	105.74%	112.96%	154.73%	0.10596	9	0.020	0.210
Li	SME	2.169796	54	0.007419	0.019375	0.026794	3.97%	6.42%	7.54%	0.06389	8	2.090	2.249
Mg	SME	0.668833	54	0.00162	0.001889	0.003509	6.02%	6.50%	8.86%	0.01161	8	0.635	0.703
Mn	SME	1.536222	54	0.008833	0.009772	0.018605	6.12%	6.43%	8.88%	0.06277	8	1.458	1.615
Mn/Mg	SME	2.299459	60	0.001116	0.001733	0.002849	1.45%	1.81%	2.32%	0.00843	9	2.273	2.326
Na	SME												
Ni	SME	0.432926	54	0.000665	0.000904	0.001569	5.96%	6.94%	9.15%	0.00489	8	0.411	0.455
Si	SME	23.2878	54	0.809927	2.376999	3.186926	3.86%	6.62%	7.67%	7.23656	8	22.444	24.132
Ti	SME	0.040967	60	0.000022	0.000012	0.000034	11.45%	8.46%	14.23%	0.00014	9	0.038	0.044
U	SME	2.709963	54	0.033204	0.031864	0.065068	6.72%	6.59%	9.41%	0.23109	8	2.559	2.861
U/Ca	SME	3.94113	60	0.006785	0.011638	0.018423	2.09%	2.74%	3.44%	0.05235	9	3.874	4.008
Zr	SME												
Sum Ox	SME	83.3977	48	3.167982	26.89557	30.063552	2.13%	6.22%	6.57%	45.9035	7	81.085	85.710

Table 3-2 Estimated Components of Variance and Mean Confidence Intervals for Process Samples *(continued)*

Mixed Acid/M-13

				Estimate of	Estimate of	Estimate of	Estimate of	Estimate of	Estimate of			95% Confidence Interval for Mean	
Analyte	Process	Average (wt%)	n	Between Variance	Within Variance	Total Variance	%RSD (B)	%RSD(W)	%RSD(T)	MS Between	DoF	Lower	Upper
Al	SME	2.884844	180	0.024775	0.012151	0.036926	5.46%	3.82%	6.66%	0.1608	29	2.824	2.946
Al/Ca	SME	4.021323	162	0.003973	0.010935	0.014908	1.57%	2.60%	3.04%	0.03477	26	3.991	4.051
Al/Mg	SME	4.26423	186	0.040041	0.027564	0.067605	4.69%	3.89%	6.10%	0.26781	30	4.187	4.342
Al/Mn	SME	1.879144	186	0.005235	0.00279	0.008025	3.85%	2.81%	4.77%	0.0342	30	1.851	1.907
B	SME												
B/Li	SME												
Ca	SME	0.716852	162	0.000895	0.001145	0.00204	4.17%	4.72%	6.30%	0.00651	26	0.704	0.730
Cr	SME	0.054339	192	0.00043	0.0002	0.00063	38.16%	26.03%	46.19%	0.00028	31	0.052	0.057
Cu	SME	0.008978	186	0.000054	0.000006	0.00006	81.85%	27.28%	86.28%	0.00033	30	0.006	0.012
Fe	SME	7.782	162	0.066965	0.052832	0.119797	3.33%	2.95%	4.45%	0.45462	26	7.673	7.891
Fe/Al	SME	2.688102	192	0.008565	0.00195	0.010515	3.44%	1.64%	3.81%	0.05334	31	2.654	2.722
Fe/Ca	SME	10.85282	180	0.082547	0.117632	0.200179	2.65%	3.16%	4.12%	0.61292	29	10.733	10.972
Fe/Li	SME	3.489506	174	0.058608	0.012259	0.070867	6.94%	3.17%	7.63%	0.36391	28	3.396	3.583
Fe/Mg	SME	11.44492	180	0.18887	0.13889	0.32776	3.80%	3.26%	5.00%	1.27211	29	11.273	11.617
Fe/Mn	SME	5.046693	186	0.019645	0.012828	0.032473	2.78%	2.24%	3.57%	0.1307	30	4.993	5.101
Fe/Ni	SME	17.14521	180	0.158684	0.123879	0.282563	2.32%	2.05%	3.10%	1.07598	29	16.987	17.303
Fe/U	SME	2.828548	186	0.010644	0.005588	0.016232	3.65%	2.64%	4.50%	0.06945	30	2.789	2.868
K	SME	-0.06115	162	0.061792	0.058618	0.12041	406.51%	395.93%	567.46%	0.42937	26	-0.167	0.045
Li	SME	2.213846	156	0.009231	0.002982	0.012213	4.34%	2.47%	4.99%	0.05837	25	2.174	2.254
Mg	SME	0.674586	174	0.001661	0.001076	0.002737	6.04%	4.86%	7.76%	0.01104	28	0.658	0.691
Mn	SME	1.541925	174	0.005946	0.004723	0.010669	5.00%	4.46%	6.70%	0.0404	28	1.511	1.573
Mn/Mg	SME	2.268349	186	0.001377	0.001867	0.003244	1.64%	1.90%	2.51%	0.01013	30	2.253	2.283
Na	SME	8.807543	162	0.073645	0.085691	0.159336	3.08%	3.32%	4.53%	0.52756	26	8.690	8.925
Ni	SME	0.450274	168	0.000366	0.000342	0.000708	4.25%	4.11%	5.91%	0.00254	27	0.442	0.458
Si	SME	22.46066	174	0.361926	0.51073	0.872656	2.68%	3.18%	4.16%	2.68229	28	22.206	22.715
Ti	SME	0.031952	186	0.000049	0.000011	0.00006	21.91%	10.38%	24.24%	0.0003	30	0.029	0.035
U	SME	2.754569	174	0.024752	0.01534	0.040092	5.71%	4.50%	7.27%	0.16385	28	2.692	2.817
U/Ca	SME	3.838824	174	0.020452	0.018778	0.03923	3.73%	3.57%	5.16%	0.14149	28	3.780	3.897
Zr	SME	0.049783	180	0.000102	0.000011	0.000113	20.29%	6.66%	21.35%	0.00062	29	0.046	0.054
Sum Ox	SME	89.09756	180	1.756465	4.898024	6.654489	1.49%	2.48%	2.90%	15.4368	29	88.499	89.697

Table 3-2 Estimated Components of Variance and Mean Confidence Intervals for Process Samples *(continued)*

Mixed Acid/M-14

				Estimate of	Estimate of	Estimate of	Estimate of	Estimate of	Estimate of			95% Confidence Interval for Mean	
Analyte	Process	Average (wt%)	n	Between Variance	Within Variance	Total Variance	%RSD (B)	%RSD(W)	%RSD(T)	MS Between	DoF	Lower	Upper
Al	SME	3.050817	120	0.033572	0.007754	0.041326	6.01%	2.89%	6.66%	0.20919	19	2.963	3.138
Al/Ca	SME	4.041221	114	0.009753	0.007037	0.01679	2.44%	2.08%	3.21%	0.06556	18	3.991	4.092
Al/Mg	SME	4.246526	120	0.030268	0.011988	0.042256	4.10%	2.58%	4.84%	0.1936	19	4.162	4.331
Al/Mn	SME	1.886865	120	0.00545	0.001464	0.006914	3.91%	2.03%	4.41%	0.03416	19	1.852	1.922
B	SME												
B/Li	SME												
Ca	SME	0.755316	114	0.001695	0.000684	0.002379	5.45%	3.46%	6.46%	0.01086	18	0.735	0.776
Cr	SME	0.046758	120	0.000022	0.000009	0.000031	10.03%	6.42%	11.91%	0.00014	19	0.044	0.049
Cu	SME	0.007517	120	0.000024	0.000005	0.000029	65.17%	29.75%	71.64%	0.00015	19	0.005	0.010
Fe	SME	7.880575	120	0.179052	0.054942	0.233994	5.37%	2.97%	6.14%	1.12926	19	7.678	8.084
Fe/Al	SME	2.585362	120	0.006636	0.001543	0.008179	3.15%	1.52%	3.50%	0.04136	19	2.547	2.624
Fe/Ca	SME	10.41888	114	0.030141	0.05384	0.083981	1.67%	2.23%	2.78%	0.23468	18	10.324	10.514
Fe/Li	SME	3.516826	120	0.081383	0.007765	0.089148	8.11%	2.51%	8.49%	0.49607	19	3.382	3.651
Fe/Mg	SME	10.96896	120	0.119542	0.087915	0.207457	3.15%	2.70%	4.15%	0.80516	19	10.798	11.140
Fe/Mn	SME	4.872926	120	0.012976	0.008529	0.021505	2.34%	1.90%	3.01%	0.08639	19	4.817	4.929
Fe/Ni	SME	17.13264	120	0.125898	0.137845	0.263743	2.07%	2.17%	3.00%	0.89323	19	16.952	17.313
Fe/U	SME	2.728421	120	0.00591	0.003465	0.009375	2.82%	2.16%	3.55%	0.03893	19	2.691	2.766
K	SME	0.166454	108	0.0526	0.017961	0.070561	137.78%	80.51%	159.58%	0.33356	17	0.049	0.284
Li	SME	2.243683	126	0.004938	0.00292	0.007858	3.13%	2.41%	3.95%	0.03255	20	2.210	2.277
Mg	SME	0.719683	120	0.002339	0.000601	0.00294	6.72%	3.41%	7.53%	0.01464	19	0.697	0.743
Mn	SME	1.6196	120	0.013257	0.002431	0.015688	7.11%	3.04%	7.73%	0.08198	19	1.565	1.674
Mn/Mg	SME	2.243634	114	0.001556	0.000993	0.002549	1.76%	1.40%	2.25%	0.01033	18	2.224	2.264
Na	SME	9.053983	120	0.087393	0.057395	0.144788	3.27%	2.65%	4.20%	0.58175	19	8.908	9.200
Ni	SME	0.460142	120	0.000492	0.000288	0.00078	4.82%	3.69%	6.07%	0.00324	19	0.449	0.471
Si	SME	21.66863	120	0.32832	0.936661	1.264981	2.64%	4.47%	5.19%	2.90658	19	21.343	21.994
Ti	SME	0.04	120	0.000038	0.000005	0.000043	15.41%	5.59%	16.39%	0.00024	19	0.037	0.043
U	SME	2.890975	120	0.026328	0.009988	0.036316	5.61%	3.46%	6.59%	0.16796	19	2.813	2.969
U/Ca	SME	3.822947	114	0.011573	0.01171	0.023283	2.81%	2.83%	3.99%	0.08115	18	3.767	3.879
Zr	SME	0.060383	120	0.000197	0.000003	0.0002	23.24%	2.87%	23.42%	0.00119	19	0.054	0.067
Sum Ox	SME	89.2959	114	1.453049	4.539041	5.99209	1.35%	2.39%	2.74%	13.2573	18	88.579	90.012

3.7 COMPARISONS AGAINST THE VARIANCES OF PCCS

The estimated components of variance provided in Table 3-3 offer an opportunity for comparisons against the estimated variances that are used as part of the assessment of measurement uncertainty of the Product Composition Control System (PCCS). The assessment of this uncertainty as well as estimates of the variances is described in [8]. For those elements present in the recent SME batches at concentrations of 0.5 wt% and greater, the current %RSD's for both fusion and mixed acid preparation methods for both ICPs are comparable to the %RSD's in PCCS.

Table 3-3 Current Average Measurements and Relative Standard Deviations and the Historical Values Used in PCCS

	Historical	Historical	Fusion	Fusion	Fusion	Fusion	Mixed Acid	Mixed Acid	Mixed Acid	Mixed Acid
	Composition	Relative Standard	M-13	M-13	M-14	M-14	M-13	M-13	M-14	M-14
Element	(wt%)	Deviation (%RSD)	mean	%RSD	mean	%RSD	mean	%RSD	mean	%RSD
Al	2.222	5.1	2.957	4.2	2.885	6.4	2.885	3.8	3.051	2.9
B	2.093	7.2	1.45	3.3	1.39	6.3				
Ca	1.077	5.9	0.718	5.9	0.687	7.2	0.717	4.7	0.755	3.5
Cr	0.064	33.5	0.055	6.8	0.051	13.8	0.054	26.0	0.047	6.4
Cu	0.25	5.8	0.014	7.1	0.011	19.9	0.009	27.3	0.008	29.8
Fe	6.235	4.8	7.97	4.2	7.679	6.9	7.782	3.0	7.881	3.0
K	2.455	6.5	0.102	105.9	0.115	113.0			0.166	80.5
Li	1.963	4.1	2.203	3.4	2.17	6.4	2.214	2.5	2.244	2.4
Mg	0.842	4.8	0.686	5.6	0.669	6.5	0.675	4.9	0.72	3.4
Mn	2.111	5.2	1.575	5.1	1.536	6.4	1.542	4.5	1.62	3.0
Na	7.463	4.5					8.808	3.3	9.054	2.6
Ni	0.643	13.2	0.456	5.1	0.433	6.9	0.45	4.1	0.46	3.7
Si	23.31	5.7	23.81	4.7	23.29	6.6	22.46	3.2	21.67	4.5
Ti	0.256	4.5	0.039	4.7	0.04	8.5	0.032	10.4	0.04	5.6
U	0	0	2.6	4.0	2.71	6.6	2.755	4.5	2.891	3.5
Zr	0.029	9.0					0.05	6.7	0.06	2.9

3.8 SPECIFIC ISSUES OUTLINED IN THE TTR

Several specific issues were identified in the TTR for this work [5], and they were discussed in more detail as part of the planning for this effort [6]. Each of these issues is identified and then addressed in this section.

- Evaluate elemental ratios for pairs of frit-only and pairs of sludge-only elements for ARG-1 and process sample data to better understand the sources of uncertainty.

  As discussed in [6], the percent relative standard deviations (also called the percent coefficients of variation) for the pairs of elements and for their ratios serve as the input for this evaluation. Information for several of the ratios from Table 3-1 for ARG-1 samples and from Table 3-2 for SME samples is provided in Table 3-4 to facilitate this discussion.

Table 3-4 Percent Relation Standard Deviations for Some Key Sludge and Frit Ratios

Analyte	Type of Sample	M-13 Fusion	M-14 Fusion	M-13 Mixed Acid	M-14 Mixed Acid
Al	ARG-1	3.23%	2.76%	1.83%	1.80%
Fe	ARG-1	2.97%	1.80%	2.08%	1.45%
Fe/Al (variance propagation)	ARG-1	4.39%	3.30%	2.77%	2.31%
Fe/Al	ARG-1	1.81%	1.18%	1.92%	1.21%
Ratio of Variances	ARG-1	5.877	7.798	2.082	3.649
Al	SME	4.24%	6.38%	3.82%	6.66%
Fe	SME	4.23%	6.86%	4.45%	6.14%
Fe/Al (variance propagation)	SME	5.99%	9.37%	5.86%	9.06%
Fe/Al	SME	1.74%	1.73%	3.81%	3.50%
Ratio of Variances	SME	11.848	29.324	2.369	6.698
Al	ARG-1	3.23%	2.76%	1.83%	1.80%
Mn	ARG-1	3.39%	2.14%	1.95%	1.75%
Al/Mn (variance propagation)	ARG-1	4.68%	3.49%	2.67%	2.51%
Al/Mn	ARG-1	1.65%	1.81%	1.65%	1.06%
Ratio of Variances	ARG-1	8.053	3.723	2.627	5.609
Al	SME	4.24%	6.38%	3.82%	6.66%
Mn	SME	5.06%	6.43%	4.46%	7.73%
Al/Mn (variance propagation)	SME	6.60%	9.06%	5.87%	10.20%
Al/Mn	SME	2.83%	2.14%	2.81%	2.03%
Ratio of Variances	SME	5.442	17.916	4.367	25.264
Fe	ARG-1	2.97%	1.80%	2.08%	1.45%
U	ARG-1	NA	NA	NA	NA
Fe/U (variance propagation)	ARG-1	NA	NA	NA	NA
Fe/U	ARG-1	NA	NA	NA	NA
Ratio of Variances	ARG-1	NA	NA	NA	NA
Fe	SME	4.23%	6.86%	4.45%	6.14%
U	SME	3.99%	6.59%	4.50%	3.46%
Fe/U (variance propagation)	SME	5.81%	9.51%	6.33%	7.05%
Fe/U	SME	1.68%	2.26%	2.64%	2.16%
Ratio of Variances	SME	11.980	17.716	5.747	10.646
B	ARG-1	2.97%	2.50%	NA	NA
Li	ARG-1	3.27%	2.29%	5.45%	1.59%
B/Li (variance propagation)	ARG-1	4.42%	3.39%	NA	NA
B/Li	ARG-1	2.48%	1.13%	NA	NA
Ratio of Variances	ARG-1	3.173	9.002	NA	NA
B	SME	3.55%	6.29%	NA	NA
Li	SME	3.41%	6.42%	2.47%	2.41%
B/Li (variance propagation)	SME	4.92%	8.99%	NA	NA
B/Li	SME	2.09%	1.48%	NA	NA
Ratio of Variances	SME	5.547	36.879	NA	NA

Consider a pair of sludge elements: Al and Fe. If both of the elements go into solution for a sample to the same extent (specifically, at the same ratio as they are in the glass) as a dissolution is conducted, then the variation in the values of the Fe to Al ratio (Fe/Al) generated for the replicates of a single SME batch/ICP calibration block is primarily related to the variation due to the instrument (i.e., the ICP) in measuring Fe. Specifically, if the Al and Fe measurements by the ICP are uncorrelated, then the %cv of the ratio would be expected to equal the %cv's of Al and Fe summed in quadrature as defined by

$$\%cv_{\frac{Al}{Fe}} = \sqrt{\%cv_{Al}^2 + \%cv_{Fe}^2}$$

Note that the percent coefficient of variation of the replicate Al values, $\%cv_{Al}$, would reflect contributions to the variation of the Al measurements from both the dissolution and the instrument (as well as sample to sample variation for the process samples). This is also true for the Fe measurements used to derive $\%cv_{Fe}$.

If it is determined that

$$\%cv_{\frac{Al}{Fe}} << \sqrt{\%cv_{Al}^2 + \%cv_{Fe}^2}$$

for the ARG-1 samples, then the data would be suggesting that the dissolution process is contributing substantially to the variation in the measurements for these elements.

There is row in Table 3-4, with the heading ratio of variances, that provides the ratio of the variances for each pair of elements considered in the table. From these ratios, it appears that the M-14 ICP yields larger ratios of variances than the M-13 over both preparation methods and both types of samples (ARG-1 and SME) and that the Fusion preparation method yields larger ratios of variances than the Mixed Acid method, in general.

- Investigate the sums of oxides for SME samples to include the target range of 95 to 105% and a possible relationship between the sums of oxides for the ARG-1 samples and the sums of oxides for the process samples over the process batches studied.

  Currently, the protocol for determining the overall sum of oxides for a sample of the SME uses the results for both Mixed Acid (Mg, Na, and Zr) and Fusion (other elements). The sum of oxides results from Table 3-1 provide some insight into this issue, and these values are repeated in Table 3-5. The measurements used to represent the concentrations of most of the elements are from the Fusion method, and the sum of oxides in Table 3-5 for this method correspond very closely to the reference value for ARG-1. For Mixed Acid the overall sum of oxides is 4 to 5% below the ARG-1 reference value, but the measurements of Si are the dominant cause of the poor overall sum of oxides values. If one uses the current protocol for combining the Fusion and Mixed Acid results to represent the ARG-1 composition, the resulting sum of oxides for the M-13 and M-14 measurements are 98.6 and 97.7 wt%, respectively, as indicated in Table 3-5. Two conclusions are suggested by these results: the dissolution methods and the ICPs do an excellent job, in general, of obtaining a representative and acceptable sum of oxides (at least for the ARG-1 samples) but the M-14 ICP seems to yield, on average, about a 1 wt% smaller sum of oxides.

Table 3-5 Sum of Oxides (wt%) for ARG-1 by Preparation Method and ICP

Method	ICP	Type of Sample	Reference Value (wt%)	Measured (wt%)	% Difference
Fusion	M-13	ARG-1	87.7	87.1	-0.68%
Fusion	M-14	ARG-1	87.7	86.2	-1.74%
Mixed Acid	M-13	ARG-1	90.6	86.6	-4.45%
Mixed Acid	M-14	ARG-1	90.6	86.0	-5.11%
Protocol	M-13	ARG-1	99.3	98.6	-0.70%
Protocol	M-14	ARG-1	99.3	97.7	-1.61%

Figure 3-2 provides plots of the sum of oxides values of the ARG-1 samples versus the values of the SME samples for each preparation method and ICP combination. Superimposed on the data of these plots are fitted lines produced by the regression of the SME sums on the ARG-1 sums. None of these lines are statistically significant at a 5% significance level. Thus, there is no indication of a relationship between the ARG-1 sum of oxides values and the sum of oxides values determined from the SME samples.

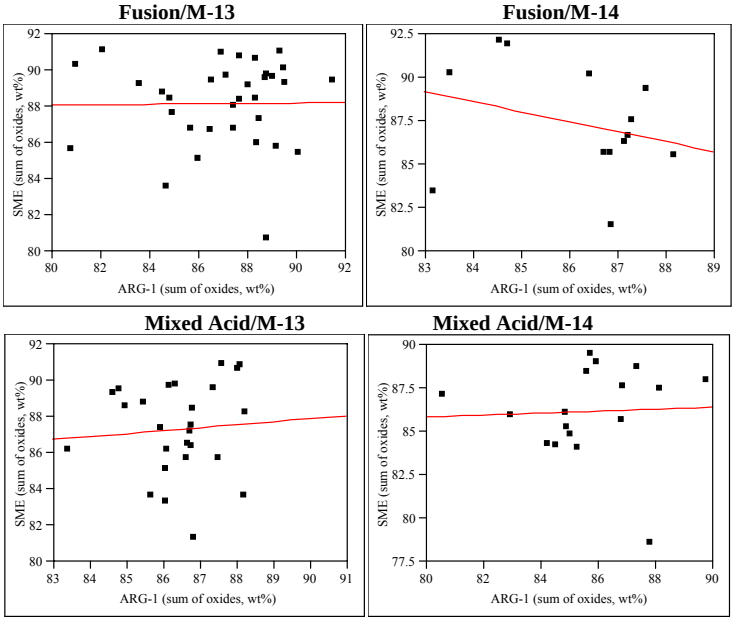

Figure 3-2. SME Sum of Oxides versus ARG-1 Sum of Oxides by Preparation Method/ICP

- Using primarily the ARG-1 data, compare the performance of the two ICPs (M-13 versus M-14).

  Comparisons between the two ICPs have been made in several of the earlier discussions. Table 3-5 summarizes the ARG-1 comparisons on the two ICPS by preparation method for the 16 primary elements monitored by the DWPF Lab. Averages and standard deviations are provided along with the percent relative difference between the averages (based on the M-13 values) and variance ratios (with the maximum variance of the two being in the numerator). The information of Exhibit A3 in the Appendix also may be used to provide insight into this issue.

Table 3-6 ICP Comparisons for ARG-1 Measurements by Preparation Method

		Cold Chem/M-13	Cold Chem/M-14	% Rel Diff	Fusion/M-13	Fusion/M-14	% Rel Diff	Mixed Acid/ M-13	Mixed Acid/M-14	% Rel Diff
Analyte	Ref. Value	Average	Average	(Based on M-13)	Average	Average	(Based on M-13)	Average	Average	(Based on M-13)
Al	2.5	2.338	2.340	0.11%	2.401	2.392	-0.37%	2.299	2.366	2.91%
B	2.69	2.613	2.595	-0.67%	2.617	2.555	-2.35%			
Ca	1.02	0.968	0.971	0.28%	0.983	0.971	-1.25%	0.994	1.000	0.66%
Cr	0.06	0.065	0.068	4.70%	0.068	0.066	-2.83%	0.067	0.059	-11.24%
Cu	0.0001	0.004	0.002	-52.30%	0.002	-0.001	-138.46%	-0.003	-0.005	58.58%
Fe	9.79	9.723	9.517	-2.12%	9.709	9.550	-1.64%	9.524	9.492	-0.34%
K	2.25	2.333	2.308	-1.06%	2.198	2.165	-1.48%	2.007	2.227	10.95%
Li	1.49	1.444	1.455	0.79%	1.467	1.458	-0.61%	1.465	1.498	2.21%
Mg	0.52	0.497	0.484	-2.62%	0.506	0.496	-1.91%	0.509	0.508	-0.08%
Mn	1.46	1.416	1.389	-1.88%	1.414	1.397	-1.21%	1.389	1.399	0.72%
Na	8.53	8.340	8.300	-0.49%				8.328	8.400	0.87%
Ni	0.83	0.808	0.798	-1.29%	0.803	0.784	-2.38%	0.804	0.803	-0.07%
Si	22.39	21.860	21.885	0.12%	22.586	22.414	-0.76%	21.306	20.985	-1.51%
Ti	0.69	0.672	0.671	-0.27%	0.671	0.672	0.11%	0.671	0.688	2.46%
U										
Zr	0.1	0.102	0.103	0.50%				0.093	0.094	0.79%
Sum Ox	99.3	97.413	96.179	-1.27%	87.103	86.176	-1.06%	86.570	85.974	-0.69%
	Analyte	%RSD(T)	%RSD(T)	Variance Ratio	%RSD(T)	%RSD(T)	Variance Ratio	%RSD(T)	%RSD(T)	Variance Ratio
	Al	3.85%	3.17%	1.47	3.93%	3.14%	1.58	2.26%	2.12%	1.07
	B	2.94%	2.42%	1.49	3.41%	2.60%	1.81			
	Ca	5.66%	4.44%	1.61	4.40%	2.47%	3.26	2.27%	2.24%	1.02
	Cr	10.38%	9.36%	1.12	9.19%	10.60%	1.26	12.25%	8.92%	2.39
	Cu	115.96%	176.37%	1.90	242.26%	-660.62%	1.10	-240.36%	-102.19%	2.20
	Fe	2.97%	2.21%	1.88	3.61%	2.57%	2.04	2.13%	2.50%	1.37
	K	9.46%	5.93%	2.60	6.06%	10.66%	3.00	20.32%	7.18%	6.50
	Li	3.60%	3.25%	1.20	3.57%	3.06%	1.38	6.13%	2.07%	8.37
	Mg	4.97%	3.65%	1.96	3.85%	3.38%	1.35	2.41%	2.62%	1.18
	Mn	2.90%	2.63%	1.27	3.90%	2.58%	2.35	2.01%	2.39%	1.44
	Na	1.78%	2.15%	1.44				1.34%	1.76%	1.76
	Ni	2.16%	2.87%	1.72	3.80%	3.09%	1.59	3.15%	2.16%	2.13
	Si	2.77%	2.73%	1.03	3.53%	2.63%	1.82	2.22%	3.37%	2.23
	Ti	2.27%	2.20%	1.06	3.83%	2.30%	2.77	2.72%	2.07%	1.65
	U									
	Zr	5.45%	6.08%	1.26				7.93%	5.20%	2.29
	Sum Ox	3.43%	3.91%	1.26	3.84%	2.34%	2.76	1.97%	2.94%	2.20

A review of the results for the Cold Chem preparations of ARG-1 indicates that for the "major" elements the largest average difference between M-13 and M-14 is for Mg with the M-14 values being 2.62% (on average) below the M-13 values. A review of the results for the Fusion preparations of ARG-1 indicates that for the "major" elements the largest average difference between M-13 and M-14 is for B and Ni with the M-14 values being ~2.4% (on average) below the M-13 values. A review of the results for the Mixed Acid preparations of ARG-1 indicates that for the "major" elements the largest average differences between M-13 and M-14 are for Al (2.91%)and Li (2.21%) with the M-14 values being, on average, above the M-13 values. The shading of the entries in Table 3-5 is derived from the results for the ARG-1 samples presented in Exhibit A3. If the statistical comparisons of the means of the measurements for an element indicate that the averages for the two ICPs differ (at a 5% significance level) for a given preparation method, then the % relative difference entry in Table 3-5 is shaded.

Another area of comparisons for the ICPs is the SRAT product results from the Cold Chem preparation method. Table 3-6 provides and modifies information from Table 3-3 to help provide insight into this aspect of the ICP comparison. Exhibit A4 in the Appendix is also used to help address this issue. The results from the statistical tests in that exhibit for differences in the means of the measurements and in the variances from the two ICPs have been used to shade entries in Table 3-6. If the results of the exhibit indicate a statistically significant (at the 5% significance level) difference in means, the % difference entry is shaded. If the results of the exhibit indicate a statistically significant (at the 5% significance level) difference in the variance (using the 2-sided F-test), the variance ratio entry is shaded.

Table 3-7 ICP Comparisons for SRAT Product Measurements

	Cold Chem/M-13	Cold Chem/M-14	%	M-13	M-14	Variance
Analyte	Average	Average	Difference	%RSD(T)	%RSD(T)	Ratio
Al	5.142	5.092	-0.98%	4.65%	6.55%	1.95
B	0.012	0.008	-36.28%	209.40%	214.03%	2.36
Ca	1.342	1.336	-0.43%	4.02%	4.18%	1.07
Cr	0.084	0.088	4.82%	9.64%	9.81%	1.14
Cu	0.033	0.028	-13.25%	12.66%	14.16%	1.06
Fe	15.063	14.667	-2.63%	6.44%	7.03%	1.13
K	0.251	0.159	-36.54%	83.56%	77.57%	2.88
Li	0.008	-0.011	-243.13%	335.74%	-193.29%	1.47
Mg	1.340	1.317	-1.75%	5.36%	4.36%	1.56
Mn	3.184	3.129	-1.75%	5.12%	5.37%	1.06
Na	10.638	10.489	-1.40%	3.05%	4.07%	1.73
Ni	0.867	0.853	-1.63%	5.58%	6.44%	1.29
Si	1.163	1.078	-7.26%	11.48%	17.98%	2.11
Ti	0.015	0.016	13.10%	25.69%	23.51%	1.07
U	5.576	5.507	-1.24%	4.82%	5.32%	1.19
Zr	0.078	0.078	0.48%	10.22%	9.24%	1.21
Sum Ox	64.684	62.993	-2.61%	4.24%	4.94%	1.29

These results do suggest some differences between the two ICPs. While most of the statistically significant differences involve relatively minor SRAT product components, the fact that the M-14 yields, on average, a lower sum of oxides may be somewhat of concern since it suggests a lower recovery of the composition of the SRAT product.

- Using primarily the ARG-1 data, review the protocol that defines the preferred analytical method (Fusion versus Mixed acid) for each of the elements reported by DWPF Lab for SME samples.

  Although the protocol has already been described and used above, it is detailed in Table 3-8 for completeness. The table shows that all of the elements are obtained from the Fusion preparation method except Mg, Na and Zr, which are taken from the Mixed Acid method.

Table 3-8 Current Protocol for Representing the SME Measurements

Element	Represented by
aluminum (Al)	Fusion
boron (B)	Fusion
calcium (Ca)	Fusion
chromium (Cr)	Fusion
copper (Cu)	Fusion
iron (Fe)	Fusion
potassium (K)	Fusion
lithium (Li)	Fusion
magnesium (Mg)	Mixed Acid
manganese (Mn)	Fusion
sodium (Na)	Mixed Acid
nickel (Ni)	Fusion
silicon (Si)	Fusion
titanium (Ti)	Fusion
uranium (U)	Fusion
zirconium (Zr)	Mixed Acid

The information in Table 3-5 provides the basis for relevant comparisons based upon the ARG-1 measurements. Statistical tests for significant differences in the mean concentrations are provided by the ARG-1 results in Exhibit A3. Table 3-9 provides a summary of this information by ICP from the ARG-1 measurements for the two preparation methods. Those averages that indicate statistically different underlying mean concentrations for the two preparation methods have the % relative difference (% Rel Diff) entries shaded in Table 3-9. The lower portion of the table provides the % relative standard deviation of the total variation (%RSD(T)) for the measurements. The table also includes the ratio of the (total) variances of the two methods with the larger of the two variances in the numerator of the ratio.

Table 3-9 Fusion versus Mixed Acid Comparisons for ARG-1 Measurements

		Fusion/ M-13	Mixed Acid/ M-13		Fusion/ M-14	Mixed Acid/ M-14	
Analyte	Ref. Value	Average	Average	% Rel Diff (Based on Mixed Acid)	Average	Average	% Rel Diff (Based on Mixed Acid)
Al	2.5	2.401	2.299	4.44%	2.392	2.366	1.12%
B	2.69	2.617			2.555		
Ca	1.02	0.983	0.994	-1.06%	0.971	1.000	-2.93%
Cr	0.06	0.068	0.067	1.73%	0.066	0.059	11.37%
Cu	0.0001	0.002	-0.003	-154.62%	-0.001	-0.005	-86.75%
Fe	9.79	9.709	9.524	1.94%	9.550	9.492	0.61%
K	2.25	2.198	2.007	9.49%	2.165	2.227	-2.77%
Li	1.49	1.467	1.465	0.11%	1.458	1.498	-2.66%
Mg	0.52	0.506	0.509	-0.50%	0.496	0.508	-2.33%
Mn	1.46	1.414	1.389	1.82%	1.397	1.399	-0.13%
Na	8.53		8.328			8.400	-100.00%
Ni	0.83	0.803	0.804	-0.13%	0.784	0.803	-2.43%
Si	22.39	22.586	21.306	6.00%	22.414	20.985	6.81%
Ti	0.69	0.671	0.671	-0.08%	0.672	0.688	-2.37%
U							
Zr	0.1		0.093			0.094	
Sum Ox	99.3	87.103	86.570	NA	86.176	85.974	NA
Analyte		%RSD(T)	%RSD(T)	Variance Ratio	%RSD(T)	%RSD(T)	Variance Ratio
Al		3.93%	2.26%	3.30	3.14%	2.12%	2.24
B		3.41%			2.60%		
Ca		4.40%	2.27%	3.66	2.47%	2.24%	1.14
Cr		9.19%	12.25%	1.72	10.60%	8.92%	1.75
Cu		242.26%	240.36%	3.30	660.62%	102.19%	1.36
Fe		3.61%	2.13%	2.99	2.57%	2.50%	1.07
K		6.06%	20.32%	9.37	10.66%	7.18%	2.08
Li		3.57%	6.13%	2.94	3.06%	2.07%	2.07
Mg		3.85%	2.41%	2.53	3.38%	2.62%	1.59
Mn		3.90%	2.01%	3.93	2.58%	2.39%	1.16
Na			1.34%			1.76%	
Ni		3.80%	3.15%	1.45	3.09%	2.16%	1.94
Si		3.53%	2.22%	2.83	2.63%	3.37%	1.44
Ti		3.83%	2.72%	1.98	2.30%	2.07%	1.17
U							
Zr			7.93%			5.20%	
Sum Ox		3.84%	1.97%	3.85	2.34%	2.94%	1.58

Another area of comparisons for the two preparation methods is the SME sample results from each of the two ICPs. Table 3-10 provides and modifies information from Table 3-3 to help provide insight into the comparisons between the prep methods. Exhibit A5 is also available to investigate for statistical differences. Shading is used in Table 3-10 in the same manner as was used in Table 3-9.

Table 3-10 Comparisons Between Fusion and Mixed Acid for the SME Measurements

		Fusion/M-13	Mixed Acid/M-13	% Rel Diff	Fusion/M-14	Mixed Acid/M-14	% Rel Diff
Analyte	Process	Average	Average	(Based on MA)	Average	Average	(Based on MA)
Al	SME	2.957	2.885	2.49%	2.885	3.051	-5.42%
B	SME	1.449			1.390		
Ca	SME	0.718	0.717	0.16%	0.687	0.755	-9.04%
Cr	SME	0.055	0.054	1.30%	0.051	0.047	9.22%
Cu	SME	0.014	0.009	57.56%	0.011	0.008	49.54%
Fe	SME	7.969	7.782	2.40%	7.679	7.881	-2.56%
K	SME	0.102	-0.061	-266.55%	0.115	0.166	-30.79%
Li	SME	2.203	2.214	-0.49%	2.170	2.244	-3.29%
Mg	SME	0.686	0.675	1.69%	0.669	0.720	-7.07%
Mn	SME	1.575	1.542	2.16%	1.536	1.620	-5.15%
Na	SME		8.808			9.054	
Ni	SME	0.456	0.450	1.33%	0.433	0.460	-5.91%
Si	SME	23.809	22.461	6.00%	23.288	21.669	7.47%
Ti	SME	0.039	0.032	20.82%	0.041	0.040	2.42%
U	SME	2.601	2.755	-5.56%	2.710	2.891	-6.26%
Zr	SME		0.050			0.060	
Sum Ox	SME	85.728	89.098	NA	83.398	89.296	NA
		Fusion/M-13	Mixed Acid/M-13	Variance	Fusion/M-14	Mixed Acid/M-14	Variance
Analyte	Process	%RSD(T)	%RSD(T)	Ratio	%RSD(T)	%RSD(T)	Ratio
Al	SME	7.73%	6.66%	1.415	8.47%	6.66%	1.444
B	SME	4.84%			7.95%		
Ca	SME	9.36%	6.30%	2.215	9.91%	6.46%	1.950
Cr	SME	13.10%	46.19%	12.115	21.63%	11.91%	3.935
Cu	SME	29.99%	86.28%	3.333	41.73%	71.64%	1.318
Fe	SME	6.49%	4.45%	2.235	8.67%	6.14%	1.894
K	SME	150.33%	567.46%	5.137	154.73%	159.58%	2.221
Li	SME	4.32%	4.99%	1.346	7.54%	3.95%	3.410
Mg	SME	8.98%	7.76%	1.385	8.86%	7.53%	1.194
Mn	SME	8.45%	6.70%	1.662	8.88%	7.73%	1.186
Na	SME		4.53%			4.20%	
Ni	SME	7.59%	5.91%	1.694	9.15%	6.07%	2.012
Si	SME	5.54%	4.16%	1.991	7.67%	5.19%	2.519
Ti	SME	20.56%	24.24%	1.050	14.23%	16.39%	1.265
U	SME	7.45%	7.27%	1.068	9.41%	6.59%	1.792
Zr	SME		21.35%			23.42%	
Sum Ox	SME	3.62%	2.90%	1.446	6.57%	2.74%	5.017

When it was established, the protocol for how to use the Fusion and Mixed Acid results to report the chemical compositions of the SME samples relied on the method that provided the better recovery of the particular element of interest. A review of the results presented in Table 3-9 and Table 3-10 suggests the following: For Al, the Fusion method provides a higher recovery, on average, than the Mixed Acid method for this element for ARG-1 samples as well as for SME samples when the M-13 ICP is used but the advantage is not seen when the M-14 is used. Also, note that the precision of the Fusion method is not as good as that of the Mixed Acid for both ICPs. For Ca, the Fusion method leads to poorer average recovery and to poorer precision than the Mixed Acid method. For Cr, the Fusion method provides, on average, better recoveries than Mixed Acid regardless of the ICP used and better precision than the Mixed Acid for the M-13 but worse precision for the M-14. For Cu, the Fusion method appears to provide a higher recovery than and as good precision as the Mixed Acid method regardless of ICP used. For Fe, the Fusion method appears to provide a higher recovery than the Mixed Acid when the M-13 ICP is used but this is not seen when the M-14 ICP is used. However, the Fusion method appears to lead to less precise Fe measurements than does the Mixed Acid method, in general. For Li, while the M-13 results suggest little difference in average recovery or precision between the two preparation methods, the M-14 results suggest that Mixed Acid yields higher Li recoveries and more precise Li measurements. For Mg, the Mixed Acid method appears to

yield more precise measurements regardless of ICP and the average recovery for Mixed Acid is better than that for Fusion when the M-14 ICP is used. For Mn, while the Fusion method yields a better average recovery than the Mixed Acid method when the M-13 ICP is used, the Mixed Acid may yield a higher recovery when the M-14 ICP is used. For both ICPs, the Fusion method yields less precise Mn measurements than the Mixed Acid method. For Ni, the Fusion method appears to be less precise than the Mixed Acid method regardless of ICP while the Mixed Acid method appears to yield a higher average Ni recovery when the M-14 ICP is used. For Si, the Fusion method yields a higher recovery than Mixed Acid regardless of ICP but is less precise for the M-13 ICP than the M-14 for the ARG-1 samples. For Ti, there appears to be little difference between the results from the two preparation methods.

These results indicate the protocol may be sensitive to the ICP used, which would suggest that there may be a need to assess the benefits of aligning both ICPs in the same manner to establish a single protocol for selecting between the Fusion and Mixed Acid results to represent the chemical composition of the SME samples.

- Evaluate the uncertainty of a waste loading target determined during the SME blending process using actual variation of the measurements for the specific batches.

  Figure 3-3 provides an overview of the blending process and the associated targeting of WL. For the sixteen elements of interest, the total mass of these elements is tracked during the blending process so that the fraction of this mass attributable to Li oxide (Li_2O) can be ratioed to the Li_2O in the frit to determine a target for WL as given by

$$WL = 100 \times (1 - (Li_2O \text{ weight percent in the SME}/Li_2O \text{ weight percent in the frit}))$$

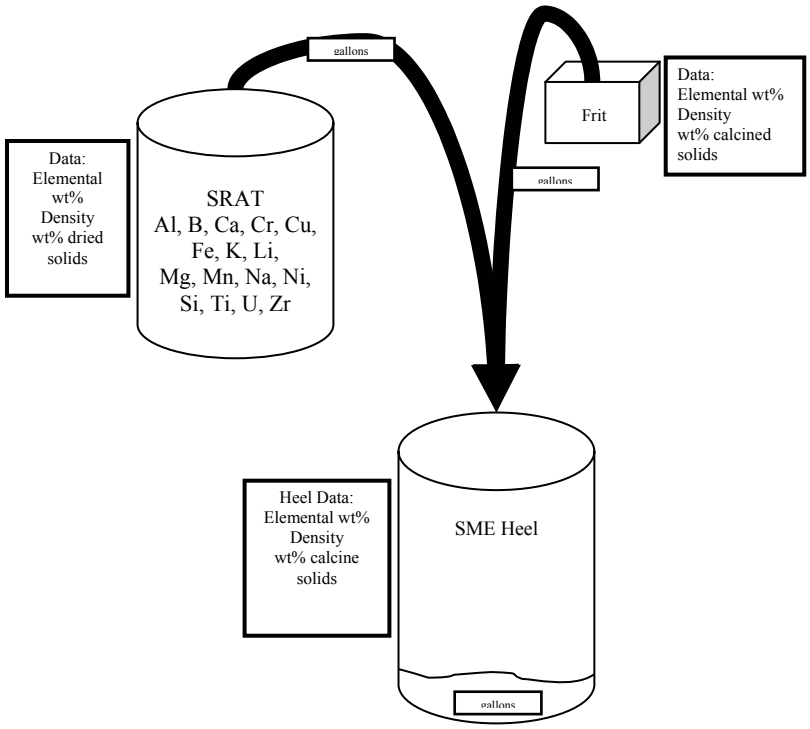

Figure 3-3. Overview of WL Target during Blending Process

The details associated with the calculation of a targeted WL involve two sets of measurements that are directly related to this study: the SME heel composition determined from the Fusion and Mixed Acid results from the SME samples and the composition of the material transferred from the SRAT into the SME determined by the Cold Chem results of the SRAT product. What do the results of the ARG-1 samples and the comparisons of the ICPs suggest regarding the impact of the uncertainties in these measurements on the targeting of a WL for the SME?

Table A4 in Appendix A provides a point of reference for information on the targeted waste loadings (WLs) for the batches being investigated in this study. The table provides the WL value targeted during the blending process and the information associated with this process. Exhibit A8 in Appendix A provides the JMP formulas that were used to capture the estimates of bias and variance components from Tables 3-1 through 3.4 to investigate the sensitivity of the targeted WLs to the uncertainty of the measured quantities used in the associated calculations. A formula is provided for each ICP (M-13 and M-14). The inputs to the WL target calculation for each of the batch from 300 through 356 are subjected to the uncertainties of Exhibit A8 for 10,000 iterations with a target WL calculated for each iteration. Exhibit A9 in Appendix A provides a histogram and other information on the distribution of the resulting 10,000 targeted WLs for the M-13 ICP and the 10,000 for the M-14 ICP for each batch. Figure 3-4 provides a plot of uncertainty bands (at 95% confidence) around the targeted WLs by batch for the M-13 and M-14 ICPs. Table 3-11 summarizes the information that was used in developing this plot. These results suggest that, on average, the uncertainty in the targeted WLs at blending are (-1.1, 1.4) percentage points for the M-13 ICP and (-1.3, 2.1) percentage points for the M-14 ICP.

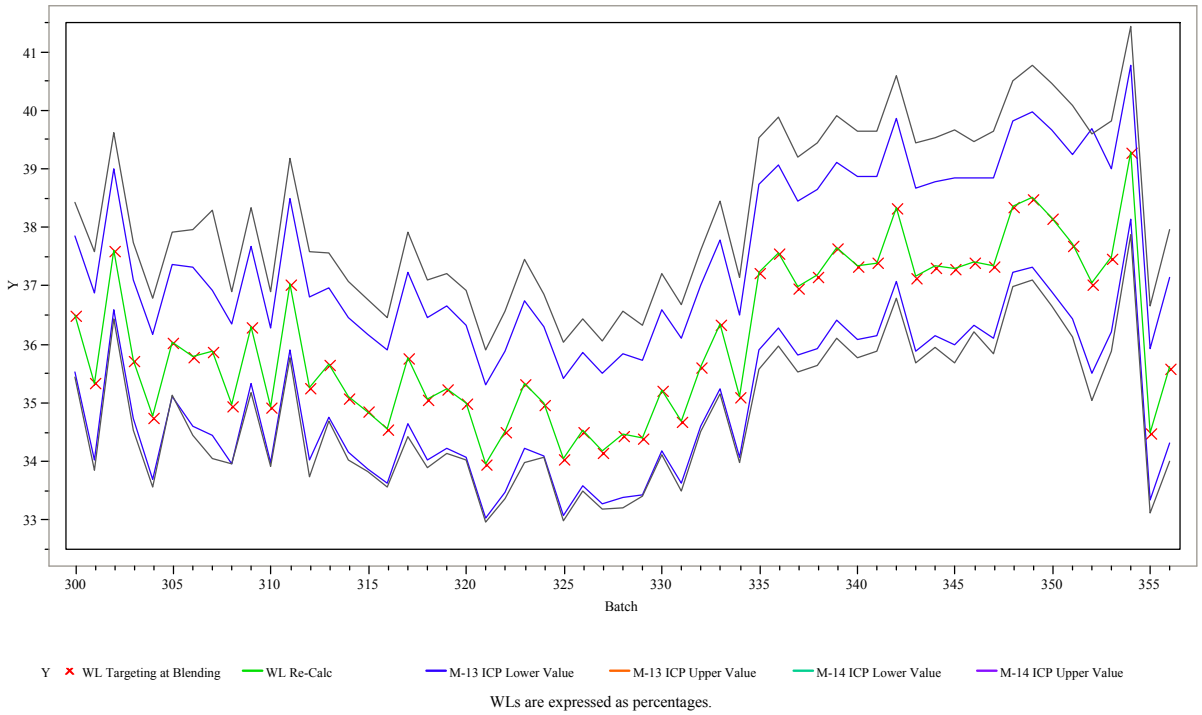

Figure 3-4. 95% Uncertainty Bands around Targeted WLs for M-13 and M-14 ICPs

Table 3-11 Target WLs at Blending with Error Propagations (95% confidence) for M-13 and M-14 ICPs

Batch	WL Targeted	Re-Calculation	95% Uncertainty Band for M-13		95% Uncertainty Band for M-14	
	At Blending	Of Targeted WL	Lower Value	Upper Value	Lower Value	Upper Value
300	36.47	36.51	35.544	37.855	35.452	38.446
301	35.31	35.35	34.038	36.894	33.856	37.599
302	37.57	37.61	36.593	39.010	36.456	39.628
303	35.70	35.74	34.736	37.109	34.548	37.751
304	34.73	34.78	33.712	36.178	33.583	36.811
305	36.00	36.05	35.127	37.384	35.149	37.918
306	35.76	35.81	34.616	37.326	34.461	37.964
307	35.84	35.90	34.464	36.935	34.065	38.296
308	34.92	34.98	33.974	36.359	33.964	36.922
309	36.26	36.32	35.348	37.690	35.196	38.339
310	34.89	34.94	33.989	36.292	33.928	36.917
311	37.00	37.04	35.907	38.503	35.793	39.192
312	35.24	35.28	34.045	36.816	33.751	37.602
313	35.63	35.67	34.770	36.982	34.710	37.579
314	35.06	35.11	34.170	36.477	34.036	37.090
315	34.83	34.85	33.885	36.183	33.845	36.776
316	34.53	34.57	33.645	35.906	33.565	36.472
317	35.75	35.79	34.659	37.241	34.431	37.918
318	35.03	35.07	34.029	36.466	33.895	37.112
319	35.21	35.26	34.229	36.677	34.154	37.213
320	34.96	35.01	34.078	36.338	34.028	36.936
321	33.93	33.98	33.039	35.330	32.970	35.906
322	34.47	34.52	33.489	35.886	33.365	36.570
323	35.30	35.35	34.225	36.751	33.997	37.474
324	34.95	35.00	34.097	36.315	34.092	36.866
325	34.01	34.06	33.077	35.434	33.000	36.043
326	34.49	34.54	33.599	35.878	33.517	36.447
327	34.13	34.19	33.290	35.522	33.205	36.071
328	34.42	34.47	33.392	35.841	33.217	36.583
329	34.36	34.41	33.442	35.743	33.417	36.326
330	35.18	35.23	34.197	36.601	34.121	37.212
331	34.65	34.70	33.649	36.108	33.516	36.695
332	35.58	35.63	34.622	37.023	34.529	37.616
333	36.31	36.36	35.263	37.800	35.157	38.468
334	35.07	35.12	34.080	36.515	33.996	37.151
335	37.19	37.24	35.919	38.736	35.593	39.551
336	37.52	37.57	36.298	39.082	35.991	39.892
337	36.94	37.00	35.826	38.465	35.531	39.206
338	37.13	37.19	35.943	38.669	35.642	39.455
339	37.63	37.66	36.418	39.121	36.109	39.928
340	37.32	37.35	36.102	38.875	35.792	39.648
341	37.37	37.40	36.149	38.885	35.895	39.659
342	38.31	38.34	37.090	39.874	36.812	40.612
343	37.11	37.17	35.894	38.673	35.686	39.454
344	37.29	37.35	36.163	38.799	35.963	39.553
345	37.26	37.32	36.008	38.847	35.703	39.671
346	37.37	37.43	36.345	38.861	36.220	39.471
347	37.30	37.36	36.122	38.855	35.851	39.649
348	38.32	38.38	37.241	39.831	37.005	40.527
349	38.46	38.52	37.324	39.994	37.104	40.778
350	38.12	38.17	36.919	39.668	36.671	40.471
351	37.67	37.73	36.446	39.264	36.129	40.098
352	37.00	37.06	35.528	39.687	35.051	39.600
353	37.44	37.50	36.234	39.006	35.901	39.821
354	39.25	39.30	38.141	40.777	37.889	41.455
355	34.45	34.50	33.354	35.939	33.131	36.675
356	35.57	35.63	34.330	37.163	34.017	37.969

For comparison purposes, the estimation of WLs at the SME was also investigated as part of this study. A graphical overview of this estimation is provided in Figure 3-5. As indicated in this figure, there are 4 estimates of WL provided at the SME (one for each of the samples recorded in PCCS). The estimated WL for each of the four samples for each SME batch is determined using the formula given by this equation:

$$WL = 100 \cdot \left(1 - \frac{Li_2O \,/\, (\text{Sum of Oxides})}{Frit_{Li_2O} \,/\, 100} \right)$$

Table A5 in Appendix A provides the information used in the computation of the estimated WLs for batches 300 through 356.

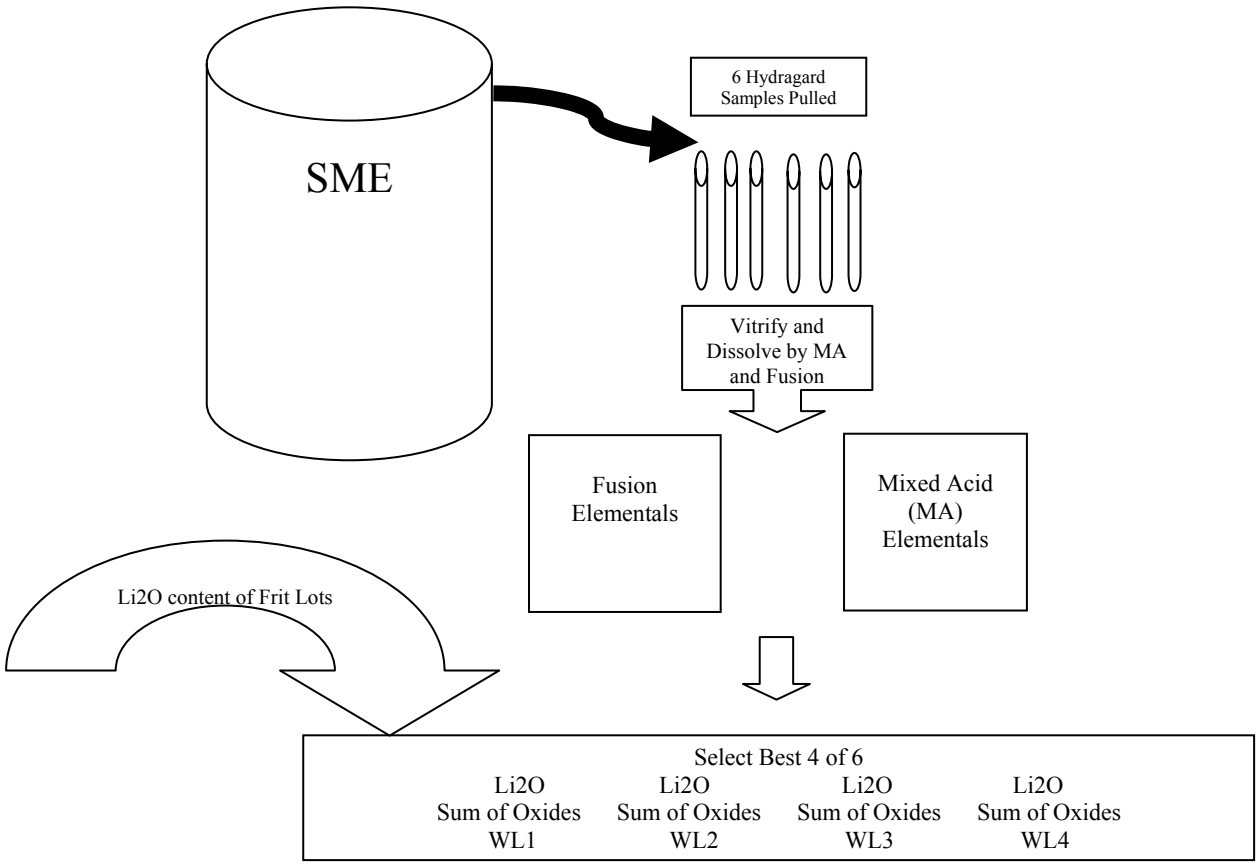

Figure 3-5. Overview of WL Estimation at the SME

Exhibit A10 in Appendix A provides the JMP formulas that were used to capture the estimates of bias and batch-to-batch variance components from Tables 3-1 through 3.4 to investigate the sensitivity of the estimated WLs to the uncertainty of the measured quantities used in the associated calculations. A formula is provided for each ICP (M-13 and M-14). The inputs to the WL target

calculation for each of the batches from 300 through 356 are subjected to the uncertainties of Exhibit A10 for 10,000 iterations with a target WL calculated for each iteration. Exhibit A11 in Appendix A provides a histogram and other information on the distribution of the resulting 10,000 targeted WLs for the M-13 ICP and the 10,000 for the M-14 ICP for each batch. Figure 3-6 provides a plot of uncertainty bands (at 95% confidence) around the estimated WLs by batch for the M-13 and M-14 ICPs. Table 3-12 summarizes the information that was used in developing this plot. These results suggest that, on average, the uncertainty in the estimated WLs at the SME are (-3.2, 2.0) percentage points for the M-13 ICP and (-3.0, 2.3) percentage points for the M-14 ICP.

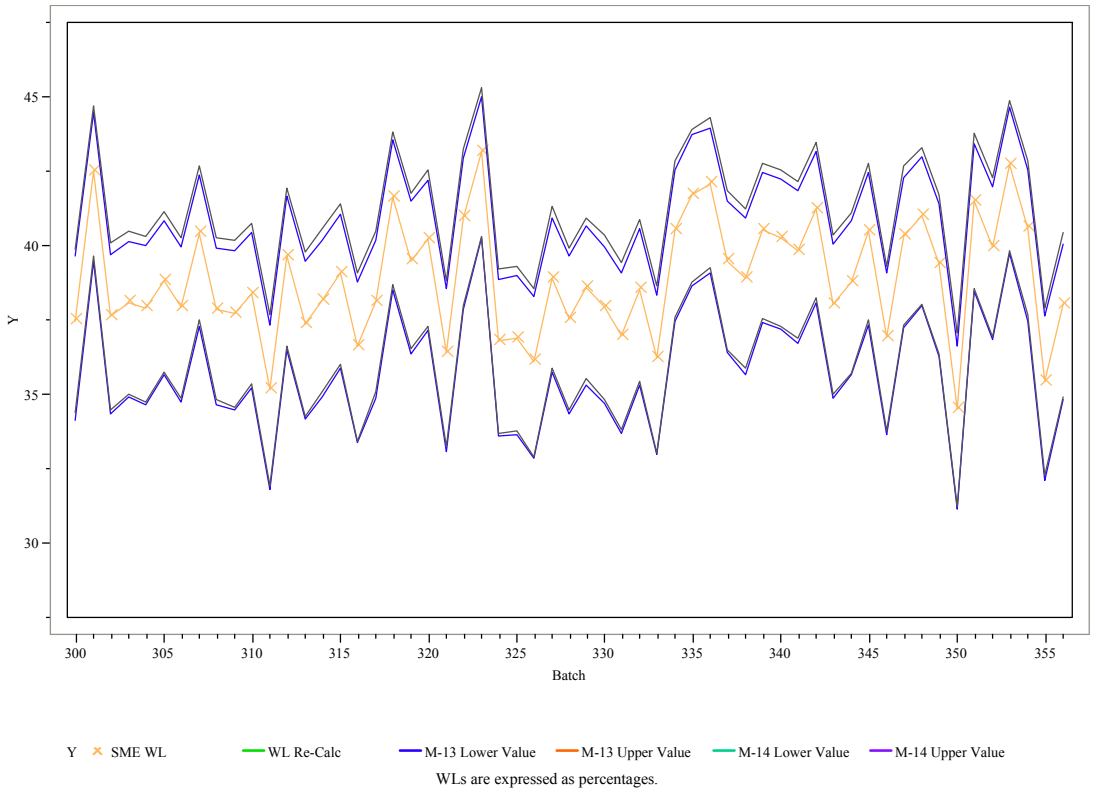

Figure 3-6. Overview of WL Estimation at the SME

Table 3-12 Estimated WLs at the SME with Error Propagations (95% confidence) for M-13 and M-14 ICPs

Batch	WL Estimated	Re-Calculation	95% Uncertainty Band for M-13		95% Uncertainty Band for M-14	
	At the SME	Of Estimated WL	Lower Value	Upper Value	Lower Value	Upper Value
300	37.54	37.50	34.137	39.661	34.422	39.911
301	42.54	42.53	39.491	44.482	39.668	44.727
302	37.66	37.65	34.384	39.733	34.509	40.092
303	38.12	38.11	34.947	40.159	35.042	40.498
304	37.95	37.94	34.689	40.015	34.774	40.345
305	38.85	38.84	35.693	40.854	35.785	41.166
306	37.96	37.95	34.777	39.994	34.890	40.295
307	40.44	40.43	37.298	42.396	37.502	42.715
308	37.89	37.88	34.682	39.939	34.839	40.273
309	37.75	37.74	34.515	39.835	34.604	40.184
310	38.41	38.40	35.222	40.476	35.354	40.753
311	35.19	35.18	31.823	37.325	31.970	37.697
312	39.68	39.67	36.529	41.702	36.654	41.970
313	37.40	37.39	34.167	39.490	34.294	39.784
314	38.19	38.18	34.945	40.215	35.130	40.587
315	39.11	39.10	35.901	41.066	36.032	41.418
316	36.66	36.65	33.413	38.809	33.459	39.116
317	38.14	38.12	34.906	40.189	35.098	40.490
318	41.64	41.63	38.549	43.585	38.721	43.819
319	39.53	39.52	36.368	41.511	36.550	41.783
320	40.26	40.25	37.177	42.223	37.285	42.550
321	36.44	36.43	33.110	38.576	33.271	38.831
322	40.97	40.96	37.888	42.954	38.001	43.246
323	43.18	43.17	40.267	45.013	40.342	45.350
324	36.82	36.80	33.599	38.883	33.714	39.219
325	36.91	36.90	33.652	38.996	33.777	39.310
326	36.15	36.13	32.873	38.315	32.938	38.556
327	38.92	38.91	35.774	40.941	35.884	41.322
328	37.58	37.57	34.359	39.657	34.482	39.936
329	38.62	38.61	35.326	40.682	35.553	40.943
330	37.96	37.94	34.727	39.988	34.855	40.357
331	37.01	37.00	33.705	39.112	33.825	39.473
332	38.56	38.54	35.329	40.575	35.465	40.902
333	36.25	36.24	33.026	38.361	33.068	38.666
334	40.56	40.55	37.500	42.558	37.617	42.874
335	41.73	41.72	38.669	43.746	38.811	43.922
336	42.11	42.10	39.088	43.964	39.256	44.333
337	39.53	39.52	36.414	41.515	36.507	41.858
338	38.92	38.91	35.679	40.948	35.878	41.251
339	40.55	40.53	37.432	42.468	37.556	42.798
340	40.28	40.27	37.205	42.239	37.309	42.559
341	39.86	39.85	36.721	41.855	36.890	42.176
342	41.24	41.23	38.099	43.190	38.272	43.479
343	38.04	38.03	34.875	40.084	35.042	40.381
344	38.79	38.78	35.668	40.839	35.724	41.127
345	40.50	40.48	37.367	42.486	37.502	42.785
346	36.96	36.95	33.668	39.085	33.790	39.332
347	40.35	40.34	37.277	42.323	37.348	42.681
348	41.02	41.01	38.004	42.986	38.052	43.301
349	39.43	39.41	36.315	41.433	36.403	41.711
350	34.55	34.53	31.158	36.650	31.266	37.067
351	41.51	41.50	38.485	43.425	38.560	43.776
352	39.99	39.98	36.849	41.983	36.964	42.305
353	42.76	42.75	39.737	44.683	39.847	44.908
354	40.62	40.61	37.484	42.567	37.718	42.884
355	35.47	35.46	32.110	37.668	32.312	37.918
356	38.05	38.04	34.848	40.077	34.946	40.477

- Using the ARG-1 lithium (Li) data, investigate for a Li bias in the DWPF Lab's analytical protocol and, if present, assess its impact on the determination of WL.

  Table 3-1 provides the information necessary to investigate this issue. Since Mixed Acid is the current method that is used to yield a Li value for the SME samples, the results from this prep method for the ARG-1 samples in Table 3-1 are of interest. For the M-13 ICP, the average of Li measurements (1.465 wt%) for the ARG-1 samples are 1.65% below the reference value (1.49 wt%) for this element. The 95% confidence interval for the mean Li measurement (in wt%) for M-13 is (1.448, 1.482) suggesting that there is a slight bias (1.65%) in the Mixed Acid Li measurement through the M-13 ICP. For the M-14 ICP, the average Li measurement is 1.498 wt% and the 95% confidence interval for the mean in wt% is (1.486, 1.509). Thus, there is not an indication of a bias for the Mixed Acid method when the M-14 ICP is used.

  What is the impact on the estimated WL at the SME if a 1.65% low bias is present in the Li measurements?

  Once again, the estimated WL for each of the four samples for each SME batch is determined using the formula given by this equation:

$$WL = 100 \cdot \left(1 - \frac{Li_2O \,/\, (\text{Sum of Oxides})}{Frit_{Li_2O} \,/\, 100} \right)$$

  Table 3-13 provides insight into the potential impact of a measurement bias in the Li_2O content of the SME samples using a blending target of 38%. The effect of the sum of oxides values on the calculation is also explored.

Table 3-13 Target WLs at Blending and Estimated WLs at the SME

		Li_2O		Sum of		Targeted WL
	WL	Bias	Li_2O	Oxides	Frit Li_2O	at Blending
Ideal Situation	38.00	0.00	4.96	100	8	38
Low Sum of Oxides (1)	37.37	0.00	4.96	99	8	38
Low Sum of Oxides (2)	36.73	0.00	4.96	98	8	38
Low Sum of Oxides (3)	36.08	0.00	4.96	97	8	38
Low Sum of Oxides (4)	35.42	0.00	4.96	96	8	38
Bias in Li_2O values (1)	38.62	1.00	4.96	100	8	38
Bias in Li_2O values (2)	39.24	2.00	4.96	100	8	38
Bias/Low Sum of Oxides	36.48	1.65	4.96	96	8	38

- Evaluate process sample measurements from both dissolution methods to determine if there is a relationship between the recent increase in targeted WLs and the increase in recent sum of oxide failures.

  As a reference point, recall that the targeted and estimated WLs for the batches of interest in this study are provided above in Table 3-11 and Table 3-12. Exhibit A12 in Appendix A provides a set of trend analyses (i.e., linear regressions) for various analytes of interest versus estimated WLs over

process batches of this study. These plots (one for the targeted WL at blending and one for the estimated WL at the SME) are grouped by preparation method and by ICP. In general, what one expects to see in these plots are increasing trends for measurements of the sludge-only elements, decreasing trends for measurements of frit-only elements, and no appreciable trends for ratios of measurements (for pairs of sludge-only or pairs of frit-only elements). And, in general, these patterns of behavior are demonstrated in this exhibit.

The specific question here, however, is the behavior of the sum of oxides versus these WL values. While the plots for sum of oxides values versus WLs are provided in Exhibit A12, portions of these results are repeated here as Figure 3-7 to facilitate this discussion. There is no indication of a downward trend for the Mixed Acid sum of oxides as WLs increase; in fact, the upward trends for the sums versus the SME average WL values are statistically significant. However, there is a slight downward trend in the Fusion sum of oxides as WL increases (for both ICPs), but the trends are not statistically significant at the 5% level.

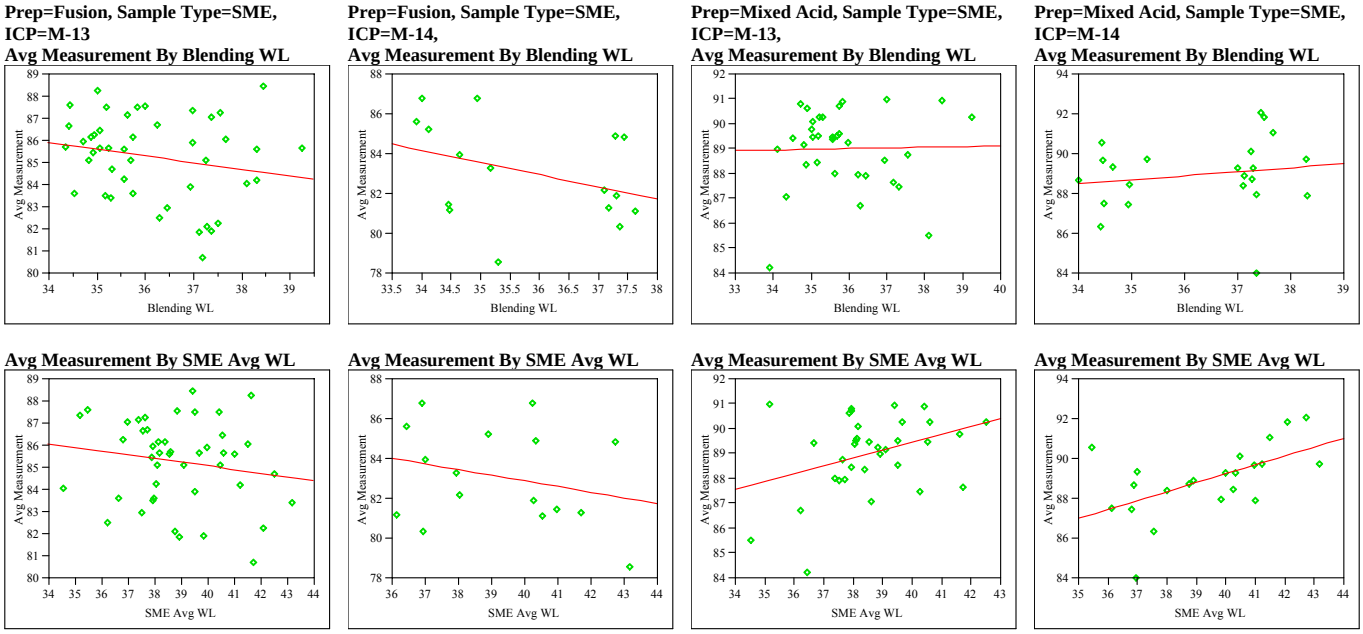

Figure 3-7. Sum of Oxides versus WLs

- Evaluate the uranium measurements generated for the process samples to determine whether or not there are shifts in these measurements as the DWPF Lab switches between the two ICPs.

  Table 3-2 provides some of the information that is necessary to address this issue. This information is compiled in Table 3-14 to facilitate its review. It suggests that the M-14 U concentration measurements for Mixed Acid (used for reporting) and for Fusion are, on average, larger than the measurements provided by the M-13 ICP. The individual batch values are plotted in Figure 3-8 along with mean (horizontal) lines for each ICP (M-13 shown as ● and M-14 shown as □).

Unfortunately, there are no "head-to-head" comparisons between the ICPs for U since the measurements for a given SME batch are generated by a single ICP. Note that while the batches measured using the M-14 yielded larger U concentrations on average, they also yielded higher WLs on average than the batches measured using the M-13.

Table 3-14 Average U Measurement by Preparation Method and ICP and Target WLs at Blending and Estimated WLs at the SME

Prep	ICP	N Rows	Average U Measurement (wt%)	Average Blending WL	Average Estimated SME WL
Fusion	M-13	32	2.601	35.92	38.84
Fusion	M-14	9	2.710	35.18	39.90
Mixed Acid	M-13	29	2.755	35.87	38.53
Mixed Acid	M-14	20	2.891	36.21	39.52

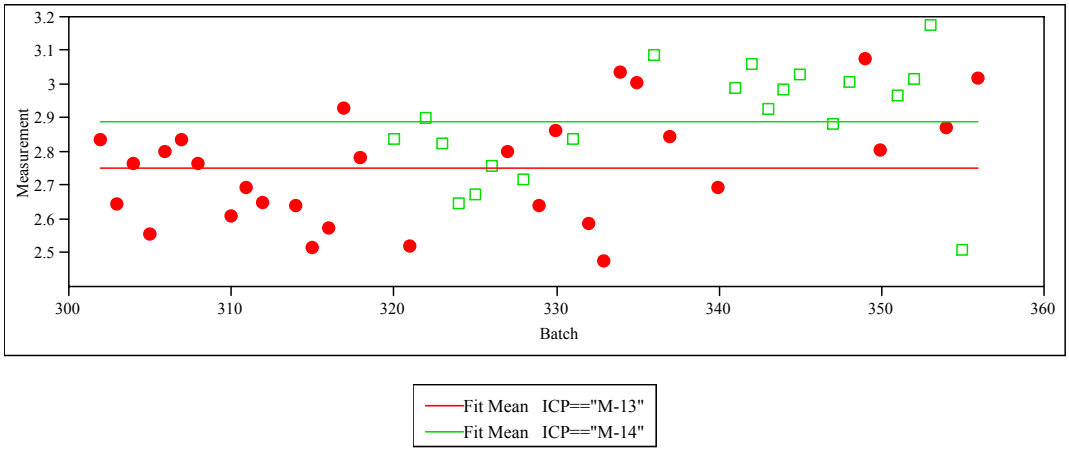

Figure 3-8. Mixed Acid Average U Concentration (wt%) by Batch

- Based upon the results from this statistical review, recommend metrics that may be monitored by DWPF Lab to provide a set of sensitive and reliable indicators of performance of the Lab's analytical protocols.

  One of the metrics that may be of value for the Lab to monitor is the average of the measurements of the ARG-1 samples per analytical block. The information of Table 3-1 would allow the Lab to establish appropriate control charts for this average for each of the major elements being tracked by the Lab. This approach would allow the flagging of situations for which the preparation of the samples or the calibration of the ICP (or combinations of both) has led to errors that are reflected in the measurements of the ARG-1 samples but which may also affect the process samples. It may be necessary, however, to set up separate control charts for each of the two ICPs since differences between the two instruments have been revealed by the analyses presented in this report.

4.0 CONCLUSIONS

In this report, SCS provided summaries and comparisons of DWPF Lab data covering ICP-AES measurements that were generated for the SRAT product and SME samples for batches 300 through 356. The comparisons were extensive given that these data allowed for contrasts between preparation methods and between the two ICPs. In addition to general comparisons, specific questions that were posed by the TTR behind this effort were addressed in this report.

5.0 REFERENCES

[1] Edwards, TB, "Statistical Review of Composition Data from DWPF's Process Samples for Macro-Batch 1 (U)," WSRC-RP-2000-00174, Revision 0, February 15, 2000.

[2] Edwards, TB, "A Statistical Review of Analytical Laboratory Measurements from DWPF's Macrobatch 1and Macrobatch 2 (U)," WSRC-TR-2003-00045, Revision 0, January 22, 2003.

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[4] Harris, SP, "Statistical Analysis of DWPF ARG-1 Data (U)," WSRC-TR-2000-00070, May 24, 2000.

[5] Mahannah, RN, "Statistical Analysis of ARG-1/DWPF Sample Results From the Leeman ICP (U)," HLW/DWPF/TTR-2005-0025, Revision 1, January 23, 2006.

[6] Edwards, TB, "Task Technical and Quality Assurance Plan: Statistical Analysis of ARG-1/DWPF Sample Results from Leeman ICPs," WSRC-RP-2006-00460, Revision 0, February 3, 2006.

[7] SAS Institute, Inc., **JMP Statistics and Graphics Guide**, SAS Institute, Inc., Cary, NC, 2002.

[8] Brown, KG, RL Postles, and TB Edwards, "SME Acceptability Determination for DWPF Process Control (U)," WSRC-TR-95-00364, Revision 4, August 30, 2002.

1.0 APPENDIX A

Supplemental Tables and Exhibits

Table A1. Cold Chem Measurement Data Set

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
300	ARGC	M-13/S2133	2.259	2.595	0.926	0.071	0.000	9.566	2.349	1.340	0.478	1.386	8.111	0.788	21.531	0.664	0.080	0.092
300	ARGC	M-13/S2133	2.306	2.626	0.959	0.070	0.006	9.919	2.653	1.343	0.499	1.444	8.457	0.837	22.587	0.673	0.297	0.099
300	SR04	M-13/S2133	5.025	-0.004	1.319	0.088	0.029	14.760	0.561	-0.023	1.339	3.103	10.671	0.842	1.121	0.013	5.395	0.067
300	SR04	M-13/S2133	5.215	-0.012	1.335	0.094	0.032	15.512	0.604	-0.024	1.338	3.216	10.634	0.887	1.122	0.013	5.662	0.068
300	SR04	M-13/S2133	5.351	-0.009	1.378	0.099	0.035	15.749	0.596	-0.027	1.354	3.250	10.666	0.906	1.123	0.014	5.705	0.070
300	SR04	M-13/S2133	5.330	-0.002	1.385	0.094	0.037	16.223	0.524	-0.025	1.388	3.330	10.596	0.953	1.174	0.015	5.733	0.072
300	SR04	M-13/S2133	5.197	-0.011	1.365	0.094	0.033	15.901	0.594	-0.034	1.372	3.256	10.634	0.936	1.162	0.012	5.532	0.068
300	SR04	M-13/S2133	5.542	-0.009	1.392	0.096	0.033	16.997	0.557	-0.033	1.376	3.370	10.661	0.986	1.216	0.013	5.812	0.074
300	IN32	M-13/S2133	0.009	-0.012	0.002	0.001	0.000	0.003	0.196	-0.016	0.000	0.002	0.003	0.006	0.029	-0.001	0.030	-0.003
300	IN32	M-13/S2133	-0.009	-0.010	0.000	0.001	-0.004	-0.001	0.183	-0.014	0.000	0.001	-0.003	0.003	0.026	-0.002	-0.055	-0.004
301	ARGC	M-13/S2133	2.344	2.560	0.980	0.067	-0.001	9.655	2.267	1.553	0.511	1.416	8.373	0.796	21.746	0.664	0.001	0.091
301	ARGC	M-13/S2133	2.409	2.577	0.998	0.067	0.002	9.664	2.695	1.471	0.516	1.422	8.518	0.814	22.264	0.656	0.103	0.094
301	SR04	M-13/S2133	5.170	-0.023	1.375	0.085	0.028	15.001	0.066	0.074	1.383	3.197	11.088	0.883	1.033	0.012	5.647	0.068
301	SR04	M-13/S2133	5.096	-0.026	1.390	0.089	0.027	14.795	0.075	0.074	1.366	3.159	10.877	0.865	1.024	0.012	5.652	0.066
301	SR04	M-13/S2133	5.163	-0.024	1.369	0.084	0.031	15.172	0.373	0.074	1.406	3.294	11.030	0.895	1.053	0.012	5.716	0.066
301	SR04	M-13/S2133	5.111	-0.033	1.364	0.088	0.028	15.181	0.270	0.073	1.380	3.238	10.771	0.895	0.974	0.011	5.758	0.066
301	SR04	M-13/S2133	5.379	-0.039	1.392	0.090	0.029	15.673	0.500	0.081	1.403	3.286	10.933	0.909	1.043	0.012	5.834	0.068
301	SR04	M-13/S2133	5.244	-0.031	1.373	0.094	0.028	15.429	0.232	0.070	1.376	3.253	10.840	0.912	1.056	0.013	5.781	0.069
301	IN32	M-13/S2133	-0.002	-0.014	-0.001	0.000	-0.002	0.013	0.032	0.017	0.000	0.000	0.015	0.002	0.030	-0.002	-0.032	-0.003
301	IN32	M-13/S2133	0.007	-0.020	0.003	0.000	-0.001	0.020	0.189	0.017	0.001	0.001	0.009	0.005	0.050	-0.001	0.011	-0.003
302	ARGC	M-13/S2133	2.321	2.656	0.976	0.069	0.001	9.836	2.248	1.459	0.520	1.448	8.258	0.812	22.195	0.668	0.075	0.103
302	ARGC	M-13/S2133	2.389	2.614	1.028	0.071	0.012	9.795	2.264	1.410	0.512	1.424	8.454	0.835	22.154	0.677	0.289	0.108
302	SR04	M-13/S2133	5.121	0.019	1.334	0.086	0.033	15.301	0.241	0.011	1.373	3.231	10.826	0.885	1.186	0.015	5.853	0.077
302	SR04	M-13/S2133	5.272	0.011	1.387	0.092	0.033	15.575	0.247	-0.005	1.420	3.305	10.936	0.909	1.201	0.014	5.985	0.079
302	SR04	M-13/S2133	5.359	0.013	1.404	0.089	0.035	16.148	0.330	0.006	1.387	3.374	10.736	0.942	1.266	0.014	6.014	0.079
302	SR04	M-13/S2133	5.581	0.014	1.449	0.096	0.040	16.388	0.216	0.001	1.428	3.439	10.904	0.982	1.311	0.016	6.236	0.084
302	SR04	M-13/S2133	5.406	0.010	1.432	0.096	0.040	15.982	0.236	0.003	1.382	3.373	10.748	0.951	1.259	0.018	6.202	0.085
302	SR04	M-13/S2133	5.224	0.013	1.368	0.088	0.036	15.492	0.312	0.002	1.370	3.240	10.685	0.907	1.175	0.015	5.783	0.078
302	IN32	M-13/S2133	0.016	-0.007	0.004	0.002	0.002	0.008	0.026	-0.012	0.000	0.002	0.013	0.005	0.069	0.000	0.042	0.001
302	IN32	M-13/S2133	-0.011	-0.006	-0.002	0.000	-0.001	0.002	0.053	-0.012	-0.001	0.000	0.017	0.002	0.062	-0.002	-0.025	0.001
303	ARGC	M-13/S2133	2.517	2.824	1.005	0.081	0.002	10.262	2.563	1.539	0.529	1.463	8.987	0.839	27.852	0.708	-0.010	0.123
303	ARGC	M-13/S2133	2.411	2.650	0.995	0.070	0.011	9.794	2.308	1.439	0.513	1.412	8.514	0.815	22.740	0.656	0.247	0.116
303	SR04	M-13/S2133	4.953	-0.038	1.303	0.090	0.031	14.264	0.171	-0.039	1.275	2.998	10.424	0.803	1.930	0.019	5.678	0.085
303	SR04	M-13/S2133	4.825	-0.041	1.291	0.088	0.032	14.192	0.425	-0.043	1.267	2.932	10.342	0.779	1.956	0.019	5.535	0.088
303	SR04	M-13/S2133	5.121	-0.023	1.312	0.088	0.036	15.241	0.401	-0.035	1.351	3.158	10.737	0.864	2.270	0.021	5.808	0.093
303	SR04	M-13/S2133	4.891	-0.038	1.317	0.084	0.034	14.608	0.189	-0.041	1.312	3.096	10.428	0.828	1.403	0.020	5.623	0.087
303	SR04	M-13/S2133	5.135	-0.023	1.344	0.092	0.032	14.813	0.404	-0.017	1.307	3.124	10.676	0.829	3.173	0.019	5.849	0.087
303	SR04	M-13/S2133	5.004	-0.036	1.291	0.097	0.030	14.478	0.305	-0.035	1.311	3.074	10.501	0.823	2.451	0.023	5.635	0.088
303	IN32	M-13/S2133	0.014	-0.016	0.003	0.003	0.001	0.010	0.028	-0.023	0.003	0.000	0.025	0.005	0.175	0.002	0.022	0.006
303	IN32	M-13/S2133	0.001	-0.011	0.001	0.003	-0.001	0.004	0.101	-0.017	0.002	-0.001	0.023	0.002	0.791	0.001	-0.031	0.006
304	ARGC	M-13/S2133	2.318	2.620	0.966	0.070	-0.002	9.769	2.411	1.383	0.486	1.455	8.341	0.794	21.788	0.677	-0.030	0.094
304	ARGC	M-13/S2133	2.239	2.621	0.905	0.063	0.001	9.800	2.498	1.365	0.479	1.396	8.028	0.821	22.223	0.664	0.109	0.097
304	SR04	M-13/S2133	5.072	-0.006	1.307	0.089	0.024	14.339	0.400	-0.066	1.324	3.149	10.655	0.827	1.003	0.006	5.401	0.066
304	SR04	M-13/S2133	5.118	-0.009	1.319	0.090	0.024	14.698	0.443	-0.068	1.318	3.181	10.555	0.845	0.982	0.007	5.318	0.066
304	SR04	M-13/S2133	4.998	-0.006	1.307	0.082	0.026	14.860	0.401	-0.073	1.368	3.099	10.509	0.856	0.990	0.006	5.381	0.065
304	SR04	M-13/S2133	4.850	-0.011	1.267	0.083	0.025	14.251	0.417	-0.085	1.319	3.031	10.077	0.850	0.980	0.004	5.173	0.063
304	SR04	M-13/S2133	3.424	0.003	0.834	0.056	0.019	11.494	0.298	-0.044	0.843	2.025	6.317	0.559	0.683	0.004	3.395	0.045
304	SR04	M-13/S2133	10.642	-0.003	2.693	0.167	0.055	31.044	0.603	-0.119	2.767	6.422	21.025	1.804	2.060	0.016	11.243	0.139
304	IN32	M-13/S2133	-0.009	-0.010	-0.001	0.001	-0.001	-0.025	0.069	-0.029	0.000	-0.002	-0.009	-0.002	-0.002	-0.002	-0.022	-0.002
304	IN32	M-13/S2133	-0.019	-0.007	-0.002	0.002	-0.003	-0.026	0.122	-0.025	0.000	-0.003	0.001	-0.002	-0.022	-0.003	-0.042	-0.003

Table A1. Cold Chem Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
305	ARGC	M-13/S2133	2.418	2.660	1.012	0.065	0.009	9.966	2.404	1.421	0.517	1.435	8.205	0.810	22.385	0.670	0.225	0.103
305	ARGC	M-13/S2133	2.328	2.685	0.978	0.064	0.002	9.620	2.406	1.439	0.507	1.406	8.369	0.794	21.740	0.661	-0.041	0.096
305	SR04	M-13/S2133	5.049	0.070	1.342	0.084	0.032	14.701	0.479	0.015	1.371	3.194	10.829	0.846	1.238	0.010	5.408	0.069
305	SR04	M-13/S2133	5.049	0.065	1.360	0.087	0.032	15.132	0.410	0.008	1.415	3.261	10.828	0.853	1.166	0.010	5.594	0.071
305	SR04	M-13/S2133	5.173	0.067	1.367	0.085	0.035	15.167	0.463	0.006	1.393	3.220	10.651	0.868	1.193	0.012	5.451	0.072
305	SR04	M-13/S2133	5.166	0.064	1.386	0.084	0.034	15.048	0.474	0.011	1.404	3.254	10.720	0.854	1.184	0.011	5.481	0.073
305	SR04	M-13/S2133	5.357	0.071	1.403	0.091	0.036	15.612	0.572	0.006	1.412	3.321	10.894	0.872	1.233	0.012	5.683	0.074
305	SR04	M-13/S2133	5.297	0.072	1.380	0.087	0.037	15.629	0.440	0.010	1.395	3.281	10.615	0.882	1.228	0.011	5.794	0.076
305	IN32	M-13/S2133	0.008	0.013	0.003	0.000	0.001	-0.011	0.121	-0.008	0.000	-0.001	-0.001	-0.004	0.082	-0.001	0.015	-0.002
305	IN32	M-13/S2133	-0.014	0.013	0.001	-0.001	-0.001	-0.015	0.155	-0.005	-0.001	-0.002	0.003	-0.003	0.066	-0.002	-0.051	-0.002
306	ARGC	M-13/S2133	2.279	2.590	0.883	0.068	0.000	9.772	2.397	1.543	0.462	1.420	8.426	0.788	22.143	0.672	-0.065	0.108
306	ARGC	M-13/S2133	2.248	2.658	0.878	0.060	0.006	9.946	2.395	1.478	0.464	1.435	8.391	0.835	22.459	0.685	0.137	0.115
306	SR04	M-13/S2133	5.279	-0.020	1.390	0.081	0.032	15.701	0.340	0.052	1.410	3.243	10.918	0.909	1.180	0.009	5.486	0.086
306	SR04	M-13/S2133	5.195	-0.018	1.359	0.079	0.032	15.462	0.231	0.047	1.412	3.258	10.901	0.880	1.122	0.010	5.456	0.085
306	SR04	M-13/S2133	5.241	-0.019	1.388	0.081	0.035	15.229	0.162	0.046	1.412	3.286	10.892	0.882	1.077	0.011	5.430	0.087
306	SR04	M-13/S2133	5.329	-0.017	1.367	0.081	0.030	15.213	0.282	0.057	1.363	3.311	11.008	0.862	1.190	0.010	5.332	0.087
306	SR04	M-13/S2133	5.272	-0.013	1.369	0.081	0.032	15.668	0.093	0.048	1.411	3.273	10.915	0.894	1.119	0.009	5.426	0.086
306	SR04	M-13/S2133	5.437	-0.022	1.421	0.085	0.034	16.177	0.285	0.052	1.434	3.344	10.992	0.925	1.144	0.010	5.628	0.089
306	IN32	M-13/S2133	-0.012	-0.013	-0.001	-0.001	-0.002	0.001	0.059	0.007	-0.002	-0.006	0.007	-0.004	0.017	-0.002	-0.027	0.002
306	IN32	M-13/S2133	-0.002	-0.015	0.000	0.000	-0.001	-0.001	0.045	0.007	-0.001	-0.005	0.009	-0.003	0.027	-0.002	-0.001	0.003
307	ARGC	M-13/S2133	2.322	2.698	0.977	0.061	-0.001	9.715	2.477	1.483	0.499	1.428	8.413	0.800	22.360	0.677	-0.044	0.103
307	ARGC	M-13/S2133	2.429	2.639	1.024	0.052	0.010	9.535	1.990	1.446	0.493	1.383	8.100	0.797	22.127	0.681	0.281	0.110
307	SR04	M-13/S2133	5.163	0.019	1.313	0.079	0.030	15.107	0.318	0.018	1.318	3.143	10.306	0.852	1.090	0.009	5.147	0.077
307	SR04	M-13/S2133	5.187	0.014	1.317	0.079	0.031	15.024	0.103	0.018	1.313	3.162	10.242	0.859	1.078	0.009	5.144	0.079
307	SR04	M-13/S2133	5.295	0.014	1.335	0.078	0.034	15.608	0.293	0.014	1.304	3.186	10.237	0.872	1.097	0.010	5.419	0.082
307	SR04	M-13/S2133	5.308	0.013	1.340	0.078	0.033	15.445	0.086	0.013	1.267	3.148	9.820	0.862	1.063	0.010	5.234	0.079
307	SR04	M-13/S2133	5.287	0.012	1.335	0.091	0.036	15.256	0.054	0.015	1.287	3.122	9.921	0.863	1.097	0.011	5.341	0.083
307	SR04	M-13/S2133	5.016	0.010	1.316	0.075	0.034	17.327	0.130	0.013	1.255	3.088	9.976	0.814	1.026	0.012	5.211	0.079
307	IN32	M-13/S2133	-0.008	-0.002	-0.001	-0.020	-0.012	-0.017	0.076	-0.005	-0.002	-0.004	0.037	-0.007	0.045	-0.003	-0.039	0.000
307	IN32	M-13/S2133	0.014	-0.003	0.003	-0.002	0.002	-0.016	-0.041	-0.005	-0.002	-0.003	0.022	-0.005	0.073	-0.001	0.037	0.001
308	ARGC	M-13/S2133	2.354	2.596	0.981	0.074	-0.001	9.782	2.086	1.496	0.496	1.437	8.164	0.826	21.713	0.670	0.005	0.100
308	ARGC	M-13/S2133	2.402	2.594	1.016	0.064	0.007	9.931	2.270	1.454	0.504	1.414	8.331	0.823	21.634	0.683	0.177	0.103
308	SR04	M-13/S2133	5.170	0.019	1.364	0.082	0.030	14.718	0.044	0.036	1.363	3.208	10.489	0.850	1.155	0.017	5.682	0.074
308	SR04	M-13/S2133	5.153	0.013	1.348	0.080	0.033	14.538	0.008	0.032	1.351	3.170	10.632	0.849	1.192	0.015	5.616	0.074
308	SR04	M-13/S2133	5.030	0.011	1.341	0.079	0.030	14.366	-0.076	0.027	1.338	3.045	10.358	0.847	1.143	0.015	5.580	0.074
308	SR04	M-13/S2133	5.152	0.015	1.347	0.076	0.032	14.691	-0.011	0.030	1.367	3.134	10.703	0.843	1.186	0.015	5.780	0.076
308	SR04	M-13/S2133	4.986	0.012	1.339	0.076	0.031	14.269	0.039	0.028	1.322	3.078	10.600	0.845	1.217	0.016	5.523	0.073
308	SR04	M-13/S2133	4.981	0.018	1.327	0.080	0.035	14.496	0.061	0.025	1.354	3.130	10.502	0.862	1.206	0.017	5.690	0.075
308	IN32	M-13/S2133	0.012	-0.005	0.002	-0.001	0.000	-0.022	0.015	0.002	-0.001	-0.001	-0.005	0.003	0.101	0.000	0.007	0.000
308	IN32	M-13/S2133	-0.005	-0.004	-0.002	-0.001	-0.002	-0.024	-0.010	0.003	-0.001	-0.002	-0.011	0.001	0.078	-0.001	-0.035	-0.001
309	ARGC	M-13/S2133	2.080	2.334	0.868	0.064	0.008	8.920	1.913	1.221	0.457	1.270	7.417	0.704	19.671	0.593	0.219	0.091
309	ARGC	M-13/S2133	2.425	2.659	1.011	0.069	0.001	10.169	2.401	1.495	0.521	1.476	8.777	0.817	22.373	0.697	0.009	0.101
309	SR04	M-13/S2133	3.887	0.023	1.041	0.066	0.022	11.530	0.280	-0.006	1.061	2.466	8.563	0.649	0.876	0.013	4.256	0.055
309	SR04	M-13/S2133	5.194	0.027	1.382	0.089	0.030	15.582	0.295	-0.008	1.398	3.328	11.119	0.851	1.105	0.017	5.627	0.075
309	SR04	M-13/S2133	5.259	0.027	1.381	0.087	0.033	15.662	0.301	-0.002	1.411	3.365	11.008	0.855	1.126	0.017	5.695	0.077
309	SR04	M-13/S2133	5.319	0.033	1.430	0.092	0.035	16.328	0.402	-0.009	1.449	3.417	11.124	0.887	1.153	0.019	5.792	0.079
309	SR04	M-13/S2133	5.179	0.029	1.385	0.092	0.034	15.826	0.149	-0.007	1.419	3.343	11.046	0.874	1.125	0.018	5.674	0.077
309	SR04	M-13/S2133	5.368	0.032	1.423	0.092	0.036	16.172	0.256	-0.012	1.465	3.418	11.315	0.895	1.172	0.019	5.839	0.078
309	IN32	M-13/S2133	-0.003	-0.001	-0.001	0.001	-0.002	-0.016	0.104	-0.010	0.000	-0.004	0.039	-0.004	0.021	0.000	-0.034	0.000
309	IN32	M-13/S2133	0.017	0.004	0.002	0.002	0.001	-0.012	0.110	-0.013	0.000	-0.003	0.035	-0.002	0.046	0.001	0.029	0.001

Table A1. Cold Chem Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
310	ARGC	M-13/S2133	2.432	2.690	1.037	0.060	0.009	10.108	2.815	1.440	0.508	1.438	8.367	0.826	22.789	0.675	0.289	0.108
310	ARGC	M-13/S2133	2.328	2.616	0.963	0.055	-0.001	9.643	2.557	1.468	0.513	1.415	8.479	0.802	21.821	0.675	0.024	0.103
310	SR04	M-13/S2133	5.303	-0.053	1.331	0.078	0.030	15.393	0.486	0.006	1.318	3.163	10.276	0.895	1.161	0.016	5.375	0.078
310	SR04	M-13/S2133	4.951	-0.045	1.286	0.076	0.029	14.190	0.378	0.007	1.297	3.037	10.512	0.849	1.020	0.016	5.356	0.074
310	SR04	M-13/S2133	5.098	-0.023	1.309	0.072	0.033	14.939	0.332	0.013	1.292	3.071	10.120	0.872	1.047	0.017	5.363	0.078
310	SR04	M-13/S2133	5.254	-0.014	1.382	0.078	0.035	15.340	0.606	0.023	1.377	3.209	10.794	0.887	1.095	0.019	5.760	0.081
310	SR04	M-13/S2133	4.658	-0.050	1.261	0.065	0.029	13.885	0.362	0.002	1.234	2.848	9.716	0.770	1.036	0.015	5.076	0.070
310	SR04	M-13/S2133	4.940	-0.023	1.316	0.075	0.034	14.786	0.706	0.014	1.302	3.053	10.391	0.846	1.074	0.018	5.466	0.077
310	IN32	M-13/S2133	-0.010	-0.017	-0.003	-0.002	-0.002	-0.022	0.114	-0.006	0.000	-0.003	-0.002	-0.004	0.022	0.000	-0.027	0.000
310	IN32	M-13/S2133	0.010	-0.020	0.001	-0.001	0.001	-0.020	0.265	-0.003	0.000	-0.003	-0.015	-0.002	0.034	0.001	0.064	0.002
311	ARGC	M-13/S2133	2.355	2.638	0.970	0.054	-0.001	9.931	2.089	1.456	0.523	1.385	8.587	0.831	22.021	0.685	0.036	0.097
311	ARGC	M-13/S2133	2.332	2.572	0.962	0.060	0.007	9.800	2.776	1.447	0.509	1.480	8.442	0.827	21.610	0.690	0.135	0.099
311	SR04	M-13/S2133	5.563	0.018	1.404	0.073	0.034	16.514	0.126	0.003	1.452	3.237	10.889	0.950	1.514	0.014	5.538	0.074
311	SR04	M-13/S2133	5.516	0.011	1.403	0.074	0.033	16.725	0.196	-0.001	1.445	3.291	11.098	0.948	1.394	0.013	5.466	0.076
311	SR04	M-13/S2133	4.202	-0.006	1.109	0.056	0.028	12.708	0.086	-0.009	1.112	2.598	8.680	0.731	1.080	0.010	4.362	0.057
311	SR04	M-13/S2133	4.890	-0.005	1.257	0.067	0.033	14.333	0.424	-0.010	1.252	2.932	9.633	0.819	1.367	0.012	4.783	0.063
311	SR04	M-13/S2133	6.344	0.012	1.594	0.089	0.043	18.476	0.334	0.003	1.589	3.814	12.471	1.066	1.507	0.018	6.306	0.090
311	SR04	M-13/S2133	5.043	0.004	1.354	0.070	0.037	14.904	0.082	-0.003	1.380	3.182	10.953	0.845	1.276	0.014	5.276	0.071
311	IN32	M-13/S2133	-0.014	-0.008	-0.002	-0.004	-0.001	-0.023	0.034	-0.008	-0.002	-0.015	-0.011	-0.002	0.115	-0.001	-0.026	-0.003
311	IN32	M-13/S2133	0.005	-0.006	0.000	-0.003	0.001	-0.020	0.190	-0.008	-0.002	-0.015	-0.022	-0.002	0.114	0.000	0.014	-0.002
313	ARGC	M-13/S2133	2.148	2.547	0.830	0.066	-0.002	9.583	2.322	1.381	0.442	1.389	8.308	0.822	21.347	0.658	-0.026	0.093
313	ARGC	M-13/S2133	2.245	2.596	0.863	0.057	0.005	9.663	2.675	1.371	0.466	1.426	8.359	0.819	21.376	0.664	0.156	0.093
313	SR04	M-13/S2133	4.868	0.020	1.305	0.079	0.026	14.397	0.668	-0.034	1.301	3.066	10.434	0.823	1.266	0.011	5.295	0.065
313	SR04	M-13/S2133	4.997	0.014	1.302	0.078	0.027	14.245	0.704	-0.039	1.309	3.110	10.773	0.819	1.225	0.012	5.465	0.067
313	SR04	M-13/S2133	5.196	0.019	1.350	0.082	0.030	14.909	0.441	-0.014	1.349	3.175	10.952	0.858	1.168	0.014	5.653	0.072
313	SR04	M-13/S2133	5.069	0.017	1.329	0.074	0.030	14.549	0.419	-0.017	1.310	3.135	10.725	0.869	1.111	0.012	5.549	0.069
313	SR04	M-13/S2133	4.959	0.017	1.303	0.074	0.028	14.667	0.701	-0.017	1.342	3.168	10.708	0.866	1.189	0.014	5.452	0.067
313	SR04	M-13/S2133	4.840	0.016	1.277	0.071	0.030	14.113	0.512	-0.026	1.294	2.983	10.576	0.810	1.116	0.011	5.276	0.067
313	IN32	M-13/S2133	0.003	-0.001	0.000	0.001	-0.001	-0.004	0.188	-0.013	-0.001	0.001	0.013	0.000	0.047	-0.001	-0.001	-0.001
313	IN32	M-13/S2133	-0.005	0.001	-0.001	0.001	-0.001	-0.005	0.082	-0.009	0.000	0.001	0.013	0.001	0.039	-0.001	-0.018	-0.001
314	ARGC	M-14/S2150	2.407	2.597	0.989	0.075	0.007	9.729	2.234	1.510	0.491	1.409	8.547	0.807	21.335	0.688	0.026	0.103
314	ARGC	M-14/S2150	2.269	2.464	0.926	0.072	0.006	9.314	2.335	1.441	0.471	1.360	8.149	0.788	20.891	0.646	0.022	0.098
314	SR04	M-14/S2150	5.075	-0.040	1.336	0.092	0.033	14.389	0.083	-0.004	1.291	3.142	10.596	0.846	0.896	0.021	5.648	0.076
314	SR04	M-14/S2150	5.177	-0.057	1.311	0.097	0.032	15.183	-0.062	-0.010	1.307	3.156	10.426	0.857	0.846	0.019	5.690	0.078
314	SR04	M-14/S2150	5.768	-0.063	1.373	0.106	0.036	16.312	-0.011	-0.004	1.340	3.323	10.598	0.948	0.940	0.021	5.919	0.088
314	SR04	M-14/S2150	4.915	-0.058	1.280	0.091	0.031	14.051	0.090	-0.007	1.276	3.049	10.375	0.821	0.801	0.019	5.499	0.074
314	SR04	M-14/S2150	4.150	-0.361	1.078	0.120	0.031	12.849	0.151	-0.173	1.065	2.560	8.872	0.664	0.173	0.031	4.265	0.074
314	SR04	M-14/S2150	5.015	-0.052	1.282	0.092	0.035	14.911	0.154	0.001	1.320	3.118	10.604	0.854	0.855	0.019	5.648	0.078
314	IN32	M-14/S2150	0.002	-0.018	0.000	0.003	0.001	-0.001	-0.008	-0.011	0.000	-0.003	0.004	-0.003	-0.017	0.001	-0.010	0.001
314	IN32	M-14/S2150	0.008	-0.026	0.001	0.004	0.001	0.009	0.004	-0.013	0.001	0.000	0.007	-0.003	-0.028	0.002	0.013	0.001
315	ARGC	M-13/S2133	2.366	2.589	1.003	0.085	0.005	9.900	1.989	1.498	0.516	1.443	8.539	0.818	22.095	0.684	-0.050	0.102
315	ARGC	M-13/S2133	2.442	2.631	1.034	0.083	0.014	9.660	2.154	1.440	0.512	1.425	8.538	0.816	21.857	0.684	0.053	0.106
315	SR04	M-13/S2133	4.975	0.033	1.282	0.097	0.035	14.379	-0.070	0.017	1.325	3.115	10.732	0.836	1.070	0.016	5.486	0.074
315	SR04	M-13/S2133	6.110	0.036	1.591	0.120	0.046	17.540	0.012	0.016	1.582	3.713	13.101	1.028	1.316	0.019	6.606	0.092
315	SR04	M-13/S2133	4.987	0.024	1.325	0.101	0.037	14.363	-0.086	0.014	1.317	3.090	10.944	0.808	1.073	0.016	5.447	0.073
315	SR04	M-13/S2133	5.007	0.024	1.320	0.100	0.038	14.188	0.031	0.013	1.298	3.048	10.561	0.817	1.099	0.016	5.395	0.072
315	SR04	M-13/S2133	5.087	0.028	1.310	0.101	0.034	14.428	-0.092	0.013	1.304	3.106	10.639	0.842	1.106	0.014	5.527	0.072
315	SR04	M-13/S2133	5.165	0.025	1.336	0.098	0.037	14.737	-0.092	0.006	1.328	3.210	11.015	0.854	1.112	0.017	5.609	0.076
315	IN32	M-13/S2133	-0.004	0.001	0.000	0.006	0.000	-0.009	-0.142	-0.007	0.001	0.000	-0.001	0.001	0.055	0.000	-0.026	0.000
315	IN32	M-13/S2133	-0.012	0.001	0.000	0.005	-0.001	-0.010	-0.093	-0.004	0.001	-0.001	-0.001	-0.001	0.054	-0.001	-0.050	0.000

Table A1. Cold Chem Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
316	ARGC	M-13/S2133	2.295	2.608	0.957	0.073	0.000	9.668	2.391	1.488	0.492	1.383	8.361	0.793	21.334	0.653	-0.065	0.100
316	ARGC	M-13/S2133	2.213	2.540	0.915	0.067	0.001	9.356	2.148	1.391	0.468	1.350	8.037	0.785	21.089	0.645	-0.031	0.098
316	SR04	M-13/S2133	4.860	0.017	1.270	0.085	0.027	14.384	0.087	0.008	1.299	3.021	10.597	0.838	1.058	0.017	5.255	0.072
316	SR04	M-13/S2133	4.775	0.015	1.236	0.082	0.026	14.105	0.052	0.008	1.268	2.951	10.388	0.815	0.969	0.016	5.080	0.071
316	SR04	M-13/S2133	4.924	0.013	1.261	0.088	0.026	14.929	0.104	0.009	1.287	3.085	10.654	0.849	1.045	0.016	5.294	0.073
316	SR04	M-13/S2133	4.705	0.020	1.238	0.085	0.026	14.023	-0.001	0.008	1.300	3.023	10.609	0.808	1.004	0.016	5.119	0.071
316	SR04	M-13/S2133	4.686	0.012	1.253	0.084	0.026	14.090	0.079	0.010	1.287	3.030	10.855	0.817	0.994	0.016	5.182	0.072
316	SR04	M-13/S2133	4.482	0.010	1.186	0.083	0.023	13.204	0.143	0.012	1.231	2.893	10.362	0.778	0.936	0.015	4.970	0.068
316	IN32	M-13/S2133	-0.006	0.000	-0.001	0.002	-0.001	-0.006	-0.021	-0.006	0.000	-0.001	-0.029	-0.004	0.039	0.001	-0.018	0.001
316	IN32	M-13/S2133	-0.007	-0.003	-0.001	0.002	-0.001	-0.005	0.020	-0.006	0.000	-0.001	-0.031	-0.003	0.047	0.001	-0.021	0.001
317	ARGC	M-13/S2133	2.387	2.661	1.004	0.064	0.004	10.278	2.257	1.492	0.524	1.496	8.550	0.792	22.192	0.702	0.077	0.107
317	ARGC	M-13/S2133	2.487	2.604	1.038	0.067	0.011	10.129	2.474	1.454	0.518	1.474	8.384	0.805	22.234	0.685	0.172	0.108
317	SR04	M-13/S2133	5.360	0.024	1.416	0.084	0.036	16.209	0.315	-0.001	1.413	3.336	10.730	0.862	1.212	0.015	5.522	0.080
317	SR04	M-13/S2133	5.472	0.025	1.419	0.088	0.036	16.056	0.289	0.008	1.436	3.414	10.627	0.882	1.199	0.015	5.634	0.082
317	SR04	M-13/S2133	5.266	0.022	1.388	0.086	0.032	15.831	0.434	0.001	1.399	3.390	10.614	0.882	1.229	0.014	5.452	0.077
317	SR04	M-13/S2133	5.251	0.026	1.365	0.085	0.034	16.006	0.338	0.004	1.400	3.375	10.560	0.870	1.231	0.014	5.396	0.078
317	SR04	M-13/S2133	5.472	0.030	1.425	0.088	0.037	16.064	0.273	0.007	1.439	3.497	11.024	0.890	1.212	0.015	5.671	0.082
317	SR04	M-13/S2133	5.439	0.029	1.432	0.088	0.037	15.564	0.331	0.009	1.380	3.411	10.598	0.883	1.182	0.017	5.657	0.082
317	IN32	M-13/S2133	-0.002	-0.002	0.001	0.000	-0.001	-0.016	0.024	-0.008	0.000	-0.001	0.005	-0.003	0.046	-0.001	-0.032	0.001
317	IN32	M-13/S2133	0.016	-0.002	0.003	0.000	0.001	-0.012	0.057	-0.008	0.000	0.000	0.003	-0.001	0.059	0.000	0.017	0.001
318	ARGC	M-14/S2150	2.277	2.538	0.956	0.064	0.001	9.254	2.400	1.541	0.491	1.369	8.259	0.774	21.161	0.658	-0.013	0.098
318	ARGC	M-14/S2150	2.348	2.660	0.983	0.062	0.002	9.646	2.213	1.598	0.501	1.409	8.312	0.799	22.076	0.684	-0.073	0.102
318	SR04	M-14/S2150	5.071	0.008	1.325	0.084	0.028	14.607	-0.141	-0.073	1.353	3.154	10.481	0.835	1.014	0.023	5.234	0.075
318	SR04	M-14/S2150	4.910	0.009	1.310	0.079	0.028	14.201	-0.105	-0.063	1.303	3.091	10.422	0.830	0.943	0.021	5.174	0.073
318	SR04	M-14/S2150	5.021	0.013	1.326	0.082	0.029	14.570	0.007	-0.056	1.346	3.162	10.583	0.855	0.999	0.021	5.296	0.076
318	SR04	M-14/S2150	5.004	0.008	1.338	0.082	0.027	14.197	-0.023	-0.058	1.333	3.168	10.680	0.839	0.993	0.021	5.255	0.076
318	SR04	M-14/S2150	5.082	0.007	1.325	0.082	0.029	14.395	-0.024	-0.057	1.331	3.154	10.648	0.838	1.005	0.022	5.347	0.077
318	SR04	M-14/S2150	4.894	0.009	1.329	0.081	0.026	13.920	0.031	-0.050	1.335	3.082	10.640	0.835	0.969	0.022	5.290	0.074
318	IN32	M-14/S2150	-0.005	-0.002	0.001	0.001	-0.001	-0.001	-0.035	-0.018	0.001	-0.003	0.001	-0.003	0.006	0.002	-0.040	0.000
318	IN32	M-14/S2150	-0.008	-0.003	0.001	0.001	-0.001	-0.001	-0.031	-0.018	0.001	-0.003	0.001	-0.001	0.014	0.002	-0.057	0.000
319	ARGC	M-13/S2133	2.447	2.520	0.996	0.059	0.015	9.565	2.282	1.519	0.484	1.399	8.480	0.815	21.532	0.665	0.443	0.110
319	ARGC	M-13/S2133	2.251	2.588	0.856	0.059	0.006	9.513	2.319	1.458	0.456	1.390	8.328	0.812	21.346	0.681	0.133	0.107
319	SR04	M-13/S2133	5.140	0.034	1.296	0.075	0.031	14.707	0.256	0.041	1.300	3.100	10.490	0.858	1.134	0.011	5.494	0.078
319	SR04	M-13/S2133	5.229	0.033	1.339	0.080	0.033	15.058	0.277	0.040	1.322	3.104	10.869	0.874	1.155	0.012	5.710	0.082
319	SR04	M-13/S2133	4.987	0.036	1.308	0.075	0.035	14.250	0.167	0.043	1.297	2.994	10.689	0.835	1.129	0.012	5.430	0.079
319	SR04	M-13/S2133	5.182	0.031	1.309	0.080	0.038	14.671	0.101	0.046	1.283	3.098	10.461	0.873	1.168	0.014	5.696	0.081
319	SR04	M-13/S2133	5.146	0.029	1.324	0.079	0.037	15.009	0.098	0.044	1.309	3.172	10.469	0.867	1.104	0.015	5.676	0.084
319	SR04	M-13/S2133	5.068	0.028	1.352	0.083	0.039	14.346	0.186	0.047	1.294	3.066	10.567	0.844	1.110	0.014	5.634	0.083
319	IN32	M-13/S2133	-0.005	0.000	0.000	-0.002	-0.001	-0.011	0.047	0.009	0.001	-0.003	0.009	0.001	0.058	-0.002	-0.012	0.002
319	IN32	M-13/S2133	0.022	0.001	0.005	-0.001	0.002	-0.006	0.024	0.005	0.001	-0.001	0.008	0.002	0.059	0.000	0.075	0.003
320	ARGC	M-13/S2133	2.362	2.710	0.977	0.066	-0.001	9.997	2.531	1.424	0.515	1.442	8.497	0.799	22.531	0.676	-0.006	0.099
320	ARGC	M-13/S2133	2.471	2.651	1.030	0.066	0.009	10.009	2.425	1.414	0.512	1.438	8.462	0.834	22.095	0.692	0.252	0.104
320	SR04	M-13/S2133	5.041	0.017	1.300	0.084	0.029	14.663	0.171	-0.007	1.295	3.058	10.110	0.832	1.119	0.010	5.210	0.070
320	SR04	M-13/S2133	5.207	0.016	1.331	0.082	0.031	15.042	0.330	-0.006	1.333	3.128	10.383	0.847	1.142	0.011	5.329	0.073
320	SR04	M-13/S2133	5.188	0.015	1.340	0.084	0.031	14.777	0.259	-0.006	1.358	3.160	10.715	0.844	1.100	0.011	5.314	0.072
320	SR04	M-13/S2133	5.193	0.015	1.329	0.086	0.032	14.857	0.205	-0.009	1.343	3.077	10.287	0.850	1.134	0.011	5.182	0.072
320	SR04	M-13/S2133	5.229	0.019	1.344	0.089	0.034	14.930	0.941	-0.013	1.358	3.152	10.405	0.855	1.170	0.013	5.256	0.072
320	SR04	M-13/S2133	6.944	0.028	1.774	0.111	0.041	20.203	0.610	0.007	1.761	4.247	13.926	1.158	1.500	0.017	7.134	0.099
320	IN32	M-13/S2133	-0.019	-0.002	-0.001	0.000	-0.003	-0.020	0.197	-0.016	-0.001	-0.001	0.026	-0.002	0.050	-0.002	-0.059	-0.002
320	IN32	M-13/S2133	0.002	-0.004	0.003	0.001	0.000	-0.016	-0.042	-0.015	0.000	0.000	0.007	-0.001	0.057	-0.001	0.011	-0.001

Table A1. Cold Chem Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
321	ARGC	M-14/S2150	2.561	2.553	1.014	0.075	0.033	9.465	2.197	1.503	0.490	1.383	8.603	0.806	21.868	0.673	0.764	0.122
321	ARGC	M-14/S2150	2.576	2.557	1.047	0.076	0.032	9.645	2.290	1.551	0.502	1.405	8.845	0.831	21.852	0.697	0.775	0.121
321	SR04	M-14/S2150	5.004	-0.019	1.343	0.095	0.057	14.370	0.013	0.027	1.303	3.041	10.959	0.849	0.960	0.028	5.467	0.092
321	SR04	M-14/S2150	5.528	-0.016	1.385	0.101	0.058	15.632	0.000	0.031	1.337	3.217	10.941	0.922	1.018	0.029	5.785	0.100
321	SR04	M-14/S2150	5.095	-0.020	1.362	0.093	0.057	14.707	-0.047	0.028	1.289	3.071	10.861	0.854	0.918	0.029	5.517	0.096
321	SR04	M-14/S2150	4.780	-0.016	1.318	0.088	0.055	13.681	0.052	0.024	1.279	2.942	10.769	0.806	0.902	0.027	5.418	0.090
321	SR04	M-14/S2150	4.740	-0.015	1.313	0.084	0.052	13.397	0.007	0.023	1.281	2.888	10.897	0.792	0.857	0.027	5.287	0.085
321	SR04	M-14/S2150	4.985	-0.015	1.351	0.091	0.056	14.295	0.097	0.032	1.318	3.036	10.866	0.825	0.963	0.027	5.353	0.091
321	IN32	M-14/S2150	0.081	-0.012	0.020	0.005	0.010	-0.003	0.015	-0.001	0.002	0.003	0.126	0.005	0.014	0.005	0.235	0.008
321	IN32	M-14/S2150	0.090	-0.013	0.020	0.004	0.010	-0.003	0.002	-0.001	0.002	0.003	0.121	0.006	0.021	0.005	0.249	0.009
322	ARGC	M-14/S2150	2.268	2.564	0.928	0.067	-0.003	9.353	2.089	1.448	0.464	1.355	8.097	0.789	21.486	0.653	-0.010	0.102
322	ARGC	M-14/S2150	2.268	2.647	0.937	0.066	0.005	9.477	2.136	1.436	0.471	1.382	8.103	0.821	21.131	0.661	0.201	0.105
322	SR04	M-14/S2150	4.969	0.042	1.347	0.087	0.024	14.734	0.157	-0.007	1.294	3.090	10.542	0.837	1.029	0.015	5.385	0.080
322	SR04	M-14/S2150	5.333	0.037	1.349	0.092	0.027	15.738	0.023	0.008	1.324	3.248	10.363	0.903	1.072	0.017	5.787	0.083
322	SR04	M-14/S2150	4.668	0.037	1.256	0.084	0.029	14.371	-0.037	-0.003	1.309	3.062	8.366	0.837	1.005	0.012	3.842	0.053
322	SR04	M-14/S2150	4.832	0.036	1.301	0.083	0.030	14.225	-0.091	0.001	1.263	3.043	10.451	0.840	0.991	0.018	5.406	0.079
322	SR04	M-14/S2150	4.972	0.037	1.336	0.087	0.030	14.640	-0.063	-0.001	1.303	3.104	10.713	0.876	0.970	0.018	5.509	0.082
322	SR04	M-14/S2150	4.946	0.038	1.324	0.086	0.032	14.414	-0.036	0.006	1.321	3.094	10.637	0.882	1.045	0.018	5.468	0.079
322	IN32	M-14/S2150	-0.010	0.006	-0.001	0.001	-0.002	-0.012	-0.010	-0.008	0.002	0.000	0.015	-0.003	0.016	0.000	-0.022	0.003
322	IN32	M-14/S2150	0.016	0.006	0.003	0.002	0.001	-0.011	-0.039	-0.011	0.002	0.000	0.005	-0.004	0.047	0.001	0.058	0.004
323	ARGC	M-13/S2133	2.366	2.643	1.002	0.060	-0.003	9.546	2.202	1.471	0.490	1.397	8.384	0.797	21.778	0.672	0.049	0.102
323	ARGC	M-13/S2133	2.353	2.581	1.005	0.059	0.001	9.717	2.469	1.470	0.490	1.408	8.461	0.794	21.812	0.681	0.139	0.105
323	SR04	M-14/S2150	5.077	-0.005	1.334	0.080	0.025	14.639	0.104	0.002	1.325	3.098	10.801	0.843	1.072	0.012	5.322	0.075
323	SR04	M-14/S2150	5.071	-0.007	1.368	0.078	0.026	14.602	0.169	0.006	1.314	3.131	10.857	0.839	1.027	0.013	5.398	0.077
323	SR04	M-14/S2150	5.007	-0.010	1.338	0.078	0.022	14.375	0.227	0.004	1.313	3.107	10.641	0.827	0.999	0.012	5.294	0.075
323	SR04	M-14/S2150	4.964	-0.006	1.347	0.077	0.028	14.282	0.209	0.010	1.311	3.090	10.906	0.826	1.009	0.013	5.262	0.074
323	SR04	M-14/S2150	5.339	-0.006	1.394	0.082	0.029	15.590	0.204	0.011	1.320	3.244	10.789	0.883	1.067	0.014	5.528	0.079
323	SR04	M-14/S2150	4.895	-0.012	1.322	0.075	0.027	14.027	0.212	0.003	1.272	3.039	10.649	0.805	0.974	0.013	5.143	0.075
323	IN32	M-13/S2133	-0.013	-0.010	-0.001	-0.002	-0.002	-0.021	-0.020	-0.010	-0.003	-0.004	-0.017	-0.005	0.020	-0.001	0.014	0.001
323	IN32	M-13/S2133	-0.003	-0.012	0.000	-0.001	-0.001	-0.019	0.084	-0.010	-0.003	-0.004	-0.020	-0.005	0.021	-0.001	0.039	0.001
324	ARGC	M-14/S2150	2.386	2.574	0.989	0.064	-0.004	9.536	2.233	1.475	0.491	1.396	8.499	0.781	21.750	0.678	0.002	0.096
324	ARGC	M-14/S2150	2.297	2.525	0.973	0.066	-0.003	9.337	2.133	1.444	0.487	1.335	8.331	0.773	21.443	0.661	0.045	0.096
324	SR04	M-14/S2150	4.860	0.001	1.288	0.078	0.024	13.645	0.196	0.000	1.274	2.916	10.573	0.778	0.944	0.011	5.485	0.067
324	SR04	M-14/S2150	5.006	-0.001	1.269	0.082	0.023	14.203	0.088	0.006	1.262	2.989	10.227	0.798	0.956	0.012	5.413	0.070
324	SR04	M-14/S2150	4.914	0.000	1.289	0.082	0.025	14.254	0.079	0.006	1.274	2.998	10.652	0.807	0.942	0.013	5.500	0.069
324	SR04	M-14/S2150	4.960	-0.002	1.279	0.083	0.023	14.183	0.046	0.007	1.277	2.997	10.377	0.828	0.941	0.013	5.489	0.068
324	SR04	M-14/S2150	5.153	-0.004	1.300	0.085	0.024	14.665	0.076	0.002	1.274	3.070	10.419	0.839	0.970	0.013	5.563	0.071
324	SR04	M-14/S2150	5.386	0.001	1.329	0.090	0.025	15.152	0.119	0.006	1.298	3.157	10.305	0.875	1.044	0.013	5.726	0.074
324	IN32	M-14/S2150	-0.025	-0.005	-0.003	0.000	-0.003	-0.003	0.030	-0.008	-0.001	-0.002	-0.016	-0.004	0.011	-0.001	-0.011	-0.001
324	IN32	M-14/S2150	-0.017	-0.009	-0.002	0.000	-0.003	-0.004	-0.001	-0.010	-0.001	-0.002	-0.019	-0.004	0.015	-0.001	0.000	-0.001
325	ARGC	M-14/S2150	2.339	2.671	0.979	0.071	-0.001	9.875	2.272	1.521	0.499	1.430	8.661	0.824	22.687	0.696	0.022	0.105
325	ARGC	M-14/S2150	2.286	2.605	0.877	0.070	0.002	9.937	2.466	1.447	0.478	1.442	8.509	0.818	22.398	0.684	0.132	0.105
325	SR04	M-14/S2150	4.874	-0.170	1.298	0.090	0.024	14.501	0.042	0.003	1.305	3.080	11.009	0.839	1.085	0.015	5.359	0.075
325	SR04	M-14/S2150	4.786	-0.013	1.275	0.068	0.025	10.886	0.069	0.009	0.979	2.312	10.649	0.629	1.020	0.016	5.394	0.074
325	SR04	M-14/S2150	4.862	-0.009	1.308	0.085	0.028	14.168	0.223	0.016	1.318	3.054	10.825	0.834	0.998	0.017	5.509	0.077
325	SR04	M-14/S2150	4.913	-0.014	1.306	0.085	0.026	14.310	0.174	0.010	1.287	3.045	11.056	0.846	1.030	0.016	5.512	0.077
325	SR04	M-14/S2150	4.868	-0.010	1.291	0.096	0.028	15.895	0.136	0.010	1.479	3.426	11.101	0.935	1.003	0.016	5.516	0.077
325	SR04	M-14/S2150	5.087	-0.009	1.310	0.086	0.029	14.813	0.228	0.013	1.301	3.119	10.932	0.855	1.034	0.016	5.564	0.077
325	IN32	M-14/S2150	-0.007	-0.008	-0.002	0.002	-0.002	-0.004	-0.040	-0.008	0.001	0.001	-0.015	-0.001	0.022	0.000	-0.005	0.001
325	IN32	M-14/S2150	0.004	-0.011	0.000	0.002	0.000	-0.002	0.067	-0.005	0.001	0.001	-0.004	-0.001	0.030	0.001	0.025	0.002

Table A1. Cold Chem Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
326	ARGC	M-14/S2150	2.332	2.522	1.004	0.065	0.006	9.368	2.421	1.424	0.480	1.382	8.249	0.803	21.362	0.654	0.207	0.103
326	ARGC	M-14/S2150	2.362	2.635	0.993	0.065	-0.001	9.541	2.299	1.491	0.485	1.404	8.396	0.787	21.625	0.677	0.008	0.101
326	SR04	M-14/S2150	5.472	0.004	1.442	0.091	0.031	15.799	0.060	-0.018	1.457	3.386	11.548	0.911	1.246	0.016	5.992	0.083
326	SR04	M-14/S2150	4.702	0.001	1.231	0.079	0.026	13.467	0.236	-0.021	1.183	2.878	9.377	0.791	1.055	0.013	5.221	0.071
326	SR04	M-14/S2150	4.896	0.002	1.335	0.083	0.029	13.967	0.147	-0.022	1.305	3.074	10.485	0.837	1.120	0.015	5.621	0.074
326	SR04	M-14/S2150	4.974	0.001	1.321	0.083	0.028	14.074	0.162	-0.021	1.315	3.054	10.538	0.843	1.114	0.014	5.591	0.074
326	SR04	M-14/S2150	5.051	0.004	1.344	0.087	0.031	14.079	0.217	-0.020	1.286	3.116	10.483	0.845	1.145	0.016	5.721	0.075
326	SR04	M-14/S2150	5.095	0.000	1.359	0.090	0.033	14.603	0.144	-0.023	1.276	3.119	10.421	0.878	1.170	0.015	5.733	0.079
326	IN32	M-14/S2150	-0.015	-0.005	-0.001	0.000	-0.002	-0.015	-0.009	-0.020	0.000	-0.002	-0.017	-0.003	0.061	-0.001	-0.003	0.000
326	IN32	M-14/S2150	0.005	-0.006	0.002	0.002	0.000	-0.012	0.017	-0.017	0.000	-0.002	-0.002	-0.002	0.068	0.000	0.048	0.001
327	ARGC	M-14/S2150	2.268	2.540	0.978	0.059	0.004	9.386	2.154	1.409	0.486	1.353	8.226	0.751	21.618	0.656	0.034	0.103
327	ARGC	M-14/S2150	2.015	2.571	0.993	0.063	0.009	9.478	2.352	1.413	0.476	1.381	8.284	0.784	21.592	0.644	0.132	0.103
327	SR04	M-14/S2150	4.875	0.013	1.298	0.089	0.031	13.778	0.172	-0.011	1.286	2.938	10.422	0.804	1.282	0.018	5.514	0.076
327	SR04	M-14/S2150	4.909	0.007	1.300	0.078	0.030	13.602	0.166	-0.014	1.277	3.022	10.522	0.780	1.312	0.018	5.500	0.077
327	SR04	M-14/S2150	4.739	0.008	1.299	0.077	0.032	13.656	0.091	-0.014	1.289	3.016	10.347	0.795	1.317	0.018	5.444	0.076
327	SR04	M-14/S2150	4.849	0.006	1.305	0.079	0.032	13.887	0.071	-0.017	1.300	2.980	10.672	0.803	1.318	0.019	5.504	0.077
327	SR04	M-14/S2150	4.701	0.005	1.259	0.078	0.032	13.545	0.124	-0.017	1.270	3.035	10.450	0.799	1.305	0.018	5.387	0.075
327	SR04	M-14/S2150	4.884	0.006	1.312	0.084	0.034	13.943	0.159	-0.013	1.322	3.082	10.791	0.819	1.354	0.019	5.531	0.077
327	IN32	M-14/S2150	-0.001	-0.002	0.001	0.000	0.000	-0.016	-0.006	-0.017	0.000	0.000	0.016	-0.003	0.095	0.001	-0.004	0.002
327	IN32	M-14/S2150	0.009	-0.005	0.003	0.000	0.001	-0.011	0.094	-0.017	0.001	0.001	0.041	-0.003	0.110	0.002	0.034	0.003
328	ARGC	M-14/S2150	2.352	2.638	0.985	0.067	0.001	9.597	2.219	1.473	0.486	1.387	8.548	0.788	22.161	0.691	-0.010	0.104
328	ARGC	M-14/S2150	2.242	2.555	0.877	0.067	0.006	9.371	2.390	1.393	0.429	1.351	8.390	0.781	21.514	0.678	0.124	0.104
328	SR04	M-14/S2150	4.830	0.013	1.300	0.083	0.027	14.064	0.150	-0.017	1.285	2.982	10.826	0.802	1.165	0.016	5.348	0.074
328	SR04	M-14/S2150	4.773	0.011	1.291	0.080	0.026	13.518	0.175	-0.017	1.259	2.956	10.593	0.790	1.100	0.016	5.062	0.073
328	SR04	M-14/S2150	4.886	0.008	1.314	0.083	0.027	13.725	0.085	-0.021	1.279	3.006	10.891	0.800	1.111	0.016	5.330	0.076
328	SR04	M-14/S2150	4.915	0.007	1.352	0.081	0.030	14.301	0.280	-0.014	1.317	3.065	10.993	0.804	1.070	0.017	5.384	0.078
328	SR04	M-14/S2150	4.904	0.010	1.346	0.082	0.030	14.074	0.240	-0.014	1.277	3.028	10.766	0.814	1.133	0.018	5.458	0.078
328	SR04	M-14/S2150	4.834	0.009	1.294	0.080	0.028	13.804	0.240	-0.016	1.258	2.954	10.770	0.816	1.117	0.017	5.212	0.076
328	IN32	M-14/S2150	-0.002	0.000	-0.001	0.001	-0.001	0.004	0.007	-0.014	0.000	-0.001	-0.012	-0.005	0.055	0.000	-0.031	0.001
328	IN32	M-14/S2150	0.017	-0.004	0.001	0.001	0.000	0.000	0.067	-0.014	0.000	-0.001	-0.007	-0.003	0.051	0.001	0.035	0.002
329	ARGC	M-14/S2150	2.260	2.600	0.957	0.070	-0.003	9.460	2.355	1.468	0.489	1.396	8.261	0.796	21.678	0.664	-0.041	0.100
329	ARGC	M-14/S2150	2.364	2.580	1.012	0.071	0.001	9.526	2.325	1.461	0.486	1.393	8.448	0.803	21.206	0.668	-0.021	0.101
329	SR04	M-14/S2150	5.157	-0.009	1.304	0.106	0.026	14.954	0.167	-0.008	1.305	3.131	10.830	0.860	0.748	0.015	5.486	0.074
329	SR04	M-14/S2150	5.209	-0.010	1.315	0.090	0.026	14.813	0.176	-0.006	1.299	3.166	11.056	0.863	0.723	0.015	5.648	0.075
329	SR04	M-14/S2150	5.014	-0.011	1.293	0.087	0.027	14.735	0.154	-0.011	1.295	3.062	10.718	0.834	0.698	0.014	5.490	0.074
329	SR04	M-14/S2150	4.368	-0.013	1.223	0.075	0.023	12.487	0.080	-0.010	1.252	2.780	10.452	0.723	0.543	0.013	5.055	0.065
329	SR04	M-14/S2150	4.997	-0.012	1.285	0.086	0.026	14.191	0.161	-0.007	1.286	3.041	10.790	0.831	0.670	0.015	5.481	0.075
329	SR04	M-14/S2150	4.915	-0.012	1.298	0.087	0.026	13.980	0.148	-0.006	1.256	2.981	10.392	0.815	0.709	0.015	5.278	0.075
329	IN32	M-14/S2150	-0.002	-0.014	0.002	0.002	-0.001	-0.009	0.013	-0.015	0.001	-0.001	-0.003	-0.005	-0.109	0.000	0.005	0.001
329	IN32	M-14/S2150	-0.005	-0.009	0.000	0.002	-0.002	-0.012	0.032	-0.014	0.001	-0.001	-0.020	-0.004	-0.082	0.000	-0.023	0.000
330	ARGC	M-13/S2133	2.370	2.544	1.013	0.066	0.004	9.514	2.551	1.482	0.491	1.366	8.352	0.805	21.679	0.678	0.119	0.104
330	ARGC	M-13/S2133	2.318	2.661	0.967	0.072	0.002	9.707	2.316	1.455	0.497	1.371	8.257	0.798	22.005	0.663	-0.017	0.101
330	SR04	M-13/S2133	5.492	0.022	1.339	0.097	0.030	15.876	0.168	0.004	1.301	3.285	10.849	0.893	1.244	0.014	5.979	0.082
330	SR04	M-13/S2133	5.053	0.015	1.290	0.085	0.029	14.709	0.071	-0.005	1.254	3.035	10.356	0.848	1.122	0.013	5.498	0.077
330	SR04	M-13/S2133	5.026	0.015	1.309	0.083	0.028	14.647	0.041	-0.002	1.313	3.051	10.919	0.839	1.085	0.015	5.588	0.078
330	SR04	M-13/S2133	4.675	0.012	1.204	0.079	0.028	13.479	0.052	-0.007	1.176	2.809	9.852	0.774	1.015	0.012	5.134	0.073
330	SR04	M-13/S2133	5.015	0.015	1.299	0.084	0.031	14.373	0.114	-0.006	1.266	3.054	10.690	0.826	1.100	0.014	5.559	0.079
330	SR04	M-13/S2133	5.139	0.017	1.328	0.090	0.032	15.110	0.063	-0.006	1.334	3.084	11.007	0.865	1.139	0.014	5.834	0.080
330	IN32	M-13/S2133	-0.007	0.000	0.004	0.001	-0.001	-0.007	0.035	-0.011	0.006	0.001	0.017	0.000	0.070	-0.001	-0.039	0.002
330	IN32	M-13/S2133	0.002	-0.002	0.000	0.001	0.000	-0.012	0.068	-0.010	0.001	0.000	0.023	-0.001	0.048	0.000	0.013	0.002

Table A1. Cold Chem Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
331	ARGC	M-14/S2150	2.248	2.645	0.882	0.072	-0.001	9.953	2.381	1.526	0.459	1.440	8.598	0.818	22.451	0.675	-0.058	0.100
331	ARGC	M-14/S2150	1.772	2.180	0.638	0.058	-0.003	7.818	1.859	1.206	0.347	1.149	6.930	0.658	18.184	0.546	-0.107	0.083
331	SR04	M-14/S2150	4.989	-0.003	1.246	0.087	0.020	14.357	0.063	-0.008	1.268	3.041	10.440	0.803	1.060	0.014	5.259	0.069
331	SR04	M-14/S2150	4.858	0.000	1.254	0.087	0.020	14.111	0.084	0.002	1.285	2.977	10.467	0.800	0.976	0.013	5.300	0.070
331	SR04	M-14/S2150	4.250	-0.012	1.081	0.078	0.015	12.451	-0.029	-0.009	1.103	2.664	9.047	0.715	0.847	0.012	4.603	0.061
331	SR04	M-14/S2150	4.920	-0.003	1.248	0.090	0.023	14.255	0.084	0.004	1.240	3.006	9.953	0.829	1.010	0.015	5.419	0.072
331	SR04	M-14/S2150	4.978	-0.003	1.274	0.094	0.024	14.576	0.027	0.007	1.253	3.067	10.138	0.859	1.041	0.014	5.508	0.072
331	SR04	M-14/S2150	4.738	-0.005	1.215	0.086	0.021	13.726	0.126	0.002	1.229	2.929	10.215	0.801	0.983	0.014	5.190	0.069
331	IN32	M-14/S2150	-0.003	-0.005	-0.001	0.003	-0.002	-0.013	-0.021	-0.010	0.000	0.000	0.003	-0.003	0.029	0.000	-0.050	0.000
331	IN32	M-14/S2150	0.000	-0.007	-0.001	0.003	-0.002	-0.009	-0.001	-0.008	0.000	0.000	0.007	-0.001	0.040	0.000	-0.029	0.000
332	ARGC	M-14/S2150	2.314	2.499	0.954	0.065	0.001	9.168	2.300	1.405	0.481	1.345	8.072	0.764	21.123	0.647	-0.016	0.099
332	ARGC	M-14/S2150	2.357	2.544	1.002	0.061	0.003	9.222	2.230	1.432	0.483	1.344	8.146	0.767	21.257	0.663	0.108	0.106
332	SR04	M-14/S2150	5.590	0.009	1.364	0.094	0.032	16.184	0.137	0.004	1.281	3.183	9.992	0.931	1.205	0.017	6.047	0.084
332	SR04	M-14/S2150	4.704	0.001	1.265	0.084	0.027	13.490	0.176	-0.010	1.292	2.960	10.458	0.795	0.994	0.014	5.248	0.074
332	SR04	M-14/S2150	4.921	0.001	1.302	0.081	0.028	14.169	0.136	-0.004	1.282	3.081	10.313	0.825	1.020	0.015	5.544	0.075
332	SR04	M-14/S2150	4.063	-0.001	1.193	0.069	0.023	11.660	0.170	-0.013	1.247	2.760	10.630	0.673	0.930	0.012	4.777	0.064
332	SR04	M-14/S2150	5.105	-0.001	1.345	0.084	0.029	14.672	0.120	-0.002	1.284	3.081	10.490	0.829	1.028	0.016	5.561	0.078
332	SR04	M-14/S2150	5.334	-0.003	1.390	0.085	0.032	15.747	0.139	-0.009	1.288	3.191	10.451	0.876	1.080	0.016	5.960	0.083
332	IN32	M-14/S2150	0.002	-0.004	0.001	0.000	-0.001	-0.052	0.026	-0.012	0.002	-0.002	-0.008	-0.001	-0.015	0.000	-0.011	0.001
332	IN32	M-14/S2150	0.007	-0.008	0.002	0.000	0.000	-0.060	0.039	-0.014	0.002	-0.002	-0.015	-0.002	-0.032	0.001	0.015	0.002
333	ARGC	M-13/S2133	2.443	2.625	1.146	0.056	0.001	9.597	1.893	1.452	0.563	1.422	8.305	0.801	21.578	0.671	-0.018	0.103
333	ARGC	M-13/S2133	2.305	2.711	0.958	0.053	0.001	9.356	2.127	1.385	0.521	1.508	8.011	0.772	20.763	0.653	0.091	0.100
333	SR04	M-13/S2133	5.159	0.037	1.358	0.078	0.029	15.386	0.263	0.028	1.373	3.320	10.762	0.871	1.120	0.015	5.462	0.079
333	SR04	M-13/S2133	5.110	0.034	1.319	0.074	0.029	14.693	0.196	0.027	1.399	3.329	10.488	0.831	1.050	0.015	5.408	0.077
333	SR04	M-13/S2133	5.242	0.038	1.383	0.076	0.030	15.154	-0.058	0.022	1.473	3.444	11.127	0.875	1.104	0.014	5.630	0.078
333	SR04	M-13/S2133	5.644	0.036	1.378	0.078	0.033	16.037	0.256	0.026	1.451	3.608	10.896	0.913	1.176	0.017	5.607	0.084
333	SR04	M-13/S2133	5.236	0.043	1.342	0.077	0.031	15.146	0.036	0.022	1.450	3.500	11.014	0.864	1.137	0.015	5.642	0.078
333	SR04	M-13/S2133	5.329	0.035	1.360	0.077	0.029	15.528	0.101	0.024	1.388	3.362	10.929	0.898	1.159	0.016	5.624	0.081
333	IN32	M-13/S2133	-0.009	0.002	-0.001	-0.001	-0.003	-0.031	0.009	0.001	0.001	-0.002	0.025	0.000	0.028	-0.001	-0.056	0.000
333	IN32	M-13/S2133	0.000	0.004	0.000	-0.002	-0.003	-0.031	0.082	-0.004	0.001	-0.001	0.025	0.000	0.031	0.000	-0.041	0.000
334	ARGC	M-13/S2133	2.201	2.567	0.893	0.069	-0.002	9.491	2.384	1.455	0.464	1.399	8.291	0.796	21.542	0.674	-0.072	0.101
334	ARGC	M-13/S2133	2.224	2.531	0.919	0.065	0.003	9.263	2.018	1.416	0.457	1.365	8.263	0.779	21.165	0.658	0.052	0.102
334	SR04	M-13/S2133	4.775	-0.003	1.245	0.081	0.025	13.747	0.370	0.025	1.269	2.961	10.453	0.788	0.952	0.015	5.026	0.070
334	SR04	M-13/S2133	4.838	0.003	1.265	0.080	0.032	13.787	0.478	0.023	1.242	2.951	10.412	0.803	0.933	0.016	5.183	0.073
334	SR04	M-13/S2133	5.252	0.002	1.359	0.092	0.030	14.949	0.422	0.031	1.306	3.169	10.816	0.864	1.082	0.017	5.653	0.079
334	SR04	M-13/S2133	4.776	-0.001	1.253	0.081	0.028	13.304	0.604	0.021	1.214	2.900	10.385	0.784	0.913	0.015	5.192	0.071
334	SR04	M-13/S2133	4.792	-0.005	1.275	0.080	0.028	13.242	0.505	0.028	1.189	2.890	10.226	0.774	0.918	0.015	5.058	0.073
334	SR04	M-13/S2133	5.009	-0.004	1.296	0.084	0.029	14.149	0.301	0.031	1.260	3.045	10.827	0.812	0.979	0.016	5.359	0.075
334	IN32	M-13/S2133	-0.014	-0.007	-0.002	0.001	-0.003	-0.041	0.086	-0.001	0.007	-0.003	0.032	0.001	0.013	0.000	-0.071	0.000
334	IN32	M-13/S2133	0.001	-0.008	0.000	0.000	-0.001	-0.037	0.023	-0.004	0.000	-0.002	0.000	0.002	-0.004	0.001	-0.024	0.001
335	ARGC	M-14/S2150	2.236	2.629	0.869	0.057	0.003	9.417	2.372	1.379	0.438	1.383	8.233	0.787	21.864	0.671	0.144	0.107
335	ARGC	M-14/S2150	2.387	2.591	1.000	0.054	0.000	9.501	2.292	1.472	0.491	1.393	8.338	0.787	2.887	0.493	0.049	0.040
335	SR04	M-14/S2150	5.218	0.029	1.358	0.083	0.026	15.131	0.254	-0.042	1.400	3.270	11.763	0.876	1.056	0.013	5.732	0.084
335	SR04	M-14/S2150	4.934	0.019	1.313	0.074	0.024	14.710	0.227	-0.086	1.293	3.158	10.866	0.846	0.949	0.011	5.624	0.083
335	SR04	M-14/S2150	4.846	0.016	1.262	0.071	0.024	13.660	0.167	-0.068	1.253	2.952	10.467	0.812	0.881	0.010	5.237	0.078
335	SR04	M-14/S2150	5.306	0.017	1.336	0.081	0.030	15.030	0.189	-0.047	1.323	3.224	11.149	0.885	0.992	0.014	5.699	0.085
335	SR04	M-14/S2150	4.965	0.018	1.278	0.073	0.027	14.257	0.220	-0.057	1.287	3.106	10.858	0.841	0.944	0.013	5.558	0.082
335	SR04	M-14/S2150	5.472	0.016	1.362	0.085	0.030	15.494	0.242	-0.048	1.302	3.275	10.886	0.903	1.003	0.014	5.784	0.087
335	IN32	M-14/S2150	-0.003	0.006	-0.001	-0.002	-0.001	-0.047	0.023	-0.023	0.000	-0.001	0.021	-0.004	0.036	-0.001	-0.004	0.001
335	IN32	M-14/S2150	0.008	0.001	0.001	-0.002	0.000	-0.043	0.056	-0.021	0.000	-0.001	0.021	-0.003	0.010	0.000	0.024	0.002

Table A1. Cold Chem Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
336	ARGC	M-14/S2150	2.333	2.614	0.981	0.065	0.002	9.354	2.245	1.482	0.484	1.386	8.299	0.776	21.943	0.674	-0.054	0.100
336	ARGC	M-14/S2150	2.364	2.586	1.024	0.066	0.008	9.417	2.375	1.428	0.479	1.362	7.796	0.778	21.418	0.670	0.107	0.106
336	SR04	M-14/S2150	5.061	0.014	1.313	0.085	0.027	14.468	0.287	0.004	1.291	3.073	10.840	0.839	1.012	0.014	5.507	0.076
336	SR04	M-14/S2150	4.968	0.010	1.314	0.083	0.028	14.134	0.178	-0.003	1.218	2.987	10.192	0.821	0.903	0.014	5.464	0.076
336	SR04	M-14/S2150	5.265	0.011	1.396	0.086	0.032	14.866	0.159	-0.006	1.265	3.148	10.730	0.860	0.966	0.016	5.662	0.083
336	SR04	M-14/S2150	5.216	0.012	1.399	0.086	0.031	15.083	0.242	0.004	1.292	3.141	10.781	0.873	0.966	0.015	5.739	0.083
336	SR04	M-14/S2150	5.418	0.012	1.392	0.089	0.031	15.519	0.195	-0.001	1.288	3.232	10.889	0.885	1.011	0.015	5.884	0.083
336	IN32	M-14/S2150	-0.003	0.000	-0.002	0.001	-0.001	-0.040	0.012	-0.009	0.000	-0.002	0.002	-0.002	0.019	-0.001	-0.029	0.001
336	IN32	M-14/S2150	0.009	-0.002	0.002	0.000	0.001	-0.040	0.092	-0.008	0.000	-0.002	0.013	-0.001	0.003	0.000	0.025	0.002
337	ARGC	M-14/S2150	2.268	2.584	0.921	0.065	-0.002	9.347	2.265	1.425	0.470	1.371	8.076	0.780	21.468	0.668	0.023	0.101
337	ARGC	M-14/S2150	1.995	2.265	0.872	0.057	0.001	7.955	2.090	1.228	0.417	1.202	6.868	0.696	18.155	0.559	0.110	0.088
337	SR04	M-14/S2150	4.771	0.001	1.301	0.084	0.023	13.309	0.243	-0.017	1.273	2.983	10.575	0.792	0.859	0.016	5.408	0.075
337	SR04	M-14/S2150	4.579	-0.006	1.224	0.076	0.020	12.658	0.233	-0.025	1.179	2.881	10.104	0.779	0.755	0.013	5.144	0.074
337	SR04	M-14/S2150	4.864	-0.001	1.254	0.079	0.024	13.263	0.269	-0.019	1.221	3.028	10.369	0.822	0.802	0.015	5.396	0.075
337	SR04	M-14/S2150	4.792	-0.009	1.288	0.080	0.025	13.183	0.180	-0.025	1.261	3.002	10.647	0.823	0.742	0.015	5.397	0.074
337	SR04	M-14/S2150	4.810	0.004	1.266	0.081	0.026	13.538	0.183	-0.018	1.253	3.032	10.612	0.844	0.859	0.015	5.503	0.075
337	SR04	M-14/S2150	4.836	0.000	1.308	0.087	0.025	13.631	0.318	-0.022	1.300	3.121	10.829	0.858	0.835	0.016	5.420	0.076
337	IN32	M-14/S2150	-0.012	-0.004	-0.002	0.001	-0.002	-0.042	0.047	-0.013	0.000	-0.001	0.006	-0.003	-0.009	0.000	-0.017	0.001
337	IN32	M-14/S2150	-0.003	-0.006	0.000	0.002	-0.001	-0.040	0.048	-0.013	0.000	-0.001	0.007	-0.003	-0.046	0.000	0.015	0.001
338	ARGC	M-14/S2150	2.320	2.574	0.982	0.065	0.001	9.281	2.316	1.449	0.473	1.359	8.207	0.785	22.169	0.676	0.007	0.102
338	ARGC	M-14/S2150	2.337	2.538	0.998	0.066	0.002	9.241	2.494	1.394	0.474	1.328	8.190	0.780	21.291	0.660	0.167	0.100
338	SR04	M-14/S2150	4.933	0.008	1.321	0.085	0.029	14.307	0.271	-0.010	1.314	3.094	10.980	0.834	0.651	0.019	5.482	0.077
338	SR04	M-14/S2150	4.959	0.012	1.318	0.084	0.028	14.298	0.326	0.000	1.278	3.045	10.680	0.824	0.702	0.019	5.456	0.078
338	SR04	M-14/S2150	5.003	0.015	1.308	0.087	0.028	14.464	0.340	-0.008	1.276	3.040	10.804	0.841	0.564	0.020	5.665	0.078
338	SR04	M-14/S2150	5.157	0.011	1.352	0.086	0.030	15.087	0.447	-0.005	1.332	3.197	11.233	0.872	0.665	0.021	5.770	0.081
338	SR04	M-14/S2150	4.963	0.009	1.319	0.084	0.028	14.399	0.420	-0.006	1.281	3.066	10.744	0.830	0.602	0.022	5.506	0.079
338	SR04	M-14/S2150	4.930	0.011	1.298	0.082	0.028	14.232	0.178	-0.016	1.268	3.004	10.717	0.813	0.734	0.018	5.420	0.076
338	IN32	M-14/S2150	-0.008	-0.003	-0.001	0.001	-0.001	-0.026	0.019	-0.014	0.000	0.000	-0.002	-0.002	0.071	0.001	-0.024	0.001
338	IN32	M-14/S2150	0.010	-0.004	0.002	0.001	-0.001	-0.025	0.155	-0.011	0.000	0.000	0.017	-0.001	-0.116	0.002	0.041	0.002
339	ARGC	M-13/S2133	2.349	2.609	1.027	0.067	0.005	9.551	2.693	1.434	0.488	1.413	8.168	0.797	21.732	0.658	0.160	0.101
339	ARGC	M-13/S2133	2.314	2.602	0.979	0.064	-0.001	9.426	2.442	1.429	0.495	1.388	8.155	0.790	21.832	0.649	0.001	0.102
339	SR04	M-13/S2133	5.332	-0.007	1.386	0.091	0.029	15.700	0.308	-0.017	1.326	3.251	10.745	0.926	1.073	0.013	5.868	0.083
339	SR04	M-13/S2133	4.969	-0.018	1.336	0.084	0.026	14.542	0.291	-0.038	1.314	3.121	10.894	0.838	1.055	0.011	5.643	0.077
339	SR04	M-13/S2133	5.180	-0.009	1.330	0.086	0.028	14.837	0.395	-0.018	1.279	3.108	10.553	0.869	1.017	0.013	5.554	0.078
339	SR04	M-13/S2133	5.327	-0.008	1.371	0.092	0.031	15.840	0.354	-0.017	1.319	3.194	10.800	0.902	1.076	0.013	5.792	0.082
339	SR04	M-13/S2133	5.543	-0.010	1.411	0.093	0.032	16.571	0.411	-0.022	1.326	3.307	10.666	0.962	1.173	0.015	5.917	0.088
339	SR04	M-13/S2133	5.229	-0.007	1.370	0.091	0.030	15.604	0.371	-0.013	1.315	3.201	10.717	0.891	1.060	0.015	5.655	0.079
339	IN32	M-13/S2133	-0.004	-0.010	0.000	0.000	-0.001	-0.034	0.043	-0.021	0.001	0.001	0.010	-0.002	0.046	-0.002	-0.010	0.001
339	IN32	M-13/S2133	0.016	-0.010	0.002	0.000	0.000	-0.033	0.099	-0.016	0.001	0.001	0.026	-0.002	0.031	0.000	0.046	0.002
340	ARGC	M-13/S2133	2.286	2.593	0.955	0.065	0.003	9.453	2.340	1.453	0.484	1.395	8.277	0.780	21.498	0.670	-0.001	0.105
340	ARGC	M-13/S2133	2.266	2.578	0.944	0.067	0.008	9.401	2.347	1.411	0.477	1.377	8.110	0.820	21.870	0.654	0.196	0.106
340	SR04	M-13/S2133	4.979	0.022	1.334	0.085	0.028	14.455	0.223	-0.007	1.320	3.176	10.804	0.848	1.097	0.020	5.517	0.080
340	SR04	M-13/S2133	5.146	0.019	1.348	0.086	0.031	14.841	0.173	-0.007	1.313	3.187	10.804	0.865	1.102	0.021	5.597	0.082
340	SR04	M-13/S2133	5.038	0.020	1.323	0.093	0.030	14.259	0.215	-0.006	1.339	3.163	10.639	0.838	1.067	0.021	5.582	0.081
340	SR04	M-13/S2133	4.971	0.018	1.320	0.083	0.031	14.130	0.156	-0.005	1.294	3.103	10.570	0.823	1.043	0.021	5.466	0.081
340	SR04	M-13/S2133	13.515	0.046	3.642	0.234	0.082	39.004	0.336	-0.019	3.625	8.489	29.818	2.282	2.926	0.057	15.256	0.222
340	SR04	M-13/S2133	6.356	0.028	1.722	0.110	0.040	18.409	0.353	0.012	1.718	4.083	13.940	1.105	1.341	0.026	7.048	0.101
340	IN32	M-13/S2133	-0.003	0.000	0.001	0.001	-0.001	-0.032	0.030	-0.013	0.001	0.000	0.027	-0.001	0.034	0.002	-0.020	0.001
340	IN32	M-13/S2133	0.013	0.000	0.003	0.002	0.002	-0.024	0.065	-0.012	0.002	0.001	0.028	0.000	0.042	0.003	0.043	0.003
341	ARGC	M-14/S2150	2.314	2.548	0.954	0.062	0.002	9.299	2.336	1.422	0.465	1.336	8.301	0.760	21.788	0.680	-0.001	0.108

Table A1. Cold Chem Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
341	ARGC	M-14/S2150	2.224	2.484	0.935	0.061	0.003	8.968	2.342	1.384	0.441	1.328	8.202	0.757	21.264	0.648	0.089	0.105
341	SR04	M-14/S2150	5.009	-0.008	1.314	0.082	0.027	13.714	0.169	-0.055	1.217	2.967	10.326	0.802	1.031	0.015	5.312	0.082
341	SR04	M-14/S2150	5.187	-0.011	1.363	0.081	0.028	14.617	0.151	-0.058	1.281	3.059	10.468	0.837	1.057	0.016	5.475	0.087
341	SR04	M-14/S2150	5.452	-0.017	1.418	0.056	0.031	9.594	0.154	-0.056	0.881	2.071	10.534	0.551	1.105	0.017	5.668	0.091
341	SR04	M-14/S2150	5.661	-0.022	1.432	0.089	0.031	15.702	0.230	-0.099	1.281	3.245	10.423	0.904	1.182	0.018	5.952	0.098
341	SR04	M-14/S2150	5.539	-0.012	1.433	0.083	0.032	14.932	0.184	-0.056	1.308	3.125	11.305	0.855	1.124	0.019	5.889	0.094
341	SR04	M-14/S2150	5.036	-0.016	1.376	0.144	0.027	22.390	0.251	-0.103	1.851	4.573	10.887	1.261	1.054	0.016	5.515	0.089
341	IN32	M-14/S2150	-0.007	-0.008	-0.001	0.001	-0.001	-0.034	0.047	-0.027	0.001	-0.001	0.010	-0.004	0.014	0.000	-0.013	0.003
341	IN32	M-14/S2150	-0.003	-0.009	-0.001	0.000	0.000	-0.041	0.094	-0.025	0.001	-0.002	0.019	-0.004	0.008	0.000	0.030	0.004
342	ARGC	M-14/S2150	2.290	2.539	0.963	0.069	0.004	9.594	2.341	1.454	0.490	1.396	8.178	0.790	22.398	0.662	0.085	0.108
342	ARGC	M-14/S2150	2.281	2.541	0.962	0.064	0.000	9.432	2.348	1.448	0.487	1.370	8.149	0.791	21.853	0.658	-0.044	0.103
342	SR04	M-14/S2150	5.136	0.032	1.317	0.087	0.029	14.855	0.148	0.008	1.266	3.113	10.064	0.866	0.987	0.017	5.834	0.080
342	SR04	M-14/S2150	5.390	0.034	1.386	0.089	0.030	15.779	0.146	0.013	1.310	3.233	10.507	0.923	1.046	0.018	6.165	0.086
342	SR04	M-14/S2150	5.172	0.055	1.347	0.088	0.030	15.279	0.201	0.041	1.303	3.134	10.342	0.878	1.302	0.019	5.889	0.085
342	SR04	M-14/S2150	6.489	0.041	1.682	0.108	0.041	18.592	0.147	0.008	1.641	3.954	13.300	1.095	1.189	0.023	7.201	0.106
342	SR04	M-14/S2150	5.116	0.030	1.342	0.091	0.031	15.271	0.232	0.009	1.301	3.143	10.186	0.855	0.988	0.018	5.789	0.082
342	SR04	M-14/S2150	5.504	0.033	1.387	0.098	0.034	16.289	0.241	0.008	1.343	3.323	10.156	0.920	1.069	0.020	6.225	0.089
342	IN32	M-14/S2150	0.041	0.004	0.009	0.002	-0.001	0.104	0.025	-0.007	0.012	0.027	0.102	0.005	0.016	0.001	0.015	0.002
342	IN32	M-14/S2150	0.001	0.003	0.000	0.001	0.001	-0.033	0.033	-0.008	0.002	0.000	0.013	-0.002	-0.017	0.001	0.025	0.003
343	ARGC	M-14/S2150	2.349	2.660	0.998	0.072	-0.002	9.470	2.691	1.457	0.488	1.416	8.293	0.800	21.949	0.685	-0.020	0.110
343	ARGC	M-14/S2150	2.303	2.605	0.972	0.080	0.001	9.683	2.385	1.412	0.506	1.422	8.126	0.838	22.835	0.644	0.013	0.111
343	SR04	M-14/S2150	4.828	0.011	1.323	0.088	0.022	13.903	0.671	-0.020	1.293	3.068	10.388	0.804	0.877	0.018	5.381	0.083
343	SR04	M-14/S2150	4.788	0.009	1.297	0.087	0.024	13.417	0.257	-0.010	1.276	3.003	10.397	0.793	0.888	0.017	5.518	0.080
343	SR04	M-14/S2150	4.847	0.011	1.328	0.087	0.026	13.783	0.131	-0.009	1.291	3.060	10.081	0.822	0.902	0.018	5.462	0.083
343	SR04	M-14/S2150	4.839	0.008	1.286	0.096	0.026	13.857	0.304	-0.011	1.349	3.127	10.424	0.809	0.948	0.018	4.936	0.083
343	SR04	M-14/S2150	4.840	0.007	1.327	0.102	0.026	14.130	0.532	-0.026	1.348	3.185	10.469	0.821	0.934	0.019	4.879	0.085
343	SR04	M-14/S2150	4.777	0.006	1.302	0.097	0.024	14.096	0.212	-0.027	1.356	3.086	10.219	0.832	0.911	0.019	4.736	0.085
343	IN32	M-14/S2150	-0.017	-0.001	-0.002	0.003	-0.002	-0.045	0.010	-0.013	-0.001	-0.001	0.003	0.001	-0.016	0.001	-0.024	0.003
343	IN32	M-14/S2150	-0.002	-0.004	0.000	0.003	0.000	-0.042	0.082	-0.011	-0.001	-0.001	0.013	0.001	0.003	0.002	0.013	0.003
344	ARGC	M-13/S2133	2.228	2.433	0.866	0.062	0.004	9.470	2.115	1.394	0.458	1.366	8.084	0.800	21.236	0.650	0.123	0.102
344	ARGC	M-13/S2133	2.193	2.441	0.925	0.057	0.005	9.166	1.889	1.307	0.467	1.357	7.662	0.790	20.763	0.639	0.200	0.100
344	SR04	M-13/S2133	5.177	0.031	1.380	0.081	0.036	14.378	-0.034	-0.011	1.296	3.183	10.550	0.869	1.301	0.022	5.972	0.084
344	SR04	M-13/S2133	4.941	0.026	1.289	0.078	0.034	13.140	-0.027	-0.002	1.229	2.914	9.776	0.797	1.154	0.018	5.638	0.078
344	SR04	M-13/S2133	4.739	0.024	1.203	0.079	0.029	13.298	-0.131	-0.008	1.197	2.903	9.097	0.811	1.178	0.017	5.373	0.073
344	SR04	M-13/S2133	5.058	0.026	1.337	0.080	0.034	13.829	-0.065	0.001	1.299	3.094	10.185	0.849	1.235	0.020	5.771	0.080
344	SR04	M-13/S2133	5.354	0.027	1.379	0.081	0.036	14.221	-0.075	-0.004	1.305	3.229	10.166	0.884	1.262	0.020	6.216	0.084
344	SR04	M-13/S2133	5.618	0.028	1.426	0.083	0.036	15.628	-0.106	-0.020	1.333	3.353	9.983	0.955	1.358	0.020	6.307	0.087
344	IN32	M-13/S2133	-0.001	0.001	0.002	0.000	-0.001	-0.015	-0.054	-0.008	0.000	-0.002	0.023	0.001	0.088	0.001	0.011	0.002
344	IN32	M-13/S2133	0.008	0.001	0.001	-0.003	0.000	-0.017	-0.027	-0.010	-0.001	-0.001	-0.021	0.001	0.084	0.001	0.017	0.002
345	ARGC	M-14/S2150	2.294	2.614	0.947	0.072	0.003	9.416	2.576	1.456	0.455	1.382	8.348	0.800	22.252	0.676	0.006	0.098
345	ARGC	M-14/S2150	2.293	2.581	0.911	0.069	0.003	9.416	2.101	1.451	0.453	1.389	8.350	0.801	22.072	0.663	0.018	0.098
345	SR04	M-14/S2150	5.152	0.032	1.428	0.091	0.028	14.509	0.243	0.024	1.323	3.174	11.094	0.848	1.452	0.012	5.676	0.073
345	SR04	M-14/S2150	5.241	0.037	1.417	0.098	0.030	15.014	0.090	0.018	1.352	3.249	11.099	0.879	1.638	0.012	5.866	0.071
345	SR04	M-14/S2150	5.011	0.029	1.348	0.089	0.028	14.320	0.121	0.022	1.324	3.184	10.815	0.848	1.368	0.012	5.638	0.072
345	SR04	M-14/S2150	5.189	0.031	1.343	0.092	0.031	14.589	0.265	0.021	1.333	3.198	10.766	0.863	1.419	0.013	5.658	0.073
345	SR04	M-14/S2150	5.041	0.030	1.340	0.091	0.030	14.260	0.030	0.019	1.292	3.116	10.369	0.850	1.392	0.013	5.493	0.073
345	SR04	M-14/S2150	5.147	0.036	1.367	0.091	0.029	14.842	0.164	0.022	1.346	3.205	10.951	0.857	1.454	0.013	5.644	0.073
345	IN32	M-14/S2150	0.006	0.004	0.006	0.002	0.000	0.007	-0.019	-0.005	0.003	0.000	0.019	0.001	0.141	-0.001	-0.004	0.000
345	IN32	M-14/S2150	0.004	0.003	0.006	0.003	0.000	0.004	-0.027	-0.003	0.002	0.000	0.017	0.003	0.133	0.000	-0.002	-0.001
346	ARGC	M-14/S2150	2.329	2.562	0.969	0.067	0.000	9.649	2.220	1.406	0.476	1.364	8.076	0.799	21.779	0.657	0.033	0.095

Table A1. Cold Chem Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
346	ARGC	M-14/S2150	2.306	2.640	0.940	0.066	0.002	9.846	2.414	1.464	0.461	1.389	8.419	0.809	21.895	0.685	0.093	0.101
346	SR04	M-14/S2150	5.124	0.008	1.328	0.089	0.027	14.762	0.156	-0.037	1.273	3.139	10.482	0.873	1.044	0.016	5.458	0.072
346	SR04	M-14/S2150	4.923	0.004	1.320	0.082	0.024	14.356	0.110	-0.041	1.294	3.027	10.361	0.811	0.957	0.014	5.262	0.068
346	SR04	M-14/S2150	5.076	0.005	1.313	0.088	0.026	14.206	0.073	-0.038	1.269	3.056	10.187	0.810	0.993	0.014	5.311	0.070
346	SR04	M-14/S2150	5.120	0.003	1.339	0.085	0.026	14.608	0.144	-0.042	1.261	3.138	10.361	0.841	1.013	0.015	5.337	0.073
346	SR04	M-14/S2150	5.080	0.001	1.345	0.086	0.026	14.658	0.040	-0.052	1.275	3.089	10.425	0.825	0.967	0.014	5.454	0.072
346	SR04	M-14/S2150	5.489	0.006	1.318	0.084	0.028	15.698	0.044	-0.042	1.260	3.060	10.375	0.816	1.057	0.015	5.449	0.075
346	IN32	M-14/S2150	-0.003	-0.006	-0.002	0.000	-0.001	-0.006	0.029	-0.023	0.000	-0.002	-0.004	-0.004	-0.003	0.000	-0.017	-0.001
346	IN32	M-14/S2150	0.002	-0.005	-0.001	0.002	-0.001	-0.004	0.045	-0.022	0.000	-0.002	0.001	-0.004	0.003	0.000	0.009	0.000
347	ARGC	M-14/S2150	2.444	2.586	0.979	0.068	0.004	9.521	2.277	1.447	0.477	1.368	8.317	0.798	21.437	0.669	0.062	0.129
347	ARGC	M-14/S2150	2.384	2.610	0.968	0.069	0.002	9.379	2.248	1.458	0.486	1.376	8.376	0.801	21.471	0.670	-0.024	0.143
347	SR04	M-14/S2150	5.133	0.009	1.330	0.086	0.029	14.980	0.124	-0.031	1.291	3.068	11.030	0.856	1.126	0.018	5.698	0.070
347	SR04	M-14/S2150	5.313	0.008	1.356	0.090	0.029	15.425	0.036	-0.025	1.312	3.194	10.601	0.886	1.167	0.018	5.860	0.073
347	SR04	M-14/S2150	5.377	0.008	1.321	0.090	0.029	15.456	0.123	-0.029	1.293	3.169	10.435	0.885	1.155	0.019	5.851	0.076
347	SR04	M-14/S2150	5.200	0.010	1.319	0.085	0.030	14.735	0.062	-0.021	1.305	3.112	10.907	0.851	1.137	0.018	5.740	0.073
347	SR04	M-14/S2150	5.075	0.009	1.312	0.084	0.029	14.537	0.037	-0.025	1.311	3.111	10.690	0.854	1.112	0.017	5.634	0.072
347	SR04	M-14/S2150	5.226	0.010	1.339	0.090	0.031	14.780	-0.062	-0.027	1.312	3.247	10.664	0.861	1.149	0.019	5.909	0.074
347	IN32	M-14/S2150	-0.002	-0.003	0.001	0.002	-0.001	-0.014	0.006	-0.018	0.001	0.000	-0.013	-0.001	0.052	0.001	-0.011	-0.001
347	IN32	M-14/S2150	0.004	-0.005	0.001	0.001	0.000	-0.015	-0.005	-0.019	0.002	0.000	-0.015	-0.001	0.050	0.001	0.009	-0.001
348	ARGC	M-14/S2150	2.331	2.637	0.969	0.064	0.000	9.478	2.296	1.409	0.485	1.396	8.193	0.800	21.962	0.666	-0.021	0.100
348	ARGC	M-14/S2150	2.352	2.618	0.995	0.066	0.002	9.671	2.235	1.450	0.496	1.405	8.238	0.818	22.262	0.667	-0.010	0.102
348	SR04	M-14/S2150	5.338	0.026	1.418	0.088	0.030	15.119	0.126	-0.015	1.367	3.240	10.167	0.881	1.287	0.019	5.640	0.078
348	SR04	M-14/S2150	5.157	0.026	1.373	0.082	0.029	14.974	0.099	-0.009	1.338	3.171	9.734	0.873	1.236	0.018	5.501	0.078
348	SR04	M-14/S2150	5.216	0.026	1.400	0.085	0.031	15.345	0.037	-0.011	1.362	3.238	9.957	0.889	1.298	0.019	5.601	0.078
348	SR04	M-14/S2150	5.404	0.025	1.412	0.087	0.031	15.529	0.117	-0.004	1.371	3.260	9.873	0.902	1.246	0.018	5.764	0.080
348	SR04	M-14/S2150	5.337	0.025	1.417	0.085	0.033	15.253	0.174	-0.005	1.358	3.246	9.931	0.890	1.225	0.020	5.682	0.080
348	SR04	M-14/S2150	5.328	0.024	1.417	0.087	0.033	15.628	0.103	-0.001	1.365	3.251	9.708	0.908	1.234	0.019	5.792	0.081
348	IN32	M-14/S2150	-0.006	0.003	-0.002	0.001	-0.001	-0.018	0.012	-0.012	0.001	0.000	-0.001	-0.001	0.067	0.001	-0.031	0.000
348	IN32	M-14/S2150	0.003	0.001	-0.001	0.001	0.000	-0.017	0.017	-0.012	0.001	0.000	-0.012	0.000	0.066	0.001	-0.010	0.000
349	ARGC	M-14/S2150	2.395	2.712	1.002	0.076	0.001	9.944	2.542	1.531	0.507	1.476	8.408	0.845	22.857	0.689	0.137	0.106
349	ARGC	M-14/S2150	2.399	2.741	1.001	0.071	-0.002	9.849	2.480	1.512	0.503	1.434	8.240	0.822	22.890	0.690	0.029	0.103
349	SR04	M-14/S2150	5.558	-0.004	1.397	0.099	0.024	16.089	0.440	-0.040	1.341	3.304	10.161	0.922	1.209	0.015	5.370	0.083
349	SR04	M-14/S2150	5.471	0.001	1.346	0.095	0.027	16.348	0.362	-0.020	1.366	3.275	9.954	0.927	1.154	0.014	5.260	0.083
349	SR04	M-14/S2150	5.048	-0.011	1.343	0.096	0.020	15.140	0.367	-0.060	1.358	3.159	10.272	0.875	1.189	0.011	5.309	0.075
349	SR04	M-14/S2150	4.755	-0.008	1.277	0.089	0.021	13.876	0.275	-0.043	1.282	2.966	9.580	0.822	1.076	0.012	4.936	0.071
349	SR04	M-14/S2150	5.256	0.000	1.344	0.095	0.027	15.577	0.316	-0.020	1.342	3.258	10.248	0.915	1.167	0.015	5.291	0.080
349	SR04	M-14/S2150	5.028	0.003	1.317	0.091	0.027	15.061	0.271	-0.016	1.362	3.189	10.265	0.871	1.098	0.014	5.180	0.076
349	IN32	M-14/S2150	-0.007	-0.006	0.001	0.003	-0.002	-0.024	0.049	-0.016	-0.001	-0.003	0.017	-0.003	0.034	-0.001	-0.016	0.000
349	IN32	M-14/S2150	-0.002	-0.006	0.000	0.003	-0.001	-0.025	0.095	-0.018	0.000	-0.003	0.020	0.000	0.053	0.000	0.011	0.001
350	ARGC	M-14/S2150	2.351	2.551	1.015	0.068	0.007	9.406	2.269	1.430	0.492	1.374	8.234	0.801	21.770	0.666	0.127	0.104
350	ARGC	M-14/S2150	2.357	2.652	0.994	0.069	0.003	9.531	2.360	1.452	0.495	1.396	8.217	0.800	22.173	0.678	-0.015	0.102
350	SR04	M-14/S2150	5.459	0.021	1.334	0.089	0.032	15.860	0.224	-0.021	1.320	3.209	10.607	0.900	1.331	0.021	5.659	0.081
350	SR04	M-14/S2150	5.543	0.018	1.389	0.095	0.031	16.275	0.093	-0.020	1.337	3.298	10.545	0.931	1.394	0.022	5.763	0.085
350	SR04	M-14/S2150	4.934	0.017	1.287	0.086	0.028	14.171	0.186	-0.020	1.297	3.032	10.243	0.833	1.230	0.020	5.386	0.075
350	SR04	M-14/S2150	5.221	0.016	1.359	0.107	0.031	15.063	0.179	-0.026	1.328	3.170	10.703	0.886	1.332	0.021	5.704	0.080
350	SR04	M-14/S2150	5.192	0.018	1.333	0.089	0.030	15.305	0.134	-0.016	1.304	3.133	10.568	0.874	1.269	0.021	5.586	0.079
350	SR04	M-14/S2150	6.188	0.024	1.562	0.104	0.037	18.248	0.201	0.005	1.609	3.799	12.601	1.057	1.425	0.023	6.652	0.094
350	IN32	M-14/S2150	0.000	-0.002	0.003	0.002	0.000	-0.023	0.021	-0.015	0.000	-0.001	0.009	-0.003	0.049	0.001	-0.019	0.002
350	IN32	M-14/S2150	0.009	-0.001	0.002	0.002	0.001	-0.021	0.025	-0.015	0.000	-0.001	-0.001	-0.001	0.045	0.002	0.026	0.002
351	ARGC	M-13/S2133	2.413	2.632	0.998	0.065	0.003	9.597	2.136	1.435	0.504	1.410	8.311	0.809	22.221	0.688	-0.010	0.106

Table A1. Cold Chem Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
351	ARGC	M-13/S2133	2.432	2.737	1.042	0.064	0.006	10.129	2.246	1.406	0.528	1.473	8.338	0.810	23.392	0.698	0.188	0.110
351	SR04	M-13/S2133	6.170	0.022	1.461	0.100	0.037	17.750	0.234	0.000	1.378	3.486	10.623	1.012	1.466	0.019	6.036	0.090
351	SR04	M-13/S2133	6.070	0.016	1.408	0.096	0.038	17.625	0.238	-0.005	1.378	3.452	10.594	0.989	1.450	0.018	5.898	0.089
351	SR04	M-13/S2133	5.463	0.016	1.361	0.088	0.035	16.146	0.143	-0.004	1.368	3.326	10.639	0.913	1.330	0.017	5.754	0.083
351	SR04	M-13/S2133	5.073	0.016	1.381	0.081	0.034	14.773	0.171	-0.017	1.385	3.176	10.918	0.853	1.329	0.017	5.654	0.078
351	SR04	M-13/S2133	4.946	0.019	1.349	0.082	0.034	14.577	0.194	-0.014	1.385	3.164	10.806	0.820	1.322	0.016	5.548	0.076
351	SR04	M-13/S2133	5.694	0.013	1.420	0.093	0.036	16.997	0.139	-0.016	1.402	3.443	10.773	0.959	1.410	0.017	5.726	0.087
351	IN32	M-13/S2133	0.001	-0.001	0.000	0.000	-0.002	-0.015	0.003	-0.015	-0.001	-0.002	0.019	-0.002	0.108	-0.001	-0.048	0.002
351	IN32	M-13/S2133	0.014	-0.003	0.003	0.000	0.000	-0.010	-0.084	-0.018	-0.001	0.000	0.032	-0.003	0.120	0.000	0.005	0.001
352	ARGC	M-14/S2150	2.348	2.576	0.926	0.067	0.002	9.644	2.225	1.468	0.468	1.387	8.418	0.791	21.983	0.670	0.074	0.103
352	ARGC	M-14/S2150	2.344	2.624	0.939	0.069	-0.001	9.564	2.372	1.433	0.479	1.416	8.226	0.802	22.076	0.674	-0.004	0.101
352	SR04	M-14/S2150	4.735	-0.020	1.245	0.084	0.023	13.515	0.358	-0.077	1.226	2.957	9.933	0.792	1.156	0.013	4.988	0.072
352	SR04	M-14/S2150	4.657	-0.010	1.130	0.087	0.025	14.702	0.185	-0.043	0.926	3.176	10.622	0.858	1.164	0.014	5.345	0.073
352	SR04	M-14/S2150	3.887	-0.009	0.887	0.082	0.023	13.143	0.172	-0.037	0.595	2.825	9.318	0.770	1.016	0.013	4.907	0.067
352	SR04	M-14/S2150	4.475	-0.007	0.997	0.087	0.027	14.761	0.115	-0.035	0.698	3.124	10.420	0.843	1.151	0.014	5.551	0.076
352	SR04	M-14/S2150	5.069	-0.010	1.327	0.084	0.026	14.626	0.151	-0.038	1.329	3.103	10.676	0.840	1.113	0.015	5.277	0.076
352	SR04	M-14/S2150	4.411	-0.008	1.005	0.087	0.027	14.701	0.105	-0.041	0.683	3.093	10.549	0.841	1.123	0.014	5.500	0.074
352	IN32	M-14/S2150	-0.006	-0.007	0.001	0.001	-0.002	-0.010	0.026	-0.022	0.001	0.000	0.018	-0.003	0.083	0.000	-0.009	0.001
352	IN32	M-14/S2150	-0.004	-0.010	0.002	0.002	-0.001	-0.014	0.020	-0.023	0.001	-0.001	0.004	-0.002	0.057	0.000	-0.001	0.001
353	ARGC	M-14/S2150	2.367	2.607	1.017	0.079	0.002	9.802	2.327	1.460	0.491	1.407	8.253	0.806	22.349	0.688	-0.005	0.102
353	ARGC	M-14/S2150	2.335	2.681	1.037	0.081	0.002	9.967	2.491	1.500	0.499	1.440	8.579	0.824	22.659	0.695	0.056	0.105
353	SR04	M-14/S2150	5.568	0.002	1.469	0.105	0.031	15.919	0.223	-0.011	1.397	3.444	10.459	0.935	1.279	0.014	6.089	0.083
353	SR04	M-14/S2150	5.405	0.000	1.446	0.105	0.031	15.648	0.249	-0.009	1.435	3.395	10.762	0.917	1.247	0.013	6.000	0.080
353	SR04	M-14/S2150	4.701	-0.020	1.257	0.099	0.024	13.495	0.224	-0.050	1.212	2.894	9.271	0.789	1.204	0.008	5.133	0.070
353	SR04	M-14/S2150	4.599	-0.014	1.214	0.093	0.022	13.330	0.190	-0.038	1.171	2.837	8.860	0.761	1.189	0.008	4.929	0.066
353	SR04	M-14/S2150	5.378	-0.008	1.433	0.105	0.030	15.757	0.236	-0.025	1.384	3.349	10.617	0.907	1.384	0.012	5.945	0.080
353	SR04	M-14/S2150	5.028	-0.003	1.437	0.101	0.029	15.368	0.315	-0.018	1.367	3.267	10.416	0.889	1.242	0.013	5.615	0.077
353	IN32	M-14/S2150	0.001	-0.006	0.002	0.005	-0.001	0.014	0.020	-0.014	0.002	0.000	-0.020	-0.001	0.131	-0.001	-0.015	0.000
353	IN32	M-14/S2150	0.002	-0.007	0.002	0.005	0.000	0.007	0.052	-0.013	-0.001	0.000	-0.017	0.000	0.083	0.000	0.011	0.000
354	ARGC	M-14/S2150	2.218	2.600	0.913	0.082	-0.004	9.440	2.150	1.357	0.478	1.403	7.948	0.823	22.000	0.642	-0.231	0.095
354	ARGC	M-14/S2150	2.329	2.631	0.980	0.073	-0.001	9.567	2.329	1.458	0.488	1.395	8.446	0.816	22.426	0.684	-0.107	0.102
354	SR04	M-14/S2150	5.910	0.037	1.446	0.100	0.031	17.049	0.118	-0.014	1.399	3.462	9.851	0.979	1.273	0.016	6.041	0.086
354	SR04	M-14/S2150	5.877	0.037	1.433	0.103	0.031	16.717	0.152	-0.015	1.408	3.502	9.622	0.993	1.288	0.014	5.939	0.085
354	SR04	M-14/S2150	5.396	0.034	1.410	0.093	0.029	15.277	0.119	-0.021	1.387	3.268	9.776	0.905	1.192	0.014	5.825	0.080
354	SR04	M-14/S2150	5.879	0.036	1.443	0.104	0.030	16.543	0.172	-0.022	1.397	3.534	9.699	0.996	1.292	0.015	6.138	0.083
354	SR04	M-14/S2150	5.607	0.034	1.390	0.102	0.028	16.504	0.114	-0.019	1.405	3.528	9.848	0.985	1.257	0.014	5.924	0.083
354	SR04	M-14/S2150	4.606	0.032	1.308	0.081	0.025	13.621	0.164	-0.022	1.330	3.028	9.584	0.806	1.066	0.012	5.354	0.068
354	IN32	M-14/S2150	-0.020	0.005	-0.001	0.003	0.000	-0.013	0.048	-0.018	0.002	0.000	-0.015	-0.002	0.068	-0.001	-0.049	0.001
354	IN32	M-14/S2150	-0.020	0.003	-0.002	0.003	-0.002	-0.015	0.005	-0.020	0.002	0.000	-0.025	-0.001	0.073	-0.001	-0.061	0.000
355	ARGC	M-13/S2133	2.415	2.661	0.996	0.067	0.002	10.127	2.137	1.504	0.516	1.433	8.414	0.829	22.535	0.698	0.061	0.110
355	ARGC	M-13/S2133	2.404	2.710	0.997	0.068	0.007	10.311	2.482	1.505	0.526	1.459	8.573	0.844	22.943	0.692	0.158	0.111
355	SR04	M-13/S2133	6.448	0.047	1.652	0.093	0.040	16.909	0.033	0.036	1.612	3.640	11.591	0.950	1.467	0.024	6.844	0.101
355	SR04	M-13/S2133	5.461	0.046	1.432	0.089	0.035	15.738	-0.104	0.025	1.418	3.326	9.895	0.900	1.368	0.021	5.739	0.085
355	SR04	M-13/S2133	6.085	0.046	1.580	0.098	0.039	17.589	-0.017	0.031	1.573	3.696	10.970	1.009	1.452	0.023	6.474	0.096
355	SR04	M-13/S2133	6.459	0.046	1.648	0.102	0.041	18.497	-0.065	0.030	1.613	3.816	11.462	1.029	1.519	0.023	6.857	0.102
355	SR04	M-13/S2133	5.481	0.044	1.418	0.086	0.035	15.393	-0.056	0.023	1.379	3.200	10.004	0.875	1.331	0.020	5.836	0.085
355	SR04	M-13/S2133	5.745	0.047	1.601	0.100	0.038	17.883	-0.101	0.024	1.600	3.758	9.620	1.026	1.476	0.022	6.293	0.091
355	IN32	M-13/S2133	0.004	0.008	0.000	0.000	-0.001	-0.019	-0.027	0.001	0.000	-0.001	0.026	-0.001	0.101	0.001	-0.015	0.001
355	IN32	M-13/S2133	0.008	0.007	0.002	0.001	0.000	-0.016	0.093	-0.002	0.000	-0.001	0.033	-0.002	0.134	0.001	0.021	0.001
356	ARGC	M-14/S2150	2.428	2.661	1.002	0.079	0.003	9.715	2.336	1.488	0.506	1.404	8.332	0.811	22.252	0.685	-0.004	0.106

Table A1. Cold Chem Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
356	ARGC	M-14/S2150	2.427	2.694	0.996	0.079	0.003	9.762	2.245	1.476	0.512	1.446	8.316	0.832	22.712	0.680	-0.024	0.106
356	SR04	M-14/S2150	5.546	0.024	1.452	0.102	0.033	16.299	0.051	-0.004	1.421	3.424	9.825	0.926	1.376	0.025	5.944	0.087
356	SR04	M-14/S2150	5.175	0.021	1.357	0.095	0.030	15.107	0.040	-0.012	1.336	3.168	9.443	0.875	1.308	0.025	5.693	0.082
356	SR04	M-14/S2150	5.792	0.022	1.482	0.108	0.034	16.935	0.063	-0.006	1.420	3.487	9.781	1.001	1.433	0.027	6.075	0.090
356	SR04	M-14/S2150	5.324	0.020	1.385	0.097	0.031	15.378	0.094	-0.003	1.386	3.256	9.600	0.908	1.273	0.024	5.798	0.084
356	SR04	M-14/S2150	5.502	0.023	1.443	0.103	0.031	16.440	0.152	-0.003	1.423	3.429	9.669	0.962	1.348	0.026	5.671	0.086
356	SR04	M-14/S2150	5.625	0.021	1.438	0.104	0.031	16.602	0.068	-0.004	1.413	3.487	9.637	0.969	1.376	0.025	5.833	0.088
356	IN32	M-14/S2150	0.008	0.000	0.001	0.005	0.000	0.004	0.024	-0.014	0.004	0.006	0.002	0.002	0.134	0.003	-0.032	0.002
356	IN32	M-14/S2150	0.008	0.000	0.001	0.005	-0.001	0.005	0.044	-0.013	0.004	0.006	0.006	0.002	0.097	0.003	-0.014	0.002
357	ARGC	M-14/S2150	2.227	2.447	0.925	0.072	0.006	9.027	2.217	1.373	0.465	1.331	7.956	0.753	20.486	0.639	0.048	0.102
357	ARGC	M-14/S2150	2.519	2.755	1.082	0.083	0.009	10.527	2.611	1.539	0.543	1.525	8.925	0.862	23.901	0.735	0.108	0.117
357	SR04	M-14/S2150	5.859	0.003	1.480	0.108	0.040	16.824	0.334	0.009	1.401	3.528	10.336	0.956	1.207	0.025	6.103	0.095
357	SR04	M-14/S2150	5.467	-0.006	1.477	0.103	0.036	15.861	0.632	0.000	1.439	3.371	10.763	0.924	1.164	0.024	5.753	0.090
357	SR04	M-14/S2150	5.773	0.002	1.513	0.108	0.038	16.879	0.423	0.014	1.454	3.571	10.747	0.988	1.286	0.024	6.079	0.093
357	SR04	M-14/S2150	5.628	-0.001	1.453	0.104	0.037	16.065	0.388	0.005	1.441	3.440	10.419	0.947	1.182	0.022	5.973	0.090
357	SR04	M-14/S2150	5.406	-0.005	1.448	0.102	0.036	15.907	0.362	0.008	1.420	3.385	10.356	0.927	1.172	0.024	5.830	0.089
357	SR04	M-14/S2150	5.588	0.005	1.550	0.102	0.037	16.770	0.304	0.011	1.496	3.589	10.921	0.972	1.183	0.024	5.824	0.091
357	IN32	M-14/S2150	0.007	-0.006	0.005	0.005	0.001	0.008	0.067	-0.010	0.003	0.003	0.009	0.001	0.024	0.002	0.000	0.002
357	IN32	M-14/S2150	0.024	-0.008	0.007	0.005	0.002	0.013	0.055	-0.008	0.003	0.004	0.022	0.002	0.035	0.002	0.032	0.003

Table A2. Fusion Measurement Data Set

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
300	ARGG	M-13/S2133	2.242	2.489	0.918	0.067	0.002	9.136	2.044	1.362	0.471	1.329	.	0.766	21.628	0.633	0.028	.
300	ARGG	M-13/S2133	1.818	1.950	0.732	0.520	0.001	7.361	1.588	1.094	0.375	1.050	.	0.618	17.147	0.501	0.022	.
300	ARGG	M-13/S2133	2.277	2.502	0.931	0.060	0.000	9.248	2.054	1.384	0.472	1.344	.	0.756	21.428	0.650	0.041	.
300	ARGG	M-13/S2133	2.277	2.530	0.922	0.062	-0.001	9.333	2.074	1.400	0.486	1.405	.	0.786	21.662	0.643	0.035	.
300	SM01	M-13/S2133	2.936	1.446	0.650	0.053	0.008	7.563	0.020	2.207	0.645	1.413	.	0.430	24.180	0.019	2.638	.
300	SM01	M-13/S2133	2.920	1.399	0.661	0.055	0.009	7.598	0.016	2.111	0.651	1.418	.	0.424	23.330	0.019	2.702	.
300	SM01	M-13/S2133	2.619	1.267	0.611	0.047	0.008	6.657	0.005	1.931	0.587	1.251	.	0.386	21.496	0.017	2.404	.
300	SM01	M-13/S2133	2.844	1.397	0.669	0.053	0.008	7.502	0.064	2.112	0.656	1.435	.	0.432	23.017	0.018	2.661	.
300	SM01	M-13/S2133	3.220	1.579	0.785	0.061	0.010	8.335	0.027	2.389	0.711	1.563	.	0.474	26.310	0.022	2.885	.
300	SM01	M-13/S2133	2.740	1.303	0.591	0.051	0.009	7.121	0.061	2.007	0.622	1.356	.	0.400	21.739	0.018	2.453	.
300	SM01	M-13/S2133	2.912	1.454	0.667	0.055	0.011	7.543	0.068	2.137	0.641	1.470	.	0.431	22.974	0.029	2.606	.
300	SM01	M-13/S2133	2.774	1.424	0.640	0.049	0.011	7.307	0.013	2.106	0.618	1.450	.	0.414	22.767	0.027	2.476	.
300	SM01	M-13/S2133	2.764	1.492	0.630	0.048	0.010	7.281	-0.010	2.151	0.629	1.464	.	0.419	23.579	0.028	2.481	.
300	SM01	M-13/S2133	2.898	1.437	0.640	0.049	0.011	7.540	0.004	2.086	0.633	1.465	.	0.418	23.067	0.029	2.617	.
300	SM01	M-13/S2133	2.923	1.502	0.661	0.049	0.012	7.481	0.028	2.256	0.620	1.465	.	0.416	24.058	0.029	2.594	.
300	SM01	M-13/S2133	2.850	1.494	0.644	0.050	0.010	7.506	-0.012	2.205	0.643	1.513	.	0.430	24.635	0.036	2.521	.
300	SM55	M-13/S2133	-0.056	0.001	0.048	0.001	-0.003	-0.087	-0.061	-0.061	-0.008	-0.041	.	-0.004	0.089	-0.009	-0.008	.
300	SM55	M-13/S2133	-0.082	0.039	-0.018	-0.001	-0.003	-0.090	-0.087	-0.066	-0.010	-0.045	.	-0.006	0.109	-0.008	-0.008	.
300	SM55	M-13/S2133	0.003	0.017	-0.024	-0.005	-0.005	-0.102	-0.051	-0.032	-0.009	-0.005	.	-0.013	0.066	0.004	0.015	.
300	SM55	M-13/S2133	-0.003	0.021	-0.026	-0.007	-0.005	-0.116	-0.071	-0.036	-0.008	-0.007	.	-0.005	0.125	0.004	-0.010	.
301	ARGG	M-13/S2133	2.473	2.567	1.066	0.059	0.000	9.640	2.270	1.453	0.496	1.405	.	0.789	22.503	0.655	0.061	.
301	ARGG	M-13/S2133	2.272	2.541	0.968	0.057	0.000	9.381	2.099	1.395	0.494	1.344	.	0.810	21.667	0.613	0.044	.
301	ARGG	M-13/S2133	2.230	2.441	0.908	0.050	0.003	8.627	2.025	1.376	0.461	1.338	.	0.752	20.676	0.637	-0.167	.
301	SM01	M-13/S2133	2.709	1.196	0.696	0.042	0.011	6.958	0.050	1.770	0.622	1.439	.	0.391	19.411	0.014	2.515	.
301	SM01	M-13/S2133	3.181	1.442	0.783	0.052	0.012	8.551	0.039	2.120	0.765	1.714	.	0.493	23.180	0.016	2.919	.
301	SM01	M-13/S2133	2.912	1.361	0.752	0.045	0.011	7.738	0.058	2.063	0.714	1.562	.	0.439	21.762	0.014	2.693	.
301	SM01	M-13/S2133	3.209	1.432	0.798	0.057	0.013	8.459	0.059	2.070	0.779	1.748	.	0.499	23.164	0.016	2.969	.
301	SM01	M-13/S2133	3.066	1.421	0.756	0.048	0.012	8.196	0.042	2.018	0.738	1.625	.	0.471	23.042	0.017	2.847	.
301	SM01	M-13/S2133	3.236	1.456	0.816	0.055	0.014	8.646	0.046	2.136	0.780	1.735	.	0.507	23.743	0.018	2.992	.
301	SM55	M-13/S2133	-0.070	0.004	-0.054	-0.013	-0.003	-0.239	-0.040	-0.036	-0.017	-0.047	.	-0.025	-0.152	-0.011	0.024	.
301	SM55	M-13/S2133	-0.061	0.019	-0.018	-0.011	-0.004	-0.197	-0.025	-0.040	-0.010	-0.042	.	-0.018	-0.043	-0.011	0.004	.
301	SM55	M-13/S2133	-0.036	0.017	-0.043	-0.008	-0.003	0.019	-0.061	0.001	-0.004	-0.010	.	-0.011	0.142	-0.006	-0.277	.
301	SM55	M-13/S2133	-0.010	0.024	-0.022	-0.006	-0.007	0.040	-0.168	-0.004	0.003	-0.007	.	-0.008	0.213	-0.007	-0.180	.
302	ARGG	M-13/S2133	2.407	2.654	1.010	0.073	0.016	9.760	2.230	1.404	0.500	1.423	.	0.797	22.687	0.635	-0.020	.
302	ARGG	M-13/S2133	2.428	2.717	1.083	0.075	-0.004	9.866	2.483	1.565	0.519	1.443	.	0.785	22.937	0.719	-0.031	.
302	SM01	M-13/S2133	3.030	1.443	0.654	0.058	0.018	7.813	-0.013	2.161	0.661	1.566	.	0.444	23.675	0.035	2.597	.
302	SM01	M-13/S2133	3.007	1.454	0.689	0.061	0.007	8.153	-0.022	2.209	0.715	1.660	.	0.434	23.774	0.038	2.654	.
302	SM01	M-13/S2133	3.006	1.494	0.770	0.062	0.034	8.261	-0.021	2.329	0.696	1.608	.	0.443	24.210	0.037	2.687	.
302	SM01	M-13/S2133	3.880	1.420	0.664	0.062	0.017	7.939	-0.024	2.181	0.698	1.645	.	0.441	27.169	0.041	2.631	.
302	SM01	M-13/S2133	3.079	1.482	0.709	0.062	0.018	8.182	-0.026	2.336	0.689	1.599	.	0.442	24.346	0.037	2.641	.
302	SM01	M-13/S2133	2.853	1.435	0.796	0.058	0.020	7.867	-0.009	2.156	0.693	1.603	.	0.435	23.572	0.039	2.563	.
302	SM55	M-13/S2133	0.020	0.020	-0.007	0.005	-0.005	-0.001	-0.107	-0.053	0.004	0.003	.	-0.007	0.106	0.018	-0.042	.
302	SM55	M-13/S2133	-0.010	0.023	-0.033	0.006	-0.004	0.000	-0.095	-0.058	0.006	0.006	.	-0.016	0.120	0.014	-0.088	.
303	ARGG	M-13/S2133	2.376	2.541	0.952	0.065	0.006	9.455	2.230	1.473	0.493	1.373	.	0.787	22.085	0.670	0.002	.
303	ARGG	M-13/S2133	2.360	2.612	0.964	0.089	0.006	9.636	2.211	1.467	0.501	1.355	.	0.822	22.363	0.665	0.005	.
303	SM01	M-13/S2133	2.866	1.443	0.667	0.052	0.018	7.555	0.017	2.221	0.626	1.513	.	0.429	24.124	0.035	2.464	.
303	SM01	M-13/S2133	2.874	1.458	0.648	0.069	0.019	7.813	-0.006	2.205	0.654	1.514	.	0.467	24.385	0.030	2.492	.
303	SM01	M-13/S2133	2.829	1.501	0.658	0.067	0.019	7.639	0.037	2.334	0.656	1.476	.	0.447	25.088	0.030	2.377	.
303	SM01	M-13/S2133	2.735	1.432	0.652	0.053	0.018	7.421	0.011	2.150	0.638	1.472	.	0.438	24.105	0.028	2.393	.
303	SM01	M-13/S2133	2.919	1.440	0.692	0.065	0.020	7.704	0.011	2.239	0.638	1.541	.	0.443	23.783	0.030	2.550	.

Table A2. Fusion Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
303	SM01	M-13/S2133	2.883	1.439	0.663	0.053	0.018	7.568	0.001	2.196	0.631	1.530	.	0.428	23.785	0.029	2.499	.
303	SM55	M-13/S2133	0.066	0.074	-0.047	0.035	0.003	0.239	-0.034	0.009	0.015	0.029	.	0.032	0.987	0.022	-0.046	.
303	SM55	M-13/S2133	0.062	0.094	0.010	0.034	0.003	0.119	-0.006	0.000	0.041	0.038	.	0.027	0.789	0.007	-0.001	.
304	ARGG	M-13/S2133	2.381	2.697	0.724	0.066	0.005	9.826	2.109	1.418	0.470	1.351	.	0.836	23.058	0.671	0.075	.
304	ARGG	M-13/S2133	2.449	2.677	0.864	0.074	0.005	9.758	2.290	1.534	0.490	1.429	.	0.811	23.011	0.693	0.059	.
304	SM01	M-13/S2133	2.825	1.554	0.555	0.062	0.020	7.752	0.136	2.293	0.620	1.381	.	0.442	25.632	0.039	2.487	.
304	SM01	M-13/S2133	2.800	1.504	0.641	0.052	0.016	7.651	0.021	2.279	0.631	1.415	.	0.437	24.802	0.036	2.544	.
304	SM01	M-13/S2133	2.772	1.463	0.607	0.053	0.016	7.559	0.072	2.176	0.622	1.401	.	0.452	24.333	0.037	2.520	.
304	SM01	M-13/S2133	2.796	1.487	0.611	0.050	0.016	7.540	0.768	2.250	0.637	1.433	.	0.429	24.634	0.037	2.500	.
304	SM01	M-13/S2133	2.768	1.532	0.660	0.052	0.017	7.606	0.176	2.313	0.609	1.355	.	0.445	24.825	0.037	2.531	.
304	SM01	M-13/S2133	2.650	1.379	0.658	0.048	0.015	7.174	1.144	2.114	0.640	1.380	.	0.414	23.014	0.034	2.417	.
304	SM55	M-13/S2133	0.012	0.027	-0.138	0.003	0.001	0.014	-0.191	-0.044	0.014	0.017	.	-0.004	0.020	0.012	0.047	.
304	SM55	M-13/S2133	0.005	0.021	-0.159	0.001	0.000	0.001	-0.183	-0.040	0.003	0.014	.	-0.009	0.138	0.010	0.020	.
305	ARGG	M-13/S2133	2.251	2.456	0.908	0.066	0.004	9.292	2.044	1.378	0.481	1.336	.	0.740	21.358	0.632	0.013	.
305	ARGG	M-13/S2133	2.280	2.565	0.913	0.070	0.004	8.087	2.136	1.423	0.713	1.605	.	0.733	22.560	0.642	0.001	.
305	SM01	M-13/S2133	2.772	1.412	0.675	0.057	0.017	7.591	0.730	2.130	0.685	1.530	.	0.427	23.357	0.023	2.363	.
305	SM01	M-13/S2133	2.813	1.475	0.693	0.058	0.016	7.841	-0.001	2.220	0.692	1.587	.	0.438	24.707	0.022	2.401	.
305	SM01	M-13/S2133	2.917	1.495	0.691	0.059	0.016	8.028	0.048	2.290	0.701	1.575	.	0.447	25.082	0.022	2.459	.
305	SM01	M-13/S2133	2.230	1.073	0.527	0.043	0.013	6.000	3.942	1.750	0.542	1.183	.	0.331	16.889	0.016	1.897	.
305	SM01	M-13/S2133	2.812	1.405	0.684	0.062	0.017	8.001	4.992	2.189	0.700	1.542	.	0.429	23.801	0.021	2.392	.
305	SM01	M-13/S2133	2.699	1.380	0.647	0.060	0.017	7.774	4.831	2.139	0.686	1.543	.	0.416	23.511	0.021	2.313	.
305	SM55	M-13/S2133	-0.020	0.019	-0.187	0.000	0.000	-0.096	-0.164	-0.024	0.006	-0.007	.	0.001	0.316	-0.005	-0.031	.
305	SM55	M-13/S2133	-0.018	0.025	-0.173	0.007	-0.001	-0.053	-0.159	-0.025	0.008	-0.005	.	0.001	0.322	-0.005	-0.050	.
306	ARGG	M-13/S2133	2.383	2.625	0.999	0.065	0.005	9.616	2.266	1.503	0.500	1.403	.	0.782	22.728	0.670	0.026	.
306	ARGG	M-13/S2133	2.369	2.648	0.999	0.073	0.006	9.567	2.550	1.499	0.509	1.356	.	0.818	22.649	0.666	0.057	.
306	SM01	M-13/S2133	2.800	1.388	0.735	0.050	0.017	7.778	0.004	2.144	0.694	1.605	.	0.436	23.121	0.042	2.540	.
306	SM01	M-13/S2133	2.856	1.396	0.747	0.053	0.017	7.892	0.131	2.229	0.713	1.644	.	0.453	23.355	0.041	2.612	.
306	SM01	M-13/S2133	2.890	1.383	0.746	0.058	0.017	8.013	0.068	2.141	0.703	1.628	.	0.457	23.319	0.041	2.614	.
306	SM01	M-13/S2133	2.868	1.398	0.733	0.054	0.018	8.051	0.058	2.141	0.720	1.567	.	0.477	23.572	0.041	2.608	.
306	SM01	M-13/S2133	2.896	1.407	0.736	0.063	0.017	8.082	0.036	2.177	0.716	1.557	.	0.467	24.489	0.042	2.637	.
306	SM01	M-13/S2133	2.656	1.285	0.685	0.056	0.015	7.540	-0.033	1.984	0.665	1.546	.	0.425	22.071	0.041	2.497	.
306	SM55	M-13/S2133	0.001	0.008	-0.015	0.004	0.000	0.011	0.222	-0.015	0.004	0.039	.	-0.003	0.462	0.011	-0.003	.
306	SM55	M-13/S2133	0.038	0.000	0.000	0.000	0.001	-0.005	0.316	-0.017	0.007	0.036	.	0.004	0.367	0.012	0.032	.
307	ARGG	M-13/S2133	2.460	2.645	0.998	0.067	-0.002	9.939	2.200	1.497	0.521	1.427	.	0.822	23.033	0.684	0.016	.
307	ARGG	M-13/S2133	2.491	2.742	1.048	0.071	-0.002	10.140	2.123	1.469	0.532	1.463	.	0.833	23.797	0.667	0.015	.
307	SM01	M-13/S2133	2.516	1.156	0.578	0.046	0.009	6.758	-0.022	1.854	0.592	1.353	.	0.381	19.707	0.024	2.261	.
307	SM01	M-13/S2133	3.071	1.561	0.721	0.056	0.010	8.333	-0.054	2.358	0.707	1.632	.	0.479	26.158	0.030	2.757	.
307	SM01	M-13/S2133	2.863	1.460	0.680	0.055	0.010	7.894	-0.036	2.202	0.665	1.561	.	0.458	24.827	0.027	2.607	.
307	SM01	M-13/S2133	2.912	1.464	0.699	0.056	0.011	7.999	-0.042	2.214	0.680	1.580	.	0.472	24.479	0.027	2.634	.
307	SM01	M-13/S2133	2.869	1.498	0.690	0.054	0.009	7.799	-0.072	2.203	0.675	1.567	.	0.448	24.968	0.028	2.564	.
307	SM01	M-13/S2133	2.818	1.403	0.681	0.052	0.010	7.787	-0.044	2.126	0.676	1.548	.	0.451	23.941	0.029	2.541	.
307	SM55	M-13/S2133	-0.026	-0.018	-0.027	-0.003	-0.007	-0.166	-0.145	-0.038	-0.007	-0.015	.	0.003	0.191	-0.008	-0.005	.
307	SM55	M-13/S2133	-0.015	-0.013	-0.011	0.005	0.004	-0.050	-0.125	-0.033	-0.005	-0.013	.	0.008	0.283	-0.008	-0.008	.
308	ARGG	M-13/S2133	2.421	2.652	0.979	0.061	0.000	9.719	2.138	1.485	0.504	1.418	.	0.799	22.660	0.677	0.019	.
308	ARGG	M-13/S2133	2.456	2.678	0.998	0.062	-0.001	9.657	2.165	1.475	0.494	1.396	.	0.815	22.472	0.706	0.030	.
308	SM01	M-13/S2133	2.778	1.412	0.682	0.050	0.012	7.637	0.543	2.115	0.695	1.564	.	0.438	23.601	0.035	2.653	.
308	SM01	M-13/S2133	2.833	1.494	0.674	0.049	0.011	7.842	-0.035	2.210	0.665	1.535	.	0.453	24.132	0.035	2.762	.
308	SM01	M-13/S2133	2.917	1.465	0.692	0.050	0.013	7.848	0.259	2.221	0.666	1.551	.	0.443	24.209	0.038	2.752	.
308	SM01	M-13/S2133	2.847	1.459	0.689	0.047	0.011	7.652	0.257	2.145	0.679	1.547	.	0.449	24.202	0.037	2.767	.
308	SM01	M-13/S2133	2.812	1.452	0.695	0.053	0.013	7.662	-0.032	2.217	0.669	1.538	.	0.434	23.782	0.035	2.682	.

Table A2. Fusion Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
308	SM01	M-13/S2133	2.852	1.452	0.684	0.052	0.013	7.813	0.199	2.188	0.675	1.561	.	0.443	24.221	0.036	2.688	.
308	SM55	M-13/S2133	-0.071	-0.012	-0.037	-0.008	-0.004	-0.150	-0.122	-0.037	-0.010	-0.016	.	-0.015	0.151	-0.007	-0.015	.
308	SM55	M-13/S2133	0.020	-0.010	-0.034	-0.009	-0.006	-0.132	-0.142	-0.029	-0.004	-0.007	.	-0.011	0.330	-0.004	0.001	.
309	ARGG	M-13/S2133	2.361	2.570	0.979	0.071	-0.001	9.535	2.163	1.460	0.509	1.378	.	0.818	22.412	0.661	0.053	.
309	ARGG	M-13/S2133	2.446	2.645	0.993	0.071	-0.002	9.905	2.169	1.463	0.519	1.422	.	0.835	23.131	0.679	0.053	.
309	SM01	M-13/S2133	2.948	1.436	0.730	0.058	0.013	8.070	0.008	2.204	0.703	1.609	.	0.476	24.081	0.029	2.786	.
309	SM01	M-13/S2133	2.902	1.436	0.720	0.059	0.010	8.059	-0.014	2.164	0.697	1.599	.	0.478	24.321	0.028	2.777	.
309	SM01	M-13/S2133	2.947	1.440	0.719	0.060	0.011	8.215	-0.007	2.255	0.681	1.594	.	0.490	24.634	0.029	2.786	.
309	SM01	M-13/S2133	2.877	1.454	0.689	0.059	0.010	7.987	0.051	2.228	0.666	1.525	.	0.458	24.934	0.028	2.754	.
309	SM01	M-13/S2133	2.863	1.430	0.698	0.059	0.011	7.960	0.001	2.203	0.663	1.539	.	0.459	24.166	0.028	2.722	.
309	SM01	M-13/S2133	2.870	1.434	0.696	0.060	0.010	8.154	0.017	2.177	0.682	1.569	.	0.483	24.160	0.027	2.788	.
309	SM55	M-13/S2133	-0.101	-0.035	-0.031	0.003	-0.007	-0.179	-0.089	-0.044	-0.005	-0.015	.	0.005	0.104	-0.009	0.020	.
309	SM55	M-13/S2133	-0.099	-0.044	-0.027	0.004	-0.006	-0.148	-0.095	-0.047	-0.003	-0.016	.	0.008	0.136	-0.009	0.013	.
310	ARGG	M-13/S2133	2.360	2.562	0.972	0.070	0.001	9.559	2.149	1.421	0.508	1.382	.	0.802	22.323	0.663	0.072	.
310	ARGG	M-13/S2133	2.514	2.769	1.041	0.077	0.003	10.086	2.273	1.506	0.541	1.479	.	0.860	24.207	0.696	0.087	.
310	SM01	M-13/S2133	2.902	1.551	0.711	0.059	0.015	7.903	-0.036	2.254	0.653	1.512	.	0.451	25.062	0.038	2.538	.
310	SM01	M-13/S2133	2.724	1.474	0.665	0.058	0.014	7.416	-0.026	2.154	0.610	1.425	.	0.442	23.641	0.035	2.373	.
310	SM01	M-13/S2133	2.812	1.507	0.672	0.056	0.014	7.805	-0.040	2.199	0.597	1.434	.	0.461	24.256	0.035	2.440	.
310	SM01	M-13/S2133	2.927	1.575	0.697	0.060	0.015	8.224	-0.046	2.250	0.638	1.543	.	0.488	25.410	0.037	2.575	.
310	SM01	M-13/S2133	2.866	1.609	0.671	0.061	0.015	7.859	-0.040	2.255	0.624	1.498	.	0.469	25.676	0.037	2.478	.
310	SM01	M-13/S2133	2.622	1.458	0.598	0.055	0.013	7.242	-0.066	2.099	0.557	1.331	.	0.420	23.861	0.034	2.280	.
310	SM55	M-13/S2133	-0.006	0.024	-0.019	0.000	-0.002	-0.052	-0.080	-0.032	0.004	0.010	.	0.006	0.044	0.005	0.037	.
310	SM55	M-13/S2133	0.033	0.029	-0.010	0.001	-0.001	-0.016	-0.111	-0.036	0.005	0.014	.	0.012	0.081	0.007	0.077	.
311	ARGG	M-13/S2133	2.293	2.501	0.943	0.065	0.001	9.241	2.073	1.429	0.478	1.351	.	0.783	21.595	0.643	0.040	.
311	ARGG	M-13/S2133	2.129	2.356	0.885	0.061	0.002	8.584	1.949	1.328	0.448	1.255	.	0.733	20.443	0.610	0.057	.
311	SM01	M-13/S2133	2.747	1.543	0.635	0.054	0.013	7.408	-0.065	2.266	0.580	1.374	.	0.423	25.385	0.032	2.551	.
311	SM01	M-13/S2133	2.742	1.536	0.630	0.052	0.015	7.264	-0.044	2.318	0.578	1.370	.	0.424	24.461	0.032	2.562	.
311	SM01	M-13/S2133	2.784	1.591	0.636	0.053	0.015	7.285	-0.039	2.435	0.582	1.374	.	0.432	25.296	0.033	2.601	.
311	SM01	M-13/S2133	2.810	1.539	0.659	0.058	0.015	7.574	0.034	2.340	0.622	1.440	.	0.448	24.592	0.031	2.625	.
311	SM01	M-13/S2133	2.940	1.567	0.672	0.054	0.015	7.575	-0.057	2.358	0.626	1.465	.	0.447	25.656	0.032	2.629	.
311	SM01	M-13/S2133	2.843	1.577	0.646	0.053	0.015	7.608	-0.067	2.376	0.593	1.423	.	0.444	25.738	0.034	2.651	.
311	SM55	M-13/S2133	0.001	-0.018	-0.039	0.000	-0.003	-0.187	-0.129	-0.045	-0.007	-0.014	.	-0.004	0.035	0.000	0.016	.
311	SM55	M-13/S2133	0.080	-0.008	-0.022	0.003	-0.001	0.117	-0.145	-0.046	-0.005	-0.008	.	-0.003	0.130	0.001	0.060	.
312	ARGG	M-13/S2133	2.336	2.543	0.963	0.065	-0.002	9.697	2.084	1.473	0.506	1.401	.	0.788	22.557	0.669	0.081	.
312	ARGG	M-13/S2133	2.380	2.674	0.989	0.066	-0.001	9.959	2.057	1.463	0.506	1.428	.	0.838	22.764	0.672	0.089	.
312	SM01	M-13/S2133	2.828	1.469	0.680	0.052	0.010	7.979	-0.074	2.168	0.653	1.537	.	0.446	24.700	0.033	2.691	.
312	SM01	M-13/S2133	2.762	1.411	0.699	0.051	0.011	7.887	0.371	2.137	0.691	1.539	.	0.447	23.733	0.032	2.643	.
312	SM01	M-13/S2133	2.778	1.446	0.690	0.059	0.012	8.217	-0.068	2.143	0.670	1.558	.	0.462	24.297	0.032	2.659	.
312	SM01	M-13/S2133	2.859	1.419	0.701	0.054	0.037	8.182	0.387	2.049	0.655	1.561	.	0.501	23.443	0.033	2.733	.
312	SM01	M-13/S2133	2.920	1.424	0.714	0.059	0.012	8.282	0.203	2.154	0.702	1.610	.	0.478	24.245	0.033	2.783	.
312	SM01	M-13/S2133	2.785	1.402	0.686	0.052	0.012	7.973	0.057	2.167	0.668	1.546	.	0.454	23.761	0.032	2.662	.
312	SM55	M-13/S2133	-0.077	0.000	-0.062	0.000	-0.006	0.162	-0.170	-0.021	-0.012	0.015	.	-0.012	0.300	-0.008	0.027	.
312	SM55	M-13/S2133	-0.065	-0.019	-0.043	-0.006	-0.004	0.077	-0.183	-0.032	-0.013	0.009	.	-0.010	0.085	-0.007	0.069	.
313	ARGG	M-13/S2133	2.497	2.695	1.000	0.069	0.005	10.100	2.269	1.529	0.527	1.463	.	0.851	23.419	0.697	0.031	.
313	ARGG	M-13/S2133	2.493	2.612	0.994	0.067	0.006	9.911	2.113	1.449	0.509	1.426	.	0.826	22.926	0.679	0.049	.
313	SM01	M-13/S2133	2.782	1.542	0.613	0.050	0.015	7.545	0.025	2.273	0.593	1.415	.	0.437	25.319	0.040	2.395	.
313	SM01	M-13/S2133	2.854	1.490	0.667	0.050	0.017	7.756	0.525	2.320	0.657	1.502	.	0.449	25.124	0.040	2.467	.
313	SM01	M-13/S2133	2.735	1.454	0.637	0.049	0.016	7.493	0.140	2.207	0.618	1.434	.	0.437	24.466	0.039	2.350	.
313	SM01	M-13/S2133	2.875	1.467	0.622	0.049	0.016	7.665	0.271	2.270	0.589	1.395	.	0.436	25.161	0.040	2.439	.
313	SM01	M-13/S2133	2.329	1.658	0.455	0.048	0.013	6.252	0.027	2.467	0.410	1.041	.	0.354	27.801	0.042	1.886	.

Table A2. Fusion Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
313	SM01	M-13/S2133	2.782	1.480	0.644	0.051	0.017	7.531	-0.014	2.223	0.610	1.431	.	0.438	24.793	0.039	2.420	.
313	SM55	M-13/S2133	-0.028	-0.032	-0.036	-0.005	0.001	-0.054	-0.120	-0.043	-0.009	-0.021	.	-0.007	-0.001	0.004	-0.012	.
313	SM55	M-13/S2133	0.038	-0.011	-0.026	-0.003	0.003	-0.018	-0.151	-0.045	-0.010	-0.018	.	0.006	0.224	0.006	0.030	.
314	ARGG	M-13/S2133	2.450	2.603	0.985	0.066	0.013	9.695	2.153	1.465	0.510	1.432	.	0.812	22.513	0.689	0.063	.
314	ARGG	M-13/S2133	2.437	2.625	0.955	0.068	0.000	9.866	2.047	1.428	0.522	1.458	.	0.841	23.107	0.678	0.273	.
314	SM01	M-13/S2133	2.563	1.262	0.619	0.046	0.011	6.949	-0.044	1.994	0.609	1.370	.	0.393	21.483	0.028	2.461	.
314	SM01	M-13/S2133	2.881	1.466	0.685	0.054	0.014	7.934	0.262	2.293	0.662	1.554	.	0.449	24.954	0.031	2.755	.
314	SM01	M-13/S2133	2.799	1.483	0.669	0.058	0.013	7.866	0.014	2.272	0.662	1.538	.	0.447	24.705	0.030	2.743	.
314	SM01	M-13/S2133	2.878	1.463	0.689	0.054	0.014	7.890	0.040	2.232	0.686	1.582	.	0.457	24.615	0.031	2.845	.
314	SM01	M-13/S2133	2.996	1.457	0.699	0.057	0.015	8.241	0.098	2.186	0.683	1.604	.	0.481	24.303	0.031	3.007	.
314	SM01	M-13/S2133	2.898	1.465	0.678	0.056	0.015	7.974	0.182	2.257	0.686	1.595	.	0.461	24.866	0.032	2.881	.
314	SM55	M-13/S2133	-0.024	-0.019	-0.034	-0.003	-0.004	-0.075	-0.091	-0.016	0.000	-0.003	.	-0.012	0.102	-0.003	0.011	.
314	SM55	M-13/S2133	0.014	-0.026	-0.030	0.000	-0.001	-0.126	-0.091	-0.020	0.000	-0.004	.	-0.004	0.050	-0.004	0.303	.
315	ARGG	M-13/S2133	2.330	2.484	0.981	0.059	0.001	9.320	2.086	1.439	0.485	1.352	.	0.793	21.646	0.671	-0.081	.
315	SM01	M-13/S2133	2.851	1.458	0.731	0.054	0.013	7.748	-0.033	2.234	0.675	1.549	.	0.449	23.961	0.040	2.490	.
315	SM01	M-13/S2133	2.816	1.448	0.722	0.051	0.013	7.536	-0.043	2.214	0.670	1.519	.	0.440	24.264	0.041	2.415	.
315	SM01	M-13/S2133	2.889	1.495	0.726	0.052	0.014	7.697	-0.029	2.253	0.657	1.526	.	0.457	24.815	0.042	2.446	.
315	SM01	M-13/S2133	2.954	1.446	0.768	0.057	0.013	7.902	-0.045	2.244	0.694	1.607	.	0.459	24.425	0.041	2.509	.
315	SM01	M-13/S2133	2.838	1.392	0.729	0.051	0.013	7.565	-0.012	2.146	0.644	1.499	.	0.437	23.151	0.038	2.433	.
315	SM01	M-13/S2133	2.834	1.462	0.730	0.051	0.013	7.571	-0.006	2.252	0.668	1.526	.	0.448	24.021	0.039	2.449	.
315	SM55	M-13/S2133	0.006	-0.041	-0.028	-0.007	-0.004	-0.059	-0.120	-0.034	-0.003	0.004	.	-0.004	0.097	0.003	-0.186	.
315	SM55	M-13/S2133	0.068	-0.030	-0.032	-0.002	-0.005	-0.039	-0.133	-0.036	-0.005	0.008	.	0.003	0.134	0.005	-0.157	.
316	ARGG	M-13/S2133	2.351	2.582	0.966	0.055	-0.003	9.795	2.112	1.457	0.499	1.401	.	0.783	21.863	0.670	-0.085	.
316	ARGG	M-13/S2133	2.397	2.635	0.992	0.057	-0.003	10.300	2.114	1.451	0.508	1.456	.	0.830	22.501	0.671	-0.106	.
316	SM01	M-13/S2133	2.746	1.434	0.690	0.041	0.009	7.770	0.409	2.233	0.672	1.532	.	0.419	22.711	0.033	2.272	.
316	SM01	M-13/S2133	2.817	1.458	0.685	0.039	0.009	7.789	-0.065	2.215	0.686	1.562	.	0.425	23.709	0.036	2.315	.
316	SM01	M-13/S2133	2.755	1.486	0.666	0.040	0.008	7.941	-0.066	2.284	0.650	1.519	.	0.424	23.839	0.035	2.263	.
316	SM01	M-13/S2133	2.805	1.435	0.686	0.041	0.008	7.915	-0.067	2.201	0.663	1.567	.	0.436	22.825	0.035	2.294	.
316	SM01	M-13/S2133	2.776	1.432	0.655	0.044	0.008	7.859	-0.028	2.204	0.664	1.535	.	0.442	23.209	0.034	2.268	.
316	SM01	M-13/S2133	2.819	1.504	0.620	0.041	0.008	7.864	0.421	2.283	0.558	1.418	.	0.435	24.419	0.036	2.302	.
316	SM55	M-13/S2133	-0.007	-0.023	-0.048	-0.017	-0.008	-0.054	-0.187	-0.051	-0.015	-0.010	.	-0.021	-0.243	-0.004	-0.168	.
316	SM55	M-13/S2133	-0.015	-0.022	-0.060	-0.018	-0.010	0.004	-0.178	-0.043	-0.014	-0.006	.	-0.024	-0.292	-0.006	-0.195	.
317	ARGG	M-13/S2133	2.459	2.622	1.015	0.065	0.000	9.913	2.280	1.477	0.518	1.441	.	0.817	22.907	0.677	0.008	.
317	ARGG	M-13/S2133	2.495	2.679	1.044	0.066	0.000	10.085	2.224	1.478	0.528	1.446	.	0.819	23.054	0.699	0.018	.
317	SM01	M-13/S2133	2.870	1.394	0.735	0.052	0.013	7.895	0.005	2.141	0.700	1.606	.	0.442	23.079	0.042	2.566	.
317	SM01	M-13/S2133	3.011	1.459	0.775	0.055	0.013	8.390	-0.009	2.209	0.722	1.708	.	0.472	24.009	0.044	2.731	.
317	SM01	M-13/S2133	3.047	1.440	0.779	0.055	0.014	8.361	0.019	2.213	0.721	1.650	.	0.461	24.041	0.044	2.718	.
317	SM01	M-13/S2133	2.955	1.451	0.751	0.053	0.012	8.172	0.012	2.193	0.712	1.649	.	0.454	23.625	0.044	2.642	.
317	SM01	M-13/S2133	3.047	1.444	0.798	0.056	0.014	8.366	-0.002	2.212	0.745	1.684	.	0.485	24.078	0.044	2.700	.
317	SM01	M-13/S2133	2.955	1.467	0.758	0.058	0.012	8.574	0.000	2.288	0.747	1.698	.	0.469	24.066	0.043	2.686	.
317	SM55	M-13/S2133	-0.010	0.007	0.019	-0.004	-0.004	-0.037	-0.049	-0.034	-0.008	0.000	.	-0.013	-0.040	0.003	-0.035	.
317	SM55	M-13/S2133	0.003	0.008	-0.001	-0.004	-0.004	-0.050	-0.087	-0.040	-0.008	0.003	.	-0.012	-0.008	0.005	-0.013	.
318	ARGG	M-13/S2133	2.416	2.608	0.986	0.060	-0.005	9.817	2.162	1.455	0.508	1.425	.	0.832	22.882	0.682	0.039	.
318	ARGG	M-13/S2133	2.444	2.659	0.993	0.060	-0.005	9.851	2.145	1.456	0.515	1.445	.	0.850	23.391	0.680	0.038	.
318	SM01	M-13/S2133	3.124	1.463	0.788	0.050	0.007	8.604	0.328	2.139	0.815	1.796	.	0.511	24.558	0.044	2.694	.
318	SM01	M-13/S2133	3.050	1.491	0.739	0.054	0.007	8.446	0.185	2.172	0.771	1.739	.	0.505	24.504	0.045	2.634	.
318	SM01	M-13/S2133	2.987	1.526	0.740	0.050	0.007	8.339	0.039	2.257	0.731	1.670	.	0.485	24.946	0.048	2.514	.
318	SM01	M-13/S2133	2.990	1.444	0.724	0.047	0.006	8.058	0.439	2.167	0.748	1.658	.	0.475	24.021	0.046	2.487	.
318	SM01	M-13/S2133	3.041	1.470	0.773	0.055	0.006	8.505	0.561	2.183	0.782	1.730	.	0.508	24.385	0.046	2.582	.
318	SM01	M-13/S2133	3.075	1.461	0.735	0.051	0.007	8.410	0.655	2.188	0.736	1.659	.	0.497	24.113	0.046	2.579	.

Table A2. Fusion Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
318	SM55	M-13/S2133	0.031	0.017	-0.049	-0.014	-0.014	0.084	-0.013	-0.006	-0.004	0.025	.	-0.001	0.794	0.008	0.001	.
318	SM55	M-13/S2133	0.051	0.014	-0.030	-0.014	-0.011	0.086	-0.037	-0.016	-0.003	0.025	.	0.000	0.776	0.010	0.003	.
319	ARGG	M-13/S2133	2.392	2.575	0.947	0.061	0.005	9.658	2.097	1.451	0.503	1.400	.	0.792	23.378	0.674	0.040	.
319	ARGG	M-13/S2133	2.396	2.590	0.949	0.074	0.007	9.718	2.096	1.464	0.501	1.413	.	0.814	23.433	0.670	0.055	.
319	SM01	M-13/S2133	2.775	1.518	0.631	0.043	0.017	7.313	-0.023	2.262	0.588	1.372	.	0.400	26.150	0.041	2.309	.
319	SM01	M-13/S2133	2.083	1.100	0.510	0.030	0.013	5.520	18.768	1.659	0.533	1.187	.	0.315	19.320	0.032	1.696	.
319	SM01	M-13/S2133	2.728	1.545	0.630	0.043	0.018	7.346	0.115	2.302	0.557	1.350	.	0.425	26.070	0.042	2.276	.
319	SM01	M-13/S2133	2.352	1.221	0.588	0.039	0.016	6.226	12.266	1.847	0.568	1.275	.	0.361	20.882	0.035	1.975	.
319	SM01	M-13/S2133	2.759	1.457	0.675	0.043	0.018	7.142	1.800	2.186	0.620	1.416	.	0.428	23.923	0.039	2.273	.
319	SM01	M-13/S2133	2.797	1.545	0.658	0.045	0.017	7.443	-0.025	2.245	0.619	1.440	.	0.426	25.434	0.042	2.369	.
319	SM55	M-13/S2133	0.009	0.000	-0.050	-0.009	0.004	-0.082	-0.092	-0.004	0.000	0.007	.	-0.007	0.273	0.006	0.019	.
319	SM55	M-13/S2133	-0.007	0.006	-0.060	-0.009	0.001	-0.048	-0.078	0.004	0.001	0.006	.	-0.011	0.232	0.006	0.006	.
320	ARGG	M-14/S2150	2.394	2.462	0.973	0.064	-0.013	9.337	1.952	1.462	0.485	1.375	.	0.760	22.602	0.669	0.031	.
320	ARGG	M-14/S2150	2.370	2.510	0.954	0.065	0.000	9.556	1.922	1.458	0.502	1.391	.	0.767	23.380	0.668	0.031	.
320	SM01	M-14/S2150	2.971	1.393	0.699	0.051	0.016	7.713	-0.087	2.188	0.699	1.552	.	0.448	24.496	0.044	2.876	.
320	SM01	M-14/S2150	3.010	1.404	0.695	0.051	-0.050	7.820	0.012	2.190	0.686	1.561	.	0.441	24.080	0.042	2.904	.
320	SM01	M-14/S2150	3.044	1.406	0.692	0.054	0.014	7.911	0.022	2.210	0.698	1.560	.	0.442	24.734	0.043	2.889	.
320	SM01	M-14/S2150	3.001	1.438	0.695	0.053	0.015	7.993	-0.081	2.241	0.689	1.573	.	0.452	24.764	0.044	2.862	.
320	SM01	M-14/S2150	2.942	1.418	0.698	0.052	0.012	7.778	-0.049	2.212	0.699	1.570	.	0.432	24.397	0.045	2.867	.
320	SM01	M-14/S2150	2.405	1.135	0.582	0.043	0.011	6.317	-0.092	1.766	0.563	1.281	.	0.346	19.767	0.035	2.282	.
320	SM55	M-14/S2150	0.049	-0.008	-0.063	-0.001	-0.019	0.058	-0.119	0.032	0.005	0.015	.	-0.016	0.242	0.009	-0.061	.
320	SM55	M-14/S2150	0.060	-0.007	-0.058	0.000	-0.003	0.057	-0.128	0.024	0.006	0.014	.	-0.011	0.259	0.010	-0.061	.
321	ARGG	M-14/S2150	2.416	2.570	0.956	0.064	-0.004	9.603	2.303	1.490	0.503	1.402	.	0.793	22.846	0.667	-0.019	.
321	ARGG	M-14/S2150	2.332	2.441	0.945	0.066	-0.005	9.306	2.324	1.420	0.488	1.347	.	0.750	22.762	0.647	-0.009	.
321	SM01	M-14/S2150	2.778	1.474	0.672	0.052	0.005	7.466	0.214	2.348	0.652	1.506	.	0.438	25.409	0.038	2.633	.
321	SM01	M-14/S2150	2.749	1.450	0.687	0.053	0.005	7.212	0.282	2.236	0.646	1.491	.	0.426	24.480	0.037	2.638	.
321	SM01	M-14/S2150	2.735	1.408	0.597	0.046	0.005	6.864	0.263	2.327	0.585	1.326	.	0.383	24.063	0.033	2.489	.
321	SM01	M-14/S2150	2.677	1.356	0.645	0.049	0.007	7.017	0.329	2.142	0.605	1.393	.	0.412	22.711	0.037	2.489	.
321	SM01	M-14/S2150	2.917	1.495	0.696	0.049	0.008	7.525	0.249	2.361	0.653	1.512	.	0.426	25.786	0.038	2.734	.
321	SM01	M-14/S2150	2.751	1.478	0.670	0.047	0.006	7.314	0.374	2.308	0.645	1.477	.	0.425	25.018	0.039	2.532	.
321	SM55	M-14/S2150	0.007	0.008	-0.010	0.003	-0.010	-0.035	0.173	0.017	0.016	0.020	.	0.003	0.029	0.004	-0.058	.
321	SM55	M-14/S2150	0.028	0.003	-0.027	-0.003	-0.012	-0.065	0.515	0.016	0.013	0.018	.	0.003	0.006	0.003	0.037	.
322	ARGG	M-14/S2150	2.335	2.455	0.926	0.081	0.009	9.528	2.056	1.411	0.478	1.346	.	0.778	22.446	0.658	0.016	.
322	ARGG	M-14/S2150	2.185	2.315	0.754	0.077	0.001	9.451	1.754	1.358	0.443	1.258	.	0.733	21.237	0.598	-0.185	.
322	SM01	M-14/S2150	2.540	1.248	0.588	0.031	0.010	6.784	-0.063	1.887	0.599	1.356	.	0.366	21.183	0.034	2.302	.
322	SM01	M-14/S2150	2.878	1.442	0.693	0.065	0.015	8.252	-0.079	2.232	0.709	1.612	.	0.442	24.447	0.039	2.549	.
322	SM01	M-14/S2150	2.502	1.207	0.533	0.032	0.014	6.676	-0.108	1.889	0.585	1.328	.	0.370	21.156	0.033	2.136	.
322	SM01	M-14/S2150	2.920	1.415	0.675	0.071	0.018	8.236	-0.134	2.210	0.691	1.584	.	0.447	24.209	0.042	2.542	.
322	SM01	M-14/S2150	2.628	1.247	0.635	0.040	0.012	6.966	0.094	1.957	0.627	1.419	.	0.391	21.826	0.034	2.336	.
322	SM01	M-14/S2150	2.948	1.498	0.693	0.050	0.014	7.975	-0.047	2.328	0.703	1.627	.	0.457	25.829	0.040	2.652	.
322	SM55	M-14/S2150	-0.007	0.011	-0.082	-0.017	-0.001	0.036	-0.125	-0.003	0.004	0.026	.	0.000	-0.047	0.007	-0.053	.
322	SM55	M-14/S2150	-0.060	0.015	-0.172	-0.014	-0.006	-0.018	-0.365	-0.015	0.004	0.022	.	-0.014	-0.049	0.003	-0.234	.
323	ARGG	M-14/S2150	2.414	2.540	0.946	0.054	0.000	9.492	2.202	1.467	0.497	1.402	.	0.771	22.621	0.671	-0.060	.
323	ARGG	M-14/S2150	2.406	2.571	0.990	0.063	0.001	9.571	2.224	1.502	0.496	1.387	.	0.765	23.004	0.675	-0.099	.
323	ARGG	M-13/S2133	2.432	2.632	1.027	0.056	0.008	9.777	2.102	1.457	0.499	1.431	.	0.773	22.787	0.688	-0.026	.
323	ARGG	M-13/S2133	2.406	2.697	0.990	0.063	0.010	9.567	2.220	1.468	0.491	1.407	.	0.807	22.186	0.682	0.016	.
323	SM01	M-14/S2150	2.786	1.339	0.647	0.037	0.010	7.272	0.127	2.097	0.639	1.470	.	0.418	22.810	0.039	2.601	.
323	SM01	M-14/S2150	2.648	1.248	0.606	0.033	0.013	6.818	0.090	2.039	0.618	1.320	.	0.373	20.414	0.034	2.530	.
323	SM01	M-14/S2150	2.701	1.256	0.613	0.031	0.011	6.965	0.000	1.991	0.615	1.425	.	0.390	22.055	0.038	2.600	.
323	SM01	M-14/S2150	2.763	1.271	0.634	0.031	0.010	7.057	0.034	2.017	0.618	1.442	.	0.398	22.185	0.037	2.621	.

Table A2. Fusion Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
323	SM01	M-14/S2150	2.625	1.212	0.610	0.031	0.009	6.836	0.020	1.914	0.596	1.387	.	0.376	21.338	0.036	2.485	.
323	SM01	M-14/S2150	2.898	1.383	0.714	0.037	0.013	7.481	0.081	2.153	0.666	1.507	.	0.422	23.715	0.039	2.685	.
323	SM01	M-13/S2133	2.673	1.456	0.655	0.056	0.018	7.546	0.075	2.033	0.642	1.531	.	0.429	23.700	0.039	2.205	.
323	SM01	M-13/S2133	2.897	1.354	0.835	0.048	0.022	7.402	0.183	2.209	0.666	1.535	.	0.414	22.182	0.039	2.370	.
323	SM01	M-13/S2133	2.729	1.389	0.684	0.050	0.022	7.287	0.074	2.168	0.637	1.498	.	0.408	25.025	0.042	2.320	.
323	SM01	M-13/S2133	2.758	1.428	0.671	0.053	0.022	7.351	0.065	2.074	0.650	1.525	.	0.409	24.991	0.041	2.350	.
323	SM01	M-13/S2133	2.848	1.383	0.796	0.046	0.020	7.484	0.169	2.178	0.662	1.546	.	0.410	22.340	0.038	2.290	.
323	SM01	M-13/S2133	2.734	1.410	0.661	0.051	0.020	7.399	0.076	2.114	0.624	1.517	.	0.410	24.543	0.041	2.340	.
323	SM55	M-14/S2150	-0.047	0.012	-0.129	-0.004	-0.003	-0.069	0.124	0.008	0.004	0.022	.	-0.010	0.073	0.001	-0.107	.
323	SM55	M-14/S2150	-0.050	0.010	-0.090	-0.012	-0.006	-0.080	0.360	0.011	0.004	0.022	.	-0.017	0.090	0.001	-0.181	.
323	SM55	M-13/S2133	-0.023	-0.007	-0.031	-0.004	0.004	-0.239	0.043	-0.012	0.000	-0.007	.	-0.012	-0.453	0.000	-0.085	.
323	SM55	M-13/S2133	0.006	-0.008	-0.028	0.006	0.007	-0.175	0.025	-0.017	-0.001	-0.006	.	-0.004	-0.350	0.001	-0.055	.
324	ARGG	M-13/S2133	2.334	2.516	0.901	0.058	-0.002	9.036	2.079	1.390	0.472	1.337	.	0.765	22.632	0.664	0.065	.
324	ARGG	M-13/S2133	2.325	2.497	0.913	0.059	-0.003	9.409	2.131	1.433	0.486	1.372	.	0.763	22.677	0.648	-0.003	.
324	SM01	M-13/S2133	2.766	1.500	0.612	0.043	0.008	7.054	0.084	2.360	0.621	1.408	.	0.401	24.093	0.045	2.387	.
324	SM01	M-13/S2133	2.563	1.474	0.615	0.041	0.007	6.862	0.297	2.243	0.595	1.372	.	0.364	22.912	0.042	2.319	.
324	SM01	M-13/S2133	2.730	1.558	0.669	0.041	0.007	7.275	0.022	2.336	0.615	1.438	.	0.411	24.661	0.044	2.414	.
324	SM01	M-13/S2133	2.761	1.516	0.688	0.042	0.009	7.353	0.040	2.284	0.650	1.468	.	0.413	24.879	0.045	2.499	.
324	SM01	M-13/S2133	2.944	1.634	0.689	0.045	0.011	7.596	0.045	2.326	0.662	1.556	.	0.431	27.039	0.046	2.551	.
324	SM01	M-13/S2133	2.792	1.615	0.682	0.047	0.012	7.568	0.042	2.385	0.653	1.513	.	0.431	25.446	0.046	2.545	.
324	SM55	M-13/S2133	0.006	0.008	-0.022	-0.010	-0.009	-0.162	-0.027	0.000	-0.009	-0.003	.	-0.016	-0.095	0.011	-0.042	.
324	SM55	M-13/S2133	0.031	0.007	-0.048	0.003	-0.007	-0.092	-0.056	0.001	-0.009	0.001	.	-0.003	0.044	0.013	0.017	.
325	ARGG	M-14/S2150	2.323	2.616	0.941	0.122	0.001	9.728	2.160	1.461	0.504	1.446	.	0.817	22.622	0.664	-0.111	.
325	ARGG	M-14/S2150	2.409	2.570	0.961	0.069	0.002	9.592	2.233	1.468	0.504	1.407	.	0.777	22.957	0.672	-0.180	.
325	SM01	M-14/S2150	2.681	1.496	0.646	0.061	0.011	7.136	0.096	2.253	0.618	1.388	.	0.409	24.472	0.044	2.557	.
325	SM01	M-14/S2150	2.982	1.557	0.713	0.066	0.013	8.104	0.329	2.315	0.681	1.547	.	0.448	25.457	0.046	2.752	.
325	SM01	M-14/S2150	2.823	1.570	0.689	0.054	0.013	7.626	0.437	2.391	0.684	1.488	.	0.428	26.309	0.046	2.669	.
325	SM01	M-14/S2150	2.772	1.537	0.648	0.055	0.011	7.586	-0.057	2.326	0.633	1.463	.	0.427	25.207	0.044	2.676	.
325	SM01	M-14/S2150	2.646	1.547	0.639	0.051	0.011	7.184	-0.026	2.245	0.627	1.441	.	0.406	23.875	0.044	2.434	.
325	SM01	M-14/S2150	2.717	1.493	0.664	0.052	0.012	7.293	-0.031	2.231	0.628	1.446	.	0.418	23.733	0.042	2.559	.
325	SM55	M-14/S2150	-0.001	0.007	0.017	0.018	-0.001	0.253	0.029	0.022	0.018	0.016	.	0.012	0.089	0.005	-0.147	.
325	SM55	M-14/S2150	-0.044	0.007	-0.090	-0.003	-0.005	0.126	-0.220	0.018	0.003	0.000	.	-0.014	0.072	0.005	-0.340	.
326	ARGG	M-14/S2150	2.264	2.382	0.921	0.056	-0.002	9.120	2.069	1.390	0.470	1.322	.	0.742	22.466	0.639	-0.061	.
326	ARGG	M-14/S2150	2.324	2.557	0.967	0.052	-0.005	9.067	2.435	1.431	0.473	1.364	.	0.763	21.455	0.647	-0.071	.
326	ARGG	M-14/S2150	2.312	2.354	0.930	0.054	-0.008	8.956	2.069	1.390	0.469	1.286	.	0.723	21.628	0.635	-0.019	.
326	ARGG	M-14/S2150	2.373	2.484	0.972	0.056	0.003	9.475	2.435	1.431	0.485	1.374	.	0.772	22.235	0.661	0.094	.
326	SM01	M-14/S2150	2.740	1.413	0.694	0.038	0.007	7.316	0.215	2.240	0.645	1.468	.	0.403	23.249	0.038	2.671	.
326	SM01	M-14/S2150	2.746	1.454	0.650	0.039	0.007	7.172	0.012	2.278	0.621	1.444	.	0.412	23.314	0.038	2.568	.
326	SM01	M-14/S2150	2.776	1.390	0.672	0.037	0.006	7.154	0.206	2.148	0.642	1.468	.	0.421	22.841	0.036	2.599	.
326	SM01	M-14/S2150	2.496	1.270	0.597	0.032	0.003	6.460	0.166	1.966	0.595	1.356	.	0.369	20.704	0.032	2.352	.
326	SM01	M-14/S2150	3.033	1.543	0.766	0.044	0.007	7.949	0.349	2.474	0.726	1.614	.	0.455	24.446	0.043	2.923	.
326	SM01	M-14/S2150	2.396	1.229	0.571	0.032	0.008	6.097	-0.028	1.903	0.564	1.296	.	0.355	19.870	0.032	2.219	.
326	SM01	M-14/S2150	2.787	1.429	0.711	0.040	0.013	7.369	0.215	2.240	0.657	1.486	.	0.407	24.384	0.042	2.694	.
326	SM01	M-14/S2150	3.025	1.508	0.779	0.049	0.016	8.188	0.349	2.474	0.729	1.614	.	0.447	25.821	0.046	3.001	.
326	SM01	M-14/S2150	2.367	1.211	0.586	0.033	0.017	6.378	-0.028	1.903	0.575	1.321	.	0.360	20.699	0.037	2.353	.
326	SM01	M-14/S2150	2.762	1.468	0.675	0.042	0.015	7.404	0.012	2.278	0.622	1.431	.	0.425	24.058	0.043	2.644	.
326	SM01	M-14/S2150	2.764	1.378	0.684	0.040	0.014	7.498	0.206	2.148	0.651	1.459	.	0.413	23.673	0.042	2.720	.
326	SM01	M-14/S2150	2.533	1.271	0.638	0.036	0.013	6.686	0.166	1.966	0.601	1.335	.	0.377	21.733	0.037	2.505	.
326	SM55	M-14/S2150	0.004	-0.014	-0.017	-0.009	-0.009	0.089	0.056	-0.004	0.004	0.010	.	-0.013	0.062	0.001	-0.053	.
326	SM55	M-14/S2150	-0.024	-0.016	-0.038	-0.015	-0.011	0.050	0.138	-0.007	0.004	0.009	.	-0.024	0.073	0.001	-0.194	.

Table A2. Fusion Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
327	ARGG	M-14/S2150	2.422	2.501	0.951	0.061	-0.001	9.463	2.334	1.434	0.484	1.393	.	0.783	22.514	0.672	-0.092	.
327	ARGG	M-14/S2150	2.393	2.503	0.944	0.061	-0.001	9.685	2.161	1.474	0.501	1.405	.	0.796	23.305	0.686	-0.101	.
327	SM01	M-14/S2150	2.759	1.424	0.674	0.046	0.012	7.415	-0.016	2.224	0.642	1.528	.	0.434	23.825	0.040	2.667	.
327	SM01	M-14/S2150	3.160	1.583	0.769	0.050	0.014	8.561	-0.035	2.586	0.741	1.690	.	0.469	27.044	0.045	2.994	.
327	SM01	M-14/S2150	2.875	1.498	0.708	0.047	0.017	7.914	-0.035	2.346	0.682	1.585	.	0.440	24.897	0.041	2.793	.
327	SM01	M-14/S2150	2.751	1.439	0.686	0.046	0.011	7.638	0.127	2.219	0.667	1.537	.	0.429	24.010	0.038	2.672	.
327	SM01	M-14/S2150	2.361	1.222	0.564	0.038	0.008	6.448	0.007	1.906	0.551	1.304	.	0.356	20.138	0.032	2.210	.
327	SM01	M-14/S2150	2.934	1.482	0.709	0.049	0.012	7.941	0.007	2.314	0.682	1.587	.	0.454	24.802	0.042	2.737	.
327	SM55	M-14/S2150	-0.028	0.000	-0.057	-0.003	0.000	0.085	0.107	-0.009	0.005	0.013	.	-0.009	0.175	0.004	-0.076	.
327	SM55	M-14/S2150	-0.033	0.012	-0.118	-0.003	-0.008	0.128	-0.133	-0.014	0.003	0.011	.	-0.004	0.278	0.003	-0.175	.
328	ARGG	M-13/S2133	2.336	2.704	0.991	0.072	0.001	10.257	2.245	1.483	0.529	1.479	.	0.784	23.263	0.664	-0.006	.
328	ARGG	M-13/S2133	2.325	2.673	0.974	0.073	-0.001	9.847	2.197	1.457	0.533	1.449	.	0.778	23.088	0.658	-0.031	.
328	SM01	M-13/S2133	2.794	1.527	0.718	0.058	0.011	8.096	0.062	2.334	0.664	1.574	.	0.434	24.780	0.043	2.567	.
328	SM01	M-13/S2133	2.802	1.522	0.689	0.059	0.012	8.201	0.083	2.328	0.673	1.594	.	0.446	24.757	0.043	2.617	.
328	SM01	M-13/S2133	2.707	1.624	0.686	0.057	0.010	7.983	0.037	2.339	0.655	1.560	.	0.423	25.417	0.047	2.439	.
328	SM01	M-13/S2133	2.645	1.542	0.673	0.055	0.010	7.482	0.049	2.328	0.648	1.480	.	0.412	24.722	0.042	2.406	.
328	SM01	M-13/S2133	2.730	1.525	0.679	0.059	0.010	8.217	0.038	2.263	0.690	1.601	.	0.436	23.791	0.041	2.537	.
328	SM01	M-13/S2133	2.716	1.539	0.647	0.056	0.010	7.941	0.035	2.234	0.657	1.544	.	0.423	23.335	0.041	2.469	.
328	SM55	M-13/S2133	-0.031	0.011	-0.032	0.004	-0.003	0.051	-0.013	-0.024	0.010	0.005	.	-0.008	0.025	0.006	-0.103	.
328	SM55	M-13/S2133	0.003	0.005	-0.024	0.003	-0.006	0.021	-0.008	-0.021	0.009	0.010	.	-0.009	0.078	0.008	-0.081	.
329	ARGG	M-13/S2133	2.308	2.631	0.953	0.078	0.003	9.799	2.173	1.399	0.512	1.373	.	0.806	22.399	0.631	-0.016	.
329	ARGG	M-13/S2133	2.219	2.409	0.896	0.072	0.002	9.145	2.015	1.354	0.488	1.334	.	0.760	21.779	0.621	-0.033	.
329	SM01	M-13/S2133	2.824	1.454	0.726	0.064	0.016	7.868	0.085	2.231	0.694	1.569	.	0.465	23.278	0.033	2.447	.
329	SM01	M-13/S2133	2.884	1.536	0.710	0.067	0.015	8.022	-0.006	2.297	0.679	1.521	.	0.467	24.520	0.034	2.468	.
329	SM01	M-13/S2133	2.882	1.460	0.679	0.065	0.016	7.656	0.065	2.211	0.649	1.467	.	0.446	23.873	0.034	2.379	.
329	SM01	M-13/S2133	2.907	1.565	0.697	0.074	0.015	8.262	-0.004	2.324	0.714	1.561	.	0.478	25.314	0.036	2.530	.
329	SM01	M-13/S2133	2.718	1.388	0.638	0.061	0.014	7.384	0.019	2.179	0.632	1.395	.	0.435	25.244	0.065	2.247	.
329	SM01	M-13/S2133	2.869	1.465	0.706	0.063	0.015	7.601	0.041	2.265	0.645	1.466	.	0.443	23.498	0.033	2.356	.
329	SM55	M-13/S2133	-0.077	0.010	-0.027	0.009	-0.001	-0.050	-0.048	-0.005	0.007	-0.012	.	0.000	0.303	-0.001	-0.099	.
329	SM55	M-13/S2133	-0.075	0.021	-0.021	0.016	-0.001	-0.045	-0.076	-0.009	0.011	-0.007	.	0.016	0.351	0.001	-0.058	.
330	ARGG	M-14/S2150	2.544	2.698	1.027	0.063	-0.008	10.055	2.195	1.556	0.527	1.477	.	0.827	23.382	0.712	-0.165	.
330	ARGG	M-14/S2150	2.350	2.547	0.936	0.058	-0.006	9.556	2.227	1.468	0.496	1.391	.	0.784	21.922	0.675	-0.182	.
330	ARGG	M-13/S2133	2.598	2.667	1.048	0.067	0.000	10.038	2.261	1.564	0.526	1.497	.	0.814	23.536	0.716	-0.065	.
330	ARGG	M-13/S2133	2.412	2.589	0.959	0.061	0.002	9.521	2.158	1.466	0.503	1.434	.	0.810	22.114	0.675	0.008	.
330	SM01	M-14/S2150	2.630	1.247	0.594	0.039	0.004	6.953	0.094	2.024	0.585	1.391	.	0.386	20.086	0.033	2.430	.
330	SM01	M-14/S2150	3.320	1.591	0.773	0.049	0.005	8.873	0.086	2.498	0.728	1.736	.	0.471	25.365	0.044	3.048	.
330	SM01	M-14/S2150	2.970	1.449	0.692	0.045	0.000	7.937	0.128	2.305	0.681	1.588	.	0.430	23.284	0.037	2.721	.
330	SM01	M-14/S2150	2.908	1.410	0.668	0.045	0.004	7.782	0.324	2.192	0.624	1.515	.	0.420	22.612	0.037	2.664	.
330	SM01	M-14/S2150	2.943	1.443	0.687	0.043	0.003	7.949	0.174	2.280	0.674	1.596	.	0.452	23.269	0.040	2.823	.
330	SM01	M-14/S2150	2.910	1.413	0.656	0.046	0.002	7.854	0.389	2.211	0.630	1.527	.	0.438	22.324	0.037	2.707	.
330	SM01	M-13/S2133	2.994	1.441	0.756	0.051	0.013	7.846	0.134	2.225	0.690	1.638	.	0.462	22.418	0.046	2.806	.
330	SM01	M-13/S2133	3.008	1.459	0.735	0.055	0.012	8.011	0.142	2.231	0.691	1.631	.	0.479	22.825	0.044	2.832	.
330	SM01	M-13/S2133	2.982	1.431	0.760	0.052	0.015	7.927	0.090	2.229	0.687	1.605	.	0.473	23.047	0.047	2.803	.
330	SM01	M-13/S2133	2.938	1.360	0.713	0.052	0.013	7.780	0.099	2.234	0.654	1.551	.	0.428	22.002	0.044	2.835	.
330	SM01	M-13/S2133	3.023	1.473	0.749	0.054	0.013	8.018	0.116	2.249	0.683	1.625	.	0.473	23.059	0.045	2.833	.
330	SM01	M-13/S2133	2.972	1.448	0.753	0.052	0.014	7.983	0.124	2.247	0.690	1.640	.	0.469	23.065	0.046	2.837	.
330	SM55	M-14/S2150	-0.064	0.026	-0.035	-0.005	-0.010	-0.121	0.026	-0.018	0.001	-0.004	.	-0.016	-0.019	0.000	-0.259	.
330	SM55	M-14/S2150	-0.065	0.017	-0.065	-0.013	-0.013	-0.110	0.137	-0.020	0.001	-0.003	.	-0.020	-0.091	0.000	-0.194	.
330	SM55	M-13/S2133	-0.017	-0.050	-0.034	-0.003	-0.004	-0.134	-0.057	-0.003	0.001	-0.001	.	-0.021	0.086	0.007	-0.047	.
330	SM55	M-13/S2133	-0.021	-0.043	-0.030	-0.003	-0.003	-0.095	-0.035	0.009	0.003	0.000	.	-0.012	0.093	0.009	-0.062	.

Table A2. Fusion Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
331	ARGG	M-14/S2150	2.421	2.583	1.012	0.067	0.001	9.580	2.579	1.479	0.507	1.408	.	0.806	22.351	0.684	0.059	.
331	ARGG	M-14/S2150	2.435	2.560	0.981	0.066	0.001	9.527	2.491	1.465	0.500	1.408	.	0.792	22.175	0.672	0.014	.
331	SM01	M-14/S2150	2.959	1.509	0.760	0.054	0.012	7.822	0.324	2.328	0.713	1.587	.	0.447	23.386	0.042	2.903	.
331	SM01	M-14/S2150	2.808	1.414	0.719	0.053	0.011	7.786	0.310	2.173	0.659	1.555	.	0.447	21.869	0.052	2.821	.
331	SM01	M-14/S2150	2.981	1.494	0.753	0.057	0.016	8.269	0.335	2.361	0.706	1.647	.	0.475	23.642	0.041	2.954	.
331	SM01	M-14/S2150	4.062	2.066	1.060	0.075	0.021	11.185	0.451	3.220	0.966	2.235	.	0.665	32.615	0.054	4.054	.
331	SM01	M-14/S2150	2.838	1.409	0.728	0.054	0.014	7.760	0.268	2.199	0.680	1.568	.	0.444	22.038	0.038	2.789	.
331	SM01	M-14/S2150	3.028	1.480	0.757	0.055	0.011	8.164	0.358	2.297	0.706	1.672	.	0.472	22.774	0.040	2.971	.
331	SM55	M-14/S2150	0.049	0.007	-0.004	0.004	-0.007	-0.060	0.433	0.021	0.007	0.010	.	0.000	0.206	0.008	0.093	.
331	SM55	M-14/S2150	0.004	0.007	-0.023	-0.004	-0.004	-0.086	0.495	0.018	0.011	0.008	.	-0.001	0.169	0.007	-0.003	.
332	ARGG	M-13/S2133	2.465	2.665	0.986	0.069	-0.004	9.586	2.336	1.483	0.497	1.390	.	0.807	22.075	0.671	-0.078	.
332	ARGG	M-13/S2133	2.401	2.617	0.988	0.066	-0.004	9.716	2.258	1.469	0.508	1.400	.	0.806	22.316	0.662	-0.074	.
332	SM01	M-13/S2133	2.879	1.432	0.717	0.052	0.009	7.604	0.531	2.195	0.672	1.482	.	0.434	23.069	0.038	2.418	.
332	SM01	M-13/S2133	2.701	1.376	0.608	0.055	0.008	7.309	0.186	2.117	0.630	1.432	.	0.413	21.595	0.036	2.206	.
332	SM01	M-13/S2133	2.847	1.474	0.713	0.050	0.008	7.704	0.133	2.279	0.693	1.534	.	0.440	23.790	0.037	2.445	.
332	SM01	M-13/S2133	3.405	1.771	0.856	0.066	0.012	9.173	0.222	2.700	0.805	1.828	.	0.524	27.737	0.044	2.826	.
332	SM01	M-13/S2133	2.888	1.432	0.693	0.058	0.010	7.600	0.181	2.207	0.658	1.501	.	0.434	22.906	0.039	2.443	.
332	SM01	M-13/S2133	2.950	1.451	0.731	0.056	0.008	7.687	0.156	2.267	0.685	1.542	.	0.432	24.064	0.039	2.453	.
332	SM55	M-13/S2133	-0.033	-0.040	-0.097	-0.006	-0.012	-0.185	-0.055	-0.012	0.000	-0.009	.	-0.013	0.229	0.003	-0.166	.
332	SM55	M-13/S2133	0.000	-0.015	-0.032	0.007	-0.011	-0.104	-0.005	-0.010	0.008	-0.003	.	-0.001	0.423	0.003	-0.143	.
333	ARGG	M-13/S2133	2.442	2.619	0.986	0.067	0.004	9.898	2.132	1.457	0.523	1.384	.	0.805	22.186	0.670	-0.021	.
333	ARGG	M-13/S2133	2.360	2.586	0.960	0.067	0.004	9.800	2.156	1.481	0.516	1.396	.	0.804	21.538	0.664	-0.016	.
333	ARGG	M-13/S2133	2.322	2.598	0.969	0.097	-0.001	9.658	2.248	1.482	0.515	1.403	.	0.821	21.852	0.649	-0.051	.
333	ARGG	M-13/S2133	2.403	2.625	0.997	0.071	0.000	9.628	2.213	1.499	0.518	1.440	.	0.844	22.312	0.678	-0.039	.
333	SM01	M-13/S2133	2.910	1.522	0.627	0.057	0.016	7.730	-0.035	2.237	0.610	1.412	.	0.445	24.152	0.043	2.347	.
333	SM01	M-13/S2133	2.370	1.197	0.508	0.040	0.013	6.271	-0.062	1.885	0.498	1.119	.	0.348	19.369	0.035	1.902	.
333	SM01	M-13/S2133	2.925	1.387	0.668	0.056	0.017	7.883	-0.026	2.188	0.645	1.462	.	0.466	23.192	0.041	2.381	.
333	SM01	M-13/S2133	2.943	1.402	0.680	0.053	0.016	7.879	-0.012	2.309	0.683	1.466	.	0.445	22.660	0.040	2.419	.
333	SM01	M-13/S2133	2.908	1.428	0.688	0.052	0.017	7.893	-0.026	2.120	0.671	1.520	.	0.455	22.552	0.040	2.408	.
333	SM01	M-13/S2133	2.685	1.287	0.638	0.046	0.015	7.164	0.069	2.033	0.617	1.357	.	0.406	21.191	0.038	2.190	.
333	SM01	M-13/S2133	2.648	1.382	0.651	0.052	0.012	7.283	0.132	2.167	0.618	1.408	.	0.419	22.389	0.039	2.210	.
333	SM01	M-13/S2133	2.973	1.453	0.729	0.059	0.013	7.869	0.021	2.298	0.679	1.546	.	0.475	23.646	0.042	2.397	.
333	SM01	M-13/S2133	2.818	1.532	0.661	0.055	0.011	7.509	0.025	2.352	0.592	1.410	.	0.435	24.695	0.042	2.280	.
333	SM01	M-13/S2133	2.929	1.448	0.723	0.058	0.012	7.979	0.020	2.261	0.687	1.556	.	0.461	23.783	0.040	2.399	.
333	SM01	M-13/S2133	2.874	1.421	0.721	0.059	0.011	7.945	0.029	2.251	0.682	1.574	.	0.471	23.124	0.038	2.355	.
333	SM01	M-13/S2133	2.703	1.383	0.651	0.053	0.012	7.278	0.044	2.185	0.626	1.415	.	0.429	22.675	0.038	2.206	.
333	SM55	M-13/S2133	0.022	0.003	-0.052	-0.006	0.000	-0.040	-0.136	-0.027	0.013	0.003	.	-0.004	-0.224	0.001	-0.116	.
333	SM55	M-13/S2133	0.058	-0.074	-0.023	0.009	0.003	0.064	-0.085	-0.020	0.022	0.039	.	0.026	-0.762	0.004	-0.065	.
333	SM55	M-13/S2133	-0.009	-0.050	-0.023	0.001	-0.005	-0.081	-0.045	-0.035	0.012	0.007	.	0.002	-0.191	0.001	-0.130	.
333	SM55	M-13/S2133	0.018	-0.024	-0.020	0.004	-0.006	-0.074	-0.069	-0.038	0.011	0.008	.	0.010	0.005	0.003	-0.119	.
334	ARGG	M-13/S2133	2.486	2.667	1.041	0.072	0.001	10.109	2.246	1.469	0.526	1.446	.	0.835	23.040	0.706	0.069	.
334	ARGG	M-13/S2133	2.491	2.632	1.042	0.072	0.004	9.917	2.203	1.436	0.516	1.446	.	0.819	22.597	0.688	0.085	.
334	SM01	M-13/S2133	3.590	1.600	0.855	0.069	0.017	9.389	-0.006	2.274	0.770	1.795	.	0.540	25.401	0.048	2.962	.
334	SM01	M-13/S2133	3.310	1.544	0.824	0.064	0.018	8.715	0.032	2.314	0.730	1.697	.	0.497	24.710	0.045	2.777	.
334	SM01	M-13/S2133	3.240	1.470	0.786	0.061	0.016	8.400	0.012	2.202	0.677	1.592	.	0.480	23.452	0.045	2.677	.
334	SM01	M-13/S2133	3.150	1.457	0.748	0.061	0.016	8.329	-0.001	2.154	0.645	1.556	.	0.467	23.113	0.043	2.645	.
334	SM01	M-13/S2133	2.969	1.305	0.741	0.056	0.015	7.842	0.022	1.964	0.663	1.520	.	0.446	21.236	0.038	2.481	.
334	SM01	M-13/S2133	3.089	1.455	0.763	0.062	0.016	8.181	-0.008	2.179	0.702	1.621	.	0.469	23.734	0.043	2.607	.
334	SM55	M-13/S2133	0.017	0.017	-0.001	0.005	-0.003	0.059	-0.056	-0.032	0.005	0.008	.	0.003	0.174	0.001	0.054	.
334	SM55	M-13/S2133	0.001	0.048	-0.016	0.005	-0.001	-0.030	-0.070	-0.027	0.004	0.003	.	0.003	0.273	0.003	0.084	.

Table A2. Fusion Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
335	ARGG	M-13/S2133	2.396	2.559	0.968	0.064	0.001	9.513	2.247	1.479	0.490	1.362	.	0.794	21.649	0.671	0.032	.
335	ARGG	M-13/S2133	2.452	2.580	0.990	0.065	0.002	9.474	2.328	1.476	0.498	1.385	.	0.794	21.713	0.655	0.018	.
335	ARGG	M-14/S2150	2.370	2.497	0.970	0.077	0.002	9.394	2.260	1.441	0.498	1.379	.	0.784	21.942	0.657	-0.083	.
335	ARGG	M-14/S2150	2.338	2.524	0.968	0.069	0.004	9.486	2.194	1.431	0.498	1.378	.	0.794	21.795	0.651	0.023	.
335	SM01	M-13/S2133	2.970	1.351	0.724	0.055	0.013	7.864	0.145	2.052	0.682	1.552	.	0.453	20.830	0.041	2.464	.
335	SM01	M-13/S2133	3.180	1.398	0.777	0.058	0.014	8.366	0.106	2.106	0.733	1.637	.	0.474	21.977	0.041	2.611	.
335	SM01	M-13/S2133	3.178	1.368	0.794	0.057	0.014	8.258	0.104	2.089	0.734	1.642	.	0.472	21.827	0.042	2.632	.
335	SM01	M-13/S2133	3.150	1.335	0.771	0.057	0.015	8.148	0.433	2.052	0.718	1.605	.	0.464	20.484	0.041	2.621	.
335	SM01	M-13/S2133	3.197	1.341	0.815	0.054	0.015	8.414	0.180	1.986	0.744	1.703	.	0.481	21.136	0.043	2.681	.
335	SM01	M-13/S2133	3.062	1.438	0.766	0.056	0.013	8.019	0.110	2.090	0.713	1.630	.	0.454	22.320	0.043	2.559	.
335	SM01	M-14/S2150	2.879	1.322	0.725	0.059	0.015	7.640	0.085	2.100	0.689	1.532	.	0.441	21.591	0.037	2.783	.
335	SM01	M-14/S2150	2.961	1.307	0.752	0.058	0.016	7.995	0.089	2.081	0.694	1.622	.	0.455	21.098	0.038	2.804	.
335	SM01	M-14/S2150	2.822	1.241	0.689	0.056	0.015	7.592	-0.009	1.986	0.672	1.544	.	0.432	20.027	0.036	2.729	.
335	SM01	M-14/S2150	2.955	1.306	0.718	0.062	0.017	7.979	0.157	2.056	0.696	1.591	.	0.465	21.628	0.037	2.846	.
335	SM01	M-14/S2150	3.208	1.347	0.801	0.057	0.016	8.439	0.142	2.094	0.763	1.722	.	0.486	21.765	0.039	3.131	.
335	SM01	M-14/S2150	3.430	1.450	0.837	0.073	0.019	9.160	0.442	2.271	0.785	1.822	.	0.528	23.928	0.040	3.299	.
335	SM55	M-13/S2133	0.014	0.034	-0.012	0.006	-0.005	0.080	0.036	-0.004	-0.002	0.002	.	0.001	-0.112	0.010	-0.039	.
335	SM55	M-13/S2133	-0.058	0.005	-0.016	-0.003	-0.004	-0.089	0.026	-0.017	-0.003	0.000	.	0.008	-0.221	0.011	-0.001	.
335	SM55	M-14/S2150	0.005	0.014	-0.025	0.006	0.001	0.034	-0.250	-0.001	0.010	0.010	.	0.005	0.125	0.006	0.029	.
335	SM55	M-14/S2150	0.001	0.014	-0.015	0.003	-0.003	0.024	-0.067	0.003	0.006	0.010	.	0.004	0.082	0.005	-0.107	.
336	ARGG	M-13/S2133	2.426	2.572	0.984	0.062	0.014	9.663	2.184	1.483	0.491	1.406	.	0.788	21.725	0.679	0.009	.
336	ARGG	M-13/S2133	2.459	2.682	1.069	0.069	0.014	9.976	2.210	1.444	0.534	1.455	.	0.855	22.663	0.685	0.009	.
336	ARGG	M-13/S2133	2.493	2.618	1.019	0.073	0.002	9.783	2.193	1.477	0.508	1.440	.	0.810	22.807	0.694	0.023	.
336	ARGG	M-13/S2133	2.503	2.578	1.014	0.078	0.007	9.908	2.233	1.477	0.519	1.457	.	0.832	22.915	0.691	0.011	.
336	SM01	M-13/S2133	3.120	1.355	0.740	0.058	0.023	8.191	0.859	2.114	0.730	1.657	.	0.481	21.922	0.036	2.454	.
336	SM01	M-13/S2133	3.098	1.389	0.808	0.058	0.026	8.484	0.009	2.077	0.766	1.725	.	0.478	21.777	0.036	2.607	.
336	SM01	M-13/S2133	2.819	1.301	0.691	0.056	0.024	7.640	0.113	1.952	0.666	1.524	.	0.435	19.985	0.033	2.334	.
336	SM01	M-13/S2133	2.781	1.219	0.701	0.053	0.024	7.561	9.191	1.842	0.674	1.515	.	0.435	18.775	0.033	2.331	.
336	SM01	M-13/S2133	3.150	1.348	0.750	0.064	0.025	8.206	0.018	2.045	0.738	1.675	.	0.479	21.409	0.036	2.549	.
336	SM01	M-13/S2133	3.024	1.379	0.810	0.059	0.026	8.339	0.059	2.142	0.740	1.717	.	0.484	21.913	0.038	2.590	.
336	SM01	M-13/S2133	3.105	1.376	0.862	0.060	0.016	7.987	0.238	2.098	0.708	1.641	.	0.468	22.302	0.044	3.013	.
336	SM01	M-13/S2133	3.146	1.328	0.906	0.063	0.020	8.255	0.213	2.088	0.723	1.686	.	0.491	22.462	0.044	3.044	.
336	SM01	M-13/S2133	3.198	1.355	0.885	0.064	0.017	8.315	0.190	2.055	0.744	1.737	.	0.473	22.514	0.045	3.153	.
336	SM01	M-13/S2133	3.187	1.333	0.913	0.067	0.018	8.266	0.960	2.117	0.743	1.708	.	0.519	22.469	0.045	3.055	.
336	SM01	M-13/S2133	3.141	1.328	0.888	0.062	0.017	8.221	0.211	2.057	0.749	1.648	.	0.464	22.057	0.043	3.101	.
336	SM01	M-13/S2133	2.730	1.151	0.798	0.058	0.014	7.246	9.356	1.779	0.650	1.532	.	0.421	19.175	0.039	2.568	.
336	SM55	M-13/S2133	0.038	0.049	-0.011	0.005	0.009	0.103	-0.081	0.001	0.004	-0.004	.	0.010	0.400	-0.004	-0.034	.
336	SM55	M-13/S2133	-0.026	0.005	-0.012	-0.007	0.009	-0.044	-0.081	-0.029	-0.007	-0.008	.	-0.013	-0.106	-0.004	-0.015	.
336	SM55	M-13/S2133	0.043	0.046	-0.030	0.014	-0.003	0.251	-0.200	0.026	0.011	0.019	.	0.004	0.469	0.008	-0.060	.
336	SM55	M-13/S2133	0.015	0.014	-0.020	0.012	0.002	0.100	-0.047	-0.006	0.000	0.016	.	0.011	0.084	0.007	0.083	.
337	ARGG	M-13/S2133	2.355	2.496	1.114	0.060	0.016	9.146	2.561	1.497	0.480	1.399	.	0.768	21.785	0.629	0.093	.
337	ARGG	M-13/S2133	2.295	2.505	1.076	0.061	0.007	9.189	2.590	1.511	0.467	1.384	.	0.774	21.731	0.634	0.046	.
337	ARGG	M-13/S2133	2.430	2.538	0.994	0.064	-0.005	9.238	2.180	1.417	0.486	1.359	.	0.782	21.658	0.679	0.043	.
337	ARGG	M-13/S2133	2.493	2.629	1.052	0.070	-0.005	9.722	2.206	1.454	0.512	1.422	.	0.815	22.739	0.699	0.053	.
337	SM01	M-13/S2133	2.782	1.448	0.801	0.046	0.019	7.422	0.243	2.269	0.627	1.490	.	0.438	22.469	0.041	2.357	.
337	SM01	M-13/S2133	2.992	1.407	0.851	0.054	0.022	8.134	0.322	2.266	0.679	1.616	.	0.468	22.659	0.040	2.563	.
337	SM01	M-13/S2133	3.059	1.509	0.900	0.054	0.022	8.059	0.227	2.441	0.707	1.664	.	0.473	23.982	0.043	2.576	.
337	SM01	M-13/S2133	2.866	1.372	0.820	0.049	0.024	7.653	0.580	2.294	0.639	1.518	.	0.450	21.583	0.042	2.450	.
337	SM01	M-13/S2133	3.043	1.375	0.849	0.052	0.026	8.129	0.589	2.175	0.666	1.585	.	0.460	21.637	0.042	2.555	.
337	SM01	M-13/S2133	2.968	1.446	0.854	0.051	0.024	7.882	0.492	2.283	0.648	1.534	.	0.458	23.310	0.042	2.534	.

Table A2. Fusion Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
337	SM01	M-13/S2133	2.997	1.441	0.717	0.050	0.007	7.459	0.044	2.176	0.637	1.463	.	0.412	22.436	0.047	2.462	.
337	SM01	M-13/S2133	3.083	1.485	0.706	0.059	0.007	8.175	0.209	2.140	0.674	1.563	.	0.473	23.397	0.049	2.590	.
337	SM01	M-13/S2133	3.149	1.497	0.770	0.060	0.007	8.384	0.300	2.202	0.711	1.620	.	0.495	23.587	0.052	2.684	.
337	SM01	M-13/S2133	3.289	1.437	0.768	0.060	0.009	8.543	0.351	2.143	0.723	1.631	.	0.503	23.193	0.050	2.785	.
337	SM01	M-13/S2133	3.164	1.434	0.752	0.057	0.007	8.122	0.095	2.160	0.699	1.603	.	0.472	22.549	0.050	2.700	.
337	SM01	M-13/S2133	3.028	1.502	0.746	0.057	0.007	7.919	0.010	2.220	0.693	1.609	.	0.468	23.390	0.049	2.557	.
337	SM55	M-13/S2133	0.037	0.013	0.148	-0.006	0.004	0.020	0.191	-0.005	0.000	0.042	.	-0.009	-0.104	0.003	-0.006	.
337	SM55	M-13/S2133	0.138	0.010	0.148	-0.004	0.017	0.016	0.153	-0.003	0.000	0.049	.	-0.003	-0.004	0.007	0.073	.
337	SM55	M-13/S2133	0.009	0.007	-0.046	-0.001	-0.016	-0.003	-0.117	-0.024	0.007	0.006	.	-0.004	0.204	0.011	0.011	.
337	SM55	M-13/S2133	0.045	0.018	-0.018	0.001	-0.013	0.010	-0.124	-0.034	0.008	0.001	.	0.011	0.202	0.013	0.052	.
338	ARGG	M-13/S2133	2.319	2.536	0.950	0.062	0.002	9.574	2.163	1.432	0.482	1.359	.	0.771	21.496	0.654	0.103	.
338	ARGG	M-13/S2133	2.358	2.616	0.972	0.063	0.001	9.046	2.219	1.439	0.503	1.337	.	0.803	22.354	0.641	0.085	.
338	SM01	M-13/S2133	3.025	1.354	0.750	0.054	0.013	7.894	0.595	2.121	0.728	1.645	.	0.456	21.524	0.024	2.551	.
338	SM01	M-13/S2133	3.032	1.371	0.761	0.054	0.013	7.985	0.293	2.127	0.727	1.651	.	0.448	21.807	0.021	2.631	.
338	SM01	M-13/S2133	2.979	1.413	0.743	0.050	0.011	7.615	0.095	2.089	0.718	1.563	.	0.463	22.287	0.019	2.680	.
338	SM01	M-13/S2133	2.897	1.347	0.698	0.049	0.011	6.777	0.349	1.994	0.688	1.519	.	0.438	21.411	0.022	2.519	.
338	SM01	M-13/S2133	3.071	1.424	0.766	0.053	0.012	7.894	0.496	2.192	0.727	1.673	.	0.457	22.717	0.022	2.713	.
338	SM01	M-13/S2133	3.089	1.383	0.755	0.053	0.013	8.180	0.370	2.190	0.730	1.675	.	0.462	22.356	0.021	2.708	.
338	SM01	M-13/S2133	3.061	1.364	0.802	0.058	0.014	8.233	0.616	2.139	0.754	1.661	.	0.470	22.211	0.025	2.661	.
338	SM01	M-13/S2133	3.020	1.384	0.772	0.057	0.015	8.070	0.104	2.126	0.718	1.614	.	0.459	22.230	0.026	2.660	.
338	SM01	M-13/S2133	3.099	1.380	0.789	0.058	0.015	8.228	0.348	2.218	0.729	1.625	.	0.460	22.543	0.023	2.679	.
338	SM01	M-13/S2133	2.977	1.361	0.753	0.057	0.014	8.094	0.316	2.137	0.718	1.579	.	0.450	22.024	0.023	2.614	.
338	SM01	M-13/S2133	3.056	1.384	0.774	0.056	0.014	8.225	0.475	2.201	0.723	1.607	.	0.450	22.487	0.025	2.662	.
338	SM01	M-13/S2133	2.944	1.295	0.762	0.054	0.015	7.746	0.301	2.065	0.713	1.545	.	0.437	21.257	0.024	2.587	.
338	SM55	M-13/S2133	-0.059	-0.031	-0.021	-0.005	-0.005	-0.057	-0.016	-0.017	0.004	0.006	.	-0.012	0.168	-0.021	0.110	.
338	SM55	M-13/S2133	-0.052	-0.021	-0.006	-0.001	-0.005	-0.021	-0.004	-0.010	0.006	0.014	.	0.004	0.203	-0.019	0.102	.
339	ARGG	M-13/S2133	2.293	2.503	0.949	0.060	-0.006	9.392	2.095	1.416	0.489	1.359	.	0.772	21.453	0.649	-0.132	.
339	ARGG	M-13/S2133	2.359	2.600	0.975	0.062	-0.007	9.650	2.065	1.487	0.508	1.411	.	0.793	22.232	0.669	-0.177	.
339	SM01	M-14/S2150	3.046	1.261	0.736	0.058	0.009	7.946	0.095	1.981	0.694	1.546	.	0.466	20.893	0.038	2.735	.
339	SM01	M-14/S2150	3.196	1.349	0.740	0.048	0.006	8.304	-0.020	2.113	0.737	1.665	.	0.474	22.087	0.037	2.837	.
339	SM01	M-14/S2150	3.085	1.419	0.701	0.057	0.006	8.042	0.128	2.213	0.687	1.560	.	0.452	23.251	0.040	2.720	.
339	SM01	M-14/S2150	3.357	1.316	0.755	0.052	0.010	8.792	-0.045	2.081	0.744	1.701	.	0.484	21.771	0.040	3.091	.
339	SM01	M-14/S2150	3.119	1.319	0.734	0.053	0.008	8.090	0.022	2.078	0.719	1.603	.	0.473	21.922	0.039	2.755	.
339	SM01	M-14/S2150	3.245	1.344	0.780	0.055	0.005	8.354	0.103	2.084	0.743	1.657	.	0.471	21.985	0.041	2.939	.
339	SM01	M-14/S2150	3.145	1.362	0.748	0.053	0.007	8.210	-0.017	2.119	0.737	1.682	.	0.465	21.842	0.037	2.719	.
339	SM01	M-14/S2150	2.796	1.180	0.648	0.045	0.005	7.442	0.070	1.935	0.643	1.441	.	0.427	19.443	0.035	2.532	.
339	SM01	M-14/S2150	3.089	1.308	0.748	0.048	0.003	8.299	0.083	2.111	0.738	1.700	.	0.473	21.451	0.038	2.651	.
339	SM01	M-14/S2150	3.152	1.343	0.753	0.054	0.008	8.328	0.321	2.111	0.739	1.654	.	0.468	22.173	0.039	2.775	.
339	SM55	M-13/S2133	-0.040	-0.028	-0.049	-0.003	-0.013	-0.082	0.172	-0.017	0.011	-0.003	.	-0.008	0.021	-0.005	-0.357	.
339	SM55	M-13/S2133	-0.029	-0.023	-0.047	-0.001	-0.013	-0.100	0.023	-0.022	0.012	-0.003	.	-0.004	0.075	-0.003	-0.227	.
340	ARGG	M-14/S2150	2.406	2.521	0.954	0.066	-0.003	9.617	2.345	1.438	0.496	1.392	.	0.771	21.962	0.677	-0.033	.
340	ARGG	M-14/S2150	2.536	2.665	0.975	0.068	-0.004	9.877	2.202	1.512	0.523	1.455	.	0.822	22.286	0.687	-0.058	.
340	SM01	M-14/S2150	3.108	1.345	0.714	0.054	0.014	8.119	0.318	2.130	0.707	1.623	.	0.457	21.052	0.038	2.831	.
340	SM01	M-14/S2150	3.164	1.326	0.778	0.060	0.012	8.326	0.700	2.100	0.800	1.766	.	0.459	20.741	0.037	2.937	.
340	SM01	M-14/S2150	3.177	1.377	0.755	0.064	0.014	8.552	0.315	2.152	0.729	1.703	.	0.481	21.834	0.039	2.974	.
340	SM01	M-14/S2150	3.072	1.355	0.739	0.058	0.013	8.219	-0.002	2.116	0.744	1.700	.	0.467	21.375	0.038	2.901	.
340	SM01	M-14/S2150	3.155	1.439	0.747	0.062	0.010	8.480	0.861	2.215	0.782	1.782	.	0.465	22.754	0.038	2.840	.
340	SM01	M-14/S2150	3.172	1.372	0.714	0.058	0.005	8.435	0.441	2.105	0.740	1.699	.	0.494	21.769	0.036	2.845	.
340	SM01	M-14/S2150	3.192	1.375	0.706	0.070	0.007	8.584	0.305	2.136	0.746	1.707	.	0.485	21.965	0.036	2.869	.
340	SM01	M-14/S2150	3.169	1.388	0.733	0.047	0.010	8.001	0.437	2.159	0.738	1.643	.	0.437	18.860	0.038	2.850	.

Table A2. Fusion Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
340	SM01	M-14/S2150	3.144	1.321	0.747	0.055	0.008	8.317	0.457	2.132	0.754	1.714	.	0.456	21.176	0.039	2.878	.
340	SM01	M-14/S2150	3.163	1.432	0.739	0.063	0.008	8.557	0.015	2.216	0.781	1.788	.	0.485	22.821	0.037	2.894	.
340	SM55	M-14/S2150	-0.056	-0.006	-0.057	0.020	-0.008	0.248	-0.096	0.005	0.017	0.029	.	0.005	0.227	0.002	-0.219	.
340	SM55	M-14/S2150	-0.047	-0.007	-0.061	-0.001	-0.009	0.110	-0.104	0.000	0.009	0.019	.	0.004	0.189	0.000	-0.163	.
341	ARGG	M-13/S2133	2.465	2.650	1.012	0.070	-0.004	10.103	2.217	1.509	0.513	1.452	.	0.807	23.086	0.703	0.011	.
341	ARGG	M-13/S2133	2.091	2.180	0.862	0.071	-0.002	8.078	1.756	1.218	0.421	1.165	.	0.660	18.490	0.602	-0.009	.
341	SM01	M-13/S2133	3.108	1.440	0.798	0.070	0.012	8.529	0.265	2.188	0.753	1.729	.	0.480	22.329	0.046	2.585	.
341	SM01	M-13/S2133	3.363	1.526	0.880	0.063	0.012	8.945	0.264	2.425	0.823	1.869	.	0.508	24.207	0.040	2.835	.
341	SM01	M-13/S2133	2.741	1.227	0.729	0.049	0.008	7.148	0.219	1.929	0.653	1.486	.	0.402	19.209	0.033	2.220	.
341	SM01	M-13/S2133	3.120	1.363	0.811	0.059	0.012	8.037	0.176	2.129	0.742	1.715	.	0.465	21.215	0.039	2.545	.
341	SM01	M-13/S2133	2.836	1.234	0.733	0.058	0.010	7.404	0.142	1.878	0.671	1.539	.	0.420	19.219	0.036	2.357	.
341	SM01	M-13/S2133	3.127	1.370	0.800	0.054	0.012	8.050	0.123	2.107	0.716	1.672	.	0.467	21.329	0.039	2.608	.
341	SM01	M-13/S2133	3.143	1.354	0.796	0.076	0.012	7.973	0.142	2.204	0.731	1.661	.	0.455	21.253	0.037	2.593	.
341	SM01	M-13/S2133	3.302	1.484	0.808	0.059	0.010	8.973	0.216	2.237	0.804	1.863	.	0.508	23.037	0.039	2.772	.
341	SM01	M-13/S2133	3.075	1.399	0.777	0.076	0.011	8.283	0.100	2.139	0.736	1.712	.	0.478	21.504	0.037	2.676	.
341	SM01	M-13/S2133	3.127	1.370	0.800	0.054	0.012	8.050	0.123	2.124	0.716	1.672	.	0.467	21.329	0.039	2.608	.
341	SM55	M-13/S2133	-0.010	-0.015	-0.023	-0.003	-0.009	-0.053	-0.047	-0.009	-0.003	0.000	.	-0.015	0.027	-0.005	-0.034	.
341	SM55	M-13/S2133	0.108	-0.018	0.063	0.017	-0.006	0.144	-0.031	-0.006	0.021	0.026	.	0.012	0.813	0.014	-0.040	.
342	ARGG	M-13/S2133	2.661	2.784	1.078	0.078	0.001	10.604	2.365	1.587	0.561	1.545	.	0.862	24.190	0.739	-0.007	.
342	ARGG	M-13/S2133	2.278	2.370	0.958	0.078	0.004	9.019	2.012	1.340	0.459	1.352	.	0.754	20.431	0.625	0.040	.
342	SM01	M-13/S2133	3.044	1.392	0.760	0.064	0.014	8.476	0.196	2.106	0.771	1.765	.	0.497	21.904	0.037	2.721	.
342	SM01	M-13/S2133	3.044	1.392	0.760	0.064	0.014	8.476	0.196	2.106	0.771	1.765	.	0.497	21.904	0.037	2.721	.
342	SM01	M-13/S2133	3.044	1.392	0.760	0.064	0.014	8.476	0.196	2.106	0.771	1.765	.	0.497	21.904	0.037	2.721	.
342	SM01	M-13/S2133	3.067	1.401	0.764	0.060	0.015	8.276	0.199	2.087	0.752	1.759	.	0.482	21.815	0.035	2.712	.
342	SM01	M-13/S2133	3.005	1.380	0.753	0.067	0.015	8.385	0.087	2.075	0.725	1.715	.	0.486	22.300	0.035	2.609	.
342	SM01	M-13/S2133	3.005	1.380	0.753	0.067	0.015	8.385	0.087	2.075	0.725	1.715	.	0.486	22.300	0.035	2.609	.
342	SM01	M-13/S2133	3.051	1.430	0.787	0.071	0.017	8.527	0.183	2.165	0.744	1.763	.	0.491	23.761	0.035	2.761	.
342	SM01	M-13/S2133	3.051	1.430	0.787	0.071	0.017	8.527	0.183	2.165	0.744	1.763	.	0.491	23.761	0.035	2.761	.
342	SM01	M-13/S2133	3.219	1.513	0.806	0.084	0.018	9.100	0.033	2.137	0.763	1.876	.	0.530	23.052	0.038	2.830	.
342	SM01	M-13/S2133	3.219	1.513	0.806	0.084	0.018	9.100	0.033	2.137	0.763	1.876	.	0.530	23.052	0.038	2.830	.
342	SM01	M-13/S2133	3.219	1.513	0.806	0.084	0.018	9.100	0.033	2.137	0.763	1.876	.	0.530	23.052	0.038	2.830	.
342	SM01	M-13/S2133	2.864	1.391	0.737	0.070	0.017	8.319	0.029	2.021	0.737	1.754	.	0.474	21.553	0.035	2.695	.
342	SM01	M-13/S2133	2.864	1.391	0.737	0.070	0.017	8.319	0.029	2.021	0.737	1.754	.	0.474	21.553	0.035	2.695	.
342	SM01	M-13/S2133	3.121	1.396	0.782	0.062	0.015	8.285	0.345	2.240	0.755	1.696	.	0.474	22.857	0.036	2.687	.
342	SM01	M-13/S2133	3.121	1.396	0.782	0.062	0.015	8.285	0.345	2.240	0.755	1.696	.	0.474	22.857	0.036	2.687	.
342	SM01	M-13/S2133	3.359	1.427	0.845	0.069	0.018	9.141	0.209	2.154	0.830	1.916	.	0.515	22.252	0.036	2.986	.
342	SM55	M-13/S2133	-0.021	-0.013	-0.031	0.025	0.000	0.132	-0.035	-0.004	0.017	0.026	.	0.004	0.209	0.000	-0.053	.
342	SM55	M-13/S2133	0.025	-0.010	-0.021	0.008	-0.001	-0.007	-0.051	-0.012	0.009	0.005	.	0.005	0.536	0.003	-0.014	.
343	ARGG	M-14/S2150	2.536	2.709	1.007	0.067	-0.002	10.245	2.375	1.534	0.527	1.486	.	0.839	23.288	0.702	-0.104	.
343	ARGG	M-14/S2150	2.396	2.560	0.979	0.062	-0.003	9.803	2.191	1.483	0.502	1.413	.	0.772	22.019	0.672	-0.139	.
343	SM01	M-14/S2150	3.072	1.392	0.774	0.050	0.012	8.321	0.201	2.208	0.779	1.791	.	0.474	22.722	0.042	3.113	.
343	SM01	M-14/S2150	3.200	1.388	0.788	0.053	0.011	8.422	0.487	2.166	0.786	1.743	.	0.485	22.552	0.042	3.124	.
343	SM01	M-14/S2150	3.219	1.377	0.767	0.053	0.012	8.459	0.059	2.174	0.734	1.722	.	0.476	22.466	0.041	3.048	.
343	SM01	M-14/S2150	3.223	1.509	0.759	0.049	0.013	8.730	0.245	2.250	0.753	1.724	.	0.465	23.118	0.052	3.075	.
343	SM01	M-14/S2150	3.212	1.396	0.788	0.052	0.014	8.480	0.073	2.149	0.744	1.731	.	0.468	22.501	0.042	3.238	.
343	SM01	M-14/S2150	2.832	1.240	0.665	0.041	0.006	7.516	0.085	1.981	0.650	1.526	.	0.422	20.518	0.035	2.686	.
343	SM01	M-14/S2150	2.996	1.302	0.720	0.047	0.012	7.863	0.322	2.044	0.697	1.608	.	0.440	21.048	0.039	2.805	.
343	SM01	M-14/S2150	2.881	1.255	0.678	0.047	0.010	7.622	0.068	2.008	0.663	1.563	.	0.426	20.311	0.036	2.868	.
343	SM55	M-14/S2150	-0.059	-0.019	-0.056	-0.009	-0.008	0.087	-0.071	0.011	0.003	0.004	.	-0.009	0.020	-0.007	-0.017	.
343	SM55	M-14/S2150	-0.063	-0.029	-0.032	-0.013	-0.008	0.086	-0.047	0.015	0.003	0.005	.	-0.018	0.019	-0.008	-0.340	.

Table A2. Fusion Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
344	ARGG	M-13/S2133	2.269	2.419	0.952	0.065	0.003	9.027	2.264	1.448	0.469	1.293	.	0.722	20.711	0.619	0.000	.
344	ARGG	M-13/S2133	2.300	2.518	0.948	0.066	0.002	9.158	2.113	1.404	0.480	1.353	.	0.748	21.526	0.642	-0.004	.
344	SM01	M-13/S2133	3.054	1.426	0.690	0.057	0.012	7.715	0.090	2.188	0.654	1.527	.	0.431	22.930	0.047	2.474	.
344	SM01	M-13/S2133	3.109	1.368	0.707	0.061	0.013	7.976	0.112	2.144	0.672	1.551	.	0.453	22.098	0.046	2.521	.
344	SM01	M-13/S2133	3.115	1.380	0.767	0.060	0.015	8.087	0.191	2.166	0.715	1.616	.	0.468	22.465	0.045	2.567	.
344	SM01	M-13/S2133	3.080	1.400	0.721	0.060	0.014	7.972	0.092	2.183	0.681	1.550	.	0.462	23.000	0.045	2.544	.
344	SM01	M-13/S2133	3.130	1.426	0.744	0.061	0.015	8.109	0.081	2.181	0.714	1.611	.	0.469	23.187	0.045	2.560	.
344	SM01	M-13/S2133	3.033	1.364	0.746	0.059	0.014	7.782	0.340	2.096	0.686	1.548	.	0.441	22.202	0.046	2.516	.
344	SM01	M-13/S2133	2.858	1.313	0.676	0.055	0.013	7.285	0.077	2.050	0.642	1.448	.	0.408	21.083	0.042	2.376	.
344	SM01	M-13/S2133	3.109	1.412	0.772	0.059	0.016	8.005	0.111	2.192	0.715	1.616	.	0.454	22.354	0.045	2.598	.
344	SM55	M-13/S2133	0.001	0.001	-0.016	0.004	-0.002	0.011	0.009	-0.015	0.006	0.015	.	-0.002	-0.015	0.002	-0.043	.
344	SM55	M-13/S2133	0.001	-0.009	-0.019	0.008	-0.003	-0.047	-0.004	-0.021	0.004	0.006	.	0.004	-0.054	0.003	-0.048	.
345	ARGG	M-13/S2133	2.391	2.634	0.985	0.067	0.001	9.743	2.102	1.427	0.505	1.411	.	0.789	22.568	0.676	0.087	.
345	ARGG	M-13/S2133	2.534	2.818	1.069	0.074	0.001	10.190	2.264	1.497	0.533	1.500	.	0.847	23.666	0.711	0.111	.
345	SM01	M-13/S2133	3.083	1.424	0.746	0.054	0.013	7.901	0.809	2.148	0.700	1.568	.	0.447	23.099	0.042	2.563	.
345	SM01	M-13/S2133	3.107	1.438	0.762	0.059	0.012	8.100	0.952	2.173	0.711	1.626	.	0.463	23.732	0.043	2.590	.
345	SM01	M-13/S2133	2.901	1.254	0.736	0.055	0.013	7.607	0.470	2.012	0.673	1.531	.	0.425	20.581	0.037	2.458	.
345	SM01	M-13/S2133	3.162	1.356	0.763	0.056	0.013	8.060	0.463	2.029	0.708	1.656	.	0.456	22.059	0.041	2.623	.
345	SM01	M-13/S2133	3.657	1.603	0.862	0.066	0.016	9.313	0.768	2.409	0.795	1.817	.	0.539	25.834	0.049	3.060	.
345	SM01	M-13/S2133	3.309	1.384	0.834	0.064	0.015	8.732	0.389	2.129	0.781	1.811	.	0.520	22.415	0.044	2.848	.
345	SM01	M-13/S2133	3.203	1.375	0.794	0.058	0.012	8.067	0.697	2.093	0.685	1.553	.	0.466	22.527	0.043	2.644	.
345	SM01	M-13/S2133	2.538	1.114	0.605	0.044	0.011	6.542	0.191	1.604	0.555	1.290	.	0.362	18.007	0.033	2.180	.
345	SM55	M-13/S2133	-0.034	0.000	-0.007	0.002	-0.003	0.019	0.041	0.012	-0.001	-0.002	.	-0.003	0.217	-0.003	0.043	.
345	SM55	M-13/S2133	0.011	0.000	0.011	0.005	-0.004	0.005	0.017	0.001	-0.001	0.001	.	0.002	0.218	-0.001	0.073	.
346	ARGG	M-14/S2150	2.421	2.560	0.999	0.058	-0.004	9.584	1.671	1.432	0.497	1.373	.	0.773	21.950	0.678	0.025	.
346	ARGG	M-14/S2150	2.432	2.529	0.985	0.057	-0.001	9.349	1.879	1.435	0.489	1.365	.	0.767	21.808	0.670	0.055	.
346	ARGG	M-13/S2133	2.365	2.715	0.984	0.063	0.012	9.419	2.279	1.490	0.491	1.359	.	0.777	22.207	0.661	0.021	.
346	SM01	M-14/S2150	3.016	1.336	0.702	0.046	0.007	7.842	0.500	2.057	0.653	1.535	.	0.430	21.608	0.048	2.759	.
346	SM01	M-14/S2150	2.927	1.314	0.718	0.042	0.009	7.629	-0.306	2.031	0.628	1.482	.	0.414	21.718	0.049	2.621	.
346	SM01	M-14/S2150	3.153	1.338	0.741	0.046	0.011	8.196	0.057	2.114	0.664	1.534	.	0.452	22.253	0.050	2.869	.
346	SM01	M-14/S2150	3.147	1.376	0.728	0.047	0.014	8.177	0.080	2.165	0.657	1.543	.	0.447	22.878	0.051	2.984	.
346	SM01	M-14/S2150	3.105	1.311	0.709	0.047	0.012	7.905	0.326	2.055	0.652	1.527	.	0.435	21.581	0.048	2.842	.
346	SM01	M-14/S2150	3.105	1.341	0.721	0.048	0.012	7.884	0.290	2.126	0.643	1.495	.	0.437	22.627	0.049	2.849	.
346	SM01	M-14/S2150	2.827	1.252	0.661	0.041	0.006	7.232	-0.100	1.941	0.604	1.398	.	0.407	20.643	0.046	2.556	.
346	SM01	M-14/S2150	2.957	1.291	0.674	0.045	0.011	7.648	0.136	2.008	0.626	1.479	.	0.430	21.132	0.047	2.737	.
346	SM01	M-13/S2133	3.184	1.397	0.721	0.053	0.023	8.090	0.530	2.105	0.645	1.515	.	0.452	25.357	0.054	2.684	.
346	SM01	M-13/S2133	3.065	1.336	0.710	0.059	0.022	8.038	0.201	2.031	0.649	1.535	.	0.446	21.752	0.049	2.612	.
346	SM01	M-13/S2133	3.011	1.422	0.685	0.052	0.022	7.758	0.118	2.200	0.646	1.540	.	0.429	22.785	0.051	2.581	.
346	SM01	M-13/S2133	3.013	1.385	0.686	0.049	0.022	7.836	0.542	2.104	0.628	1.457	.	0.445	22.466	0.049	2.574	.
346	SM01	M-13/S2133	3.966	1.778	0.872	0.062	0.027	9.884	0.570	2.761	0.831	1.894	.	0.549	24.908	0.058	3.380	.
346	SM01	M-13/S2133	3.132	1.448	0.747	0.057	0.022	8.169	0.483	2.219	0.687	1.586	.	0.472	23.249	0.053	2.727	.
346	SM01	M-13/S2133	3.100	1.440	0.732	0.053	0.023	8.041	0.211	2.278	0.675	1.546	.	0.458	23.653	0.051	2.696	.
346	SM01	M-13/S2133	3.505	1.550	0.854	0.070	0.027	9.193	0.295	2.414	0.801	1.847	.	0.551	24.774	0.062	3.068	.
346	SM55	M-14/S2150	0.004	-0.005	-0.036	-0.007	-0.013	-0.005	-0.480	-0.015	0.005	0.009	.	-0.005	0.075	0.000	-0.068	.
346	SM55	M-14/S2150	0.035	-0.007	-0.028	-0.011	-0.010	-0.011	-0.545	-0.021	0.006	0.006	.	-0.018	0.090	0.001	0.087	.
346	SM55	M-13/S2133	-0.015	0.015	-0.032	-0.003	0.008	-0.212	-0.047	0.001	0.008	-0.008	.	-0.005	0.015	0.004	-0.045	.
347	ARGG	M-14/S2150	2.310	2.526	0.974	0.079	0.006	9.219	2.061	1.404	0.484	1.380	.	0.776	21.868	0.659	0.085	.
347	ARGG	M-14/S2150	2.302	2.507	0.978	0.063	0.005	9.042	2.153	1.374	0.469	1.351	.	0.751	21.387	0.659	0.078	.
347	SM01	M-14/S2150	3.078	1.389	0.783	0.065	0.019	8.510	0.039	2.177	0.732	1.707	.	0.502	28.454	0.061	3.010	.
347	SM01	M-14/S2150	2.988	1.331	0.786	0.059	0.019	8.073	0.178	2.066	0.725	1.635	.	0.449	22.340	0.054	3.019	.

Table A2. Fusion Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
347	SM01	M-14/S2150	3.083	1.341	0.756	0.061	0.017	8.031	0.092	2.072	0.695	1.621	.	0.457	22.452	0.054	2.993	.
347	SM01	M-14/S2150	2.986	1.354	0.755	0.052	0.017	7.740	0.322	2.082	0.699	1.569	.	0.439	22.796	0.056	2.924	.
347	SM01	M-14/S2150	2.459	1.044	0.601	0.040	0.014	6.242	0.376	1.830	0.552	1.231	.	0.346	17.315	0.043	2.430	.
347	SM01	M-14/S2150	2.999	1.329	0.734	0.053	0.016	7.655	0.430	2.056	0.691	1.587	.	0.454	22.262	0.053	2.843	.
347	SM01	M-14/S2150	3.059	1.360	0.804	0.055	0.018	7.852	0.568	2.103	0.744	1.684	.	0.444	22.827	0.056	2.945	.
347	SM01	M-14/S2150	3.049	1.337	0.803	0.056	0.016	8.012	0.408	2.028	0.724	1.685	.	0.469	22.275	0.052	3.012	.
347	SM55	M-14/S2150	0.007	0.010	0.035	0.008	0.003	-0.075	-0.170	0.004	0.006	0.006	.	0.000	-0.028	0.001	0.027	.
347	SM55	M-14/S2150	0.019	0.036	0.014	0.006	0.003	-0.064	0.195	0.058	0.004	0.004	.	0.004	0.538	0.003	0.041	.
348	ARGG	M-13/S2133	2.431	2.660	0.980	0.072	0.007	9.705	2.113	1.451	0.510	1.440	.	0.819	23.024	0.670	0.028	.
348	ARGG	M-13/S2133	2.489	2.679	1.015	0.072	0.005	9.933	2.286	1.507	0.508	1.460	.	0.814	22.576	0.700	-0.009	.
348	SM01	M-13/S2133	3.341	1.362	0.829	0.068	0.020	8.832	0.104	2.133	0.806	1.854	.	0.531	22.181	0.048	2.859	.
348	SM01	M-13/S2133	3.263	1.393	0.811	0.062	0.020	8.675	0.151	2.144	0.775	1.772	.	0.480	23.030	0.048	2.894	.
348	SM01	M-13/S2133	3.376	1.387	0.825	0.071	0.019	8.978	0.208	2.095	0.822	1.861	.	0.536	22.362	0.047	2.933	.
348	SM01	M-13/S2133	3.376	1.392	0.846	0.070	0.021	9.202	0.277	2.088	0.846	1.992	.	0.549	22.492	0.049	2.894	.
348	SM01	M-13/S2133	3.319	1.371	0.820	0.070	0.019	8.811	0.082	2.122	0.794	1.838	.	0.524	22.486	0.047	2.869	.
348	SM01	M-13/S2133	3.365	1.392	0.800	0.068	0.021	8.690	0.133	2.184	0.803	1.818	.	0.492	22.799	0.047	2.859	.
348	SM55	M-13/S2133	-0.012	0.006	-0.027	0.003	0.003	-0.129	-0.039	0.000	0.000	0.010	.	-0.014	0.035	0.001	-0.060	.
348	SM55	M-13/S2133	0.016	0.010	-0.033	0.003	0.004	-0.148	-0.055	-0.007	0.004	0.011	.	-0.010	0.096	0.003	-0.018	.
349	ARGG	M-13/S2133	2.514	2.692	1.958	0.069	0.003	10.040	2.744	1.557	0.534	1.479	.	0.833	23.354	0.718	-0.012	.
349	ARGG	M-13/S2133	2.552	2.716	1.040	0.066	0.003	9.948	2.326	1.552	0.521	1.485	.	0.828	23.468	0.702	-0.018	.
349	SM01	M-13/S2133	3.548	1.487	0.872	0.066	0.019	9.436	0.270	2.372	0.817	1.853	.	0.558	24.554	0.053	3.082	.
349	SM01	M-13/S2133	3.355	1.483	0.792	0.059	0.017	8.821	0.145	2.269	0.755	1.733	.	0.505	24.242	0.047	2.888	.
349	SM01	M-13/S2133	3.314	1.450	0.725	0.062	0.016	8.595	0.123	2.169	0.693	1.654	.	0.507	23.801	0.047	2.840	.
349	SM01	M-13/S2133	3.447	1.497	0.794	0.067	0.017	9.172	0.146	2.277	0.763	1.798	.	0.547	24.011	0.049	3.029	.
349	SM01	M-13/S2133	3.171	1.485	0.732	0.056	0.016	8.178	0.247	2.253	0.695	1.635	.	0.476	23.834	0.046	2.688	.
349	SM01	M-13/S2133	3.439	1.296	0.897	0.064	0.018	9.050	0.278	2.066	0.880	1.963	.	0.543	21.720	0.044	3.014	.
349	SM55	M-13/S2133	0.103	0.017	-0.023	0.002	-0.002	-0.132	0.056	0.030	0.003	0.003	.	-0.007	0.232	0.002	-0.065	.
349	SM55	M-13/S2133	-0.004	0.028	-0.024	-0.004	-0.003	-0.161	-0.001	0.026	0.004	0.003	.	-0.007	0.053	0.003	-0.066	.
350	ARGG	M-13/S2133	2.417	2.625	1.003	0.070	0.006	9.576	2.437	1.582	0.495	1.410	.	0.791	22.581	0.665	-0.010	.
350	ARGG	M-13/S2133	2.339	2.596	0.960	0.068	0.004	9.651	2.221	1.538	0.500	1.407	.	0.808	22.029	0.659	-0.032	.
350	SM01	M-13/S2133	3.068	1.393	0.741	0.053	0.018	7.928	0.041	2.141	0.690	1.589	.	0.429	22.502	0.043	2.589	.
350	SM01	M-13/S2133	3.156	1.399	0.788	0.055	0.019	8.104	0.023	2.169	0.732	1.683	.	0.443	22.020	0.044	2.683	.
350	SM01	M-13/S2133	2.943	1.525	0.645	0.052	0.015	7.326	0.018	2.392	0.597	1.382	.	0.410	25.058	0.046	2.334	.
350	SM01	M-13/S2133	3.027	1.513	0.657	0.054	0.016	7.571	0.007	2.382	0.611	1.442	.	0.423	24.324	0.047	2.405	.
350	SM01	M-13/S2133	3.188	1.404	0.768	0.059	0.019	8.321	0.017	2.215	0.727	1.673	.	0.467	22.578	0.044	2.728	.
350	SM01	M-13/S2133	3.091	1.407	0.737	0.058	0.017	8.230	0.064	2.221	0.715	1.661	.	0.478	22.327	0.044	2.621	.
350	SM55	M-13/S2133	-0.010	0.011	0.009	0.000	0.001	-0.056	-0.078	-0.035	0.006	0.005	.	-0.005	0.157	0.005	-0.057	.
350	SM55	M-13/S2133	-0.009	0.009	0.008	0.000	0.001	-0.060	-0.066	-0.029	0.006	-0.001	.	-0.003	0.213	0.005	-0.077	.
351	ARGG	M-13/S2133	2.459	2.664	1.057	0.100	0.014	9.925	2.342	1.503	0.523	1.440	.	0.841	23.028	0.683	0.046	.
351	ARGG	M-13/S2133	2.505	2.616	1.027	0.069	0.013	9.793	2.331	1.492	0.520	1.421	.	0.822	22.807	0.700	0.081	.
351	SM01	M-13/S2133	3.306	1.389	0.828	0.088	0.028	8.673	0.118	2.157	0.748	1.753	.	0.505	22.806	0.042	2.717	.
351	SM01	M-13/S2133	3.369	1.388	0.832	0.063	0.026	8.739	0.097	2.108	0.769	1.769	.	0.501	23.181	0.043	2.755	.
351	SM01	M-13/S2133	3.268	1.389	0.792	0.062	0.027	8.433	0.289	2.204	0.778	1.725	.	0.499	22.879	0.042	2.695	.
351	SM01	M-13/S2133	3.283	1.397	0.792	0.069	0.027	8.592	0.344	2.263	0.741	1.719	.	0.498	23.280	0.043	2.715	.
351	SM01	M-13/S2133	3.320	1.452	0.802	0.069	0.027	8.438	0.108	2.233	0.713	1.651	.	0.487	23.804	0.044	2.677	.
351	SM01	M-13/S2133	3.396	1.415	0.827	0.064	0.028	8.578	0.103	2.154	0.752	1.742	.	0.508	22.698	0.046	2.764	.
351	SM55	M-13/S2133	0.020	0.000	0.003	0.006	0.010	0.008	0.014	0.018	0.005	0.001	.	0.003	0.085	0.000	-0.001	.
351	SM55	M-13/S2133	0.072	0.000	0.036	0.009	0.012	0.054	0.039	0.020	0.005	0.002	.	0.010	0.203	0.002	0.039	.
352	ARGG	M-13/S2133	2.379	2.673	1.002	0.073	-0.003	9.980	2.306	1.557	0.519	1.462	.	0.811	23.407	0.667	0.027	.
352	ARGG	M-13/S2133	2.374	2.631	1.008	0.073	-0.003	9.956	2.248	1.493	0.509	1.490	.	0.807	22.602	0.670	0.040	.

Table A2. Fusion Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
352	SM01	M-13/S2133	3.186	1.386	0.811	0.065	0.009	8.565	0.106	2.199	0.766	1.750	.	0.476	22.666	0.047	2.787	.
352	SM01	M-13/S2133	3.257	1.442	0.785	0.064	0.009	8.724	0.411	2.192	0.754	1.737	.	0.483	23.913	0.047	2.842	.
352	SM01	M-13/S2133	3.297	1.421	0.820	0.067	0.010	8.786	0.385	2.210	0.781	1.836	.	0.490	23.158	0.047	2.847	.
352	SM01	M-13/S2133	3.143	1.389	0.778	0.065	0.009	8.444	0.359	2.085	0.753	1.763	.	0.483	22.381	0.045	2.717	.
352	SM01	M-13/S2133	3.252	1.432	0.814	0.064	0.009	8.694	0.092	2.288	0.774	1.771	.	0.498	23.620	0.047	2.837	.
352	SM01	M-13/S2133	3.224	1.344	0.763	0.066	0.008	8.512	0.436	2.001	0.767	1.750	.	0.497	22.209	0.046	2.810	.
352	SM55	M-13/S2133	-0.052	0.013	-0.011	0.005	-0.008	-0.137	-0.023	-0.007	-0.002	0.004	.	-0.007	0.013	0.000	0.001	.
352	SM55	M-13/S2133	-0.037	0.018	0.030	0.008	-0.006	-0.111	-0.019	-0.007	-0.001	0.002	.	-0.006	0.031	0.001	0.012	.
353	ARGG	M-14/S2150	2.440	2.645	0.871	0.065	-0.004	9.335	1.680	1.515	0.500	1.346	.	0.790	22.833	0.676	-0.133	.
353	ARGG	M-14/S2150	2.348	2.521	0.975	0.076	0.006	9.407	2.493	1.454	0.500	1.370	.	0.803	22.323	0.641	0.080	.
353	SM01	M-14/S2150	3.272	1.417	0.774	0.063	0.011	8.452	-0.209	2.197	0.754	1.701	.	0.489	23.767	0.055	3.060	.
353	SM01	M-14/S2150	3.281	1.336	0.815	0.061	0.013	8.460	-0.090	2.069	0.749	1.742	.	0.494	21.635	0.052	3.039	.
353	SM01	M-14/S2150	3.282	1.350	0.786	0.062	0.015	8.816	0.006	2.073	0.773	1.784	.	0.505	22.922	0.052	3.051	.
353	SM01	M-14/S2150	3.304	1.329	0.817	0.066	0.012	8.765	0.031	2.045	0.772	1.770	.	0.494	22.695	0.051	3.138	.
353	SM01	M-14/S2150	3.172	1.311	0.764	0.061	0.012	8.189	0.323	2.038	0.752	1.706	.	0.463	22.304	0.052	3.023	.
353	SM01	M-14/S2150	3.286	1.335	0.774	0.067	0.013	8.725	0.450	2.050	0.774	1.784	.	0.490	22.600	0.050	3.088	.
353	SM55	M-14/S2150	-0.037	-0.001	-0.029	0.001	-0.018	-0.173	-0.917	-0.024	0.007	-0.010	.	-0.011	0.158	0.006	-0.447	.
353	SM55	M-14/S2150	0.095	0.019	-0.001	0.018	0.000	-0.183	0.528	0.054	0.006	-0.013	.	0.014	0.487	0.015	0.170	.
354	ARGG	M-13/S2133	2.409	2.607	0.998	0.065	0.002	9.492	2.268	1.527	0.522	1.411	.	0.803	22.463	0.665	0.081	.
354	ARGG	M-13/S2133	2.469	2.615	0.964	0.067	0.000	9.612	2.152	1.436	0.509	1.448	.	0.809	22.922	0.663	0.078	.
354	SM01	M-13/S2133	3.332	1.375	0.755	0.063	0.013	8.610	0.097	2.129	0.730	1.711	.	0.498	23.058	0.044	2.785	.
354	SM01	M-13/S2133	3.296	1.396	0.763	0.058	0.013	8.487	0.017	2.237	0.696	1.647	.	0.478	23.120	0.044	2.732	.
354	SM01	M-13/S2133	3.198	1.403	0.733	0.056	0.013	8.128	-0.002	2.052	0.668	1.577	.	0.454	23.319	0.043	2.583	.
354	SM01	M-13/S2133	3.316	1.417	0.734	0.062	0.012	8.330	0.003	2.074	0.688	1.615	.	0.462	24.097	0.044	2.682	.
354	SM01	M-13/S2133	3.446	1.356	0.840	0.064	0.014	9.035	0.138	2.109	0.885	1.947	.	0.529	22.828	0.044	2.923	.
354	SM01	M-13/S2133	3.208	1.421	0.738	0.057	0.013	8.146	0.000	2.072	0.679	1.611	.	0.454	23.321	0.042	2.662	.
354	SM55	M-13/S2133	0.004	0.018	-0.042	0.006	-0.004	-0.177	-0.054	-0.001	0.004	0.020	.	0.003	0.250	-0.001	0.049	.
354	SM55	M-13/S2133	0.108	0.007	-0.039	0.001	-0.004	-0.278	-0.089	-0.020	0.001	0.015	.	0.003	0.185	0.000	0.051	.
355	ARGG	M-13/S2133	2.319	2.523	0.965	0.081	0.004	9.141	2.153	1.402	0.482	1.351	.	0.764	21.237	0.658	0.055	.
355	ARGG	M-13/S2133	2.363	2.542	0.965	0.081	0.002	9.269	2.181	1.418	0.491	1.373	.	0.769	21.019	0.651	0.050	.
355	SM01	M-13/S2133	3.447	1.710	0.889	0.064	0.047	8.601	0.495	2.690	0.817	1.799	.	0.488	28.164	0.051	2.742	.
355	SM01	M-13/S2133	3.103	1.507	0.774	0.056	0.040	7.269	0.434	2.337	0.733	1.592	.	0.438	25.191	0.046	2.445	.
355	SM01	M-13/S2133	3.057	1.532	0.807	0.143	0.012	7.937	0.417	2.391	0.776	1.699	.	0.470	24.978	0.045	2.477	.
355	SM01	M-13/S2133	2.824	1.406	0.749	0.136	0.013	7.373	0.397	2.265	0.729	1.582	.	0.428	23.338	0.042	2.308	.
355	SM01	M-13/S2133	2.765	1.415	0.663	0.048	0.009	6.948	0.463	2.232	0.646	1.433	.	0.398	23.421	0.043	2.275	.
355	SM01	M-13/S2133	2.804	1.378	0.705	0.049	0.008	7.055	0.373	2.183	0.669	1.476	.	0.400	23.112	0.042	2.289	.
355	SM55	M-13/S2133	-0.015	-0.026	-0.032	0.018	-0.008	-0.255	0.053	0.001	-0.007	-0.032	.	0.009	0.016	0.000	0.026	.
355	SM55	M-13/S2133	0.011	-0.011	-0.014	0.014	-0.007	-0.220	0.029	-0.006	-0.006	-0.025	.	0.005	0.041	0.001	0.025	.
356	ARGG	M-13/S2133	2.441	2.668	0.996	0.064	0.000	9.704	2.293	1.501	0.509	1.444	.	0.781	23.116	0.678	-0.034	.
356	ARGG	M-13/S2133	2.560	2.820	1.008	0.070	0.002	10.406	2.272	1.527	0.535	1.422	.	0.823	24.197	0.699	-0.006	.
356	SM01	M-13/S2133	3.137	1.474	0.729	0.055	0.012	8.000	0.109	2.212	0.686	1.477	.	0.448	25.005	0.049	2.402	.
356	SM01	M-13/S2133	3.193	1.476	0.799	0.055	0.013	8.259	0.081	2.182	0.751	1.585	.	0.468	25.007	0.050	2.472	.
356	SM01	M-13/S2133	3.038	1.385	0.713	0.053	0.010	7.786	0.094	2.055	0.670	1.467	.	0.433	23.245	0.049	2.346	.
356	SM01	M-13/S2133	3.043	1.387	0.690	0.053	0.011	7.581	0.137	2.138	0.648	1.456	.	0.416	23.543	0.048	2.345	.
356	SM01	M-13/S2133	3.131	1.350	0.753	0.056	0.013	7.894	0.062	2.089	0.697	1.545	.	0.430	22.806	0.050	2.476	.
356	SM01	M-13/S2133	2.832	1.323	0.651	0.049	0.011	7.250	0.069	1.985	0.618	1.344	.	0.399	22.412	0.045	2.207	.
356	SM55	M-13/S2133	0.084	0.022	-0.026	-0.001	-0.005	-0.211	0.053	-0.015	-0.011	-0.009	.	-0.016	0.324	0.003	-0.079	.
356	SM55	M-13/S2133	0.101	0.019	-0.004	0.003	-0.004	-0.150	0.118	-0.016	-0.009	-0.007	.	-0.004	0.243	0.004	-0.058	.

Table A3. Mixed Acid Measurement Data Set

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
300	ARGB	M-13/S2133	2.257	.	0.993	0.061	0.002	9.472	1.914	1.465	0.515	1.375	8.206	0.795	21.277	0.652	-0.124	0.083
300	ARGB	M-13/S2133	2.280	.	0.997	0.066	0.006	9.821	1.954	1.517	0.535	1.428	8.302	0.833	21.481	0.673	-0.089	0.085
300	ARGB	M-13/S2133	2.298	.	1.005	0.064	0.003	9.514	2.415	1.485	0.501	1.385	8.323	0.796	20.835	0.678	0.065	0.102
300	ARGB	M-13/S2133	2.274	.	1.000	0.063	0.006	9.561	2.272	1.470	0.503	1.407	8.207	0.792	21.475	0.676	-0.047	0.101
300	SM01	M-13/S2133	2.842	.	0.703	0.047	0.014	7.394	-0.208	2.288	0.667	1.463	8.581	0.433	23.223	0.023	2.665	0.032
300	SM01	M-13/S2133	2.845	.	0.699	0.048	0.015	7.466	-0.034	2.213	0.668	1.466	8.552	0.420	22.130	0.022	2.674	0.036
300	SM01	M-13/S2133	2.847	.	0.686	0.049	0.015	7.446	0.078	2.286	0.651	1.446	8.344	0.431	22.801	0.023	2.642	0.036
300	SM01	M-13/S2133	2.911	.	0.706	0.052	0.021	7.571	-0.092	2.240	0.661	1.479	8.566	0.433	22.690	0.024	2.740	0.039
300	SM01	M-13/S2133	2.860	.	0.701	0.051	0.019	7.577	-0.021	2.297	0.680	1.495	8.638	0.436	22.687	0.024	2.716	0.041
300	SM01	M-13/S2133	2.450	.	0.584	0.045	0.017	6.317	-0.146	1.959	0.576	1.251	7.159	0.366	19.458	0.020	2.295	0.032
300	SM01	M-13/S2133	2.975	.	0.719	0.049	0.012	7.745	-0.058	2.247	0.662	1.499	8.781	0.431	22.924	0.027	2.812	0.053
300	SM01	M-13/S2133	2.900	.	0.690	0.050	0.011	7.530	-0.228	2.211	0.656	1.491	8.738	0.435	23.022	0.028	2.741	0.054
300	SM01	M-13/S2133	2.906	.	0.697	0.047	0.010	7.436	-0.195	2.320	0.641	1.465	8.628	0.430	23.709	0.028	2.689	0.052
300	SM01	M-13/S2133	2.837	.	0.685	0.050	0.010	7.367	0.030	2.259	0.641	1.436	8.497	0.409	22.990	0.028	2.677	0.051
300	SM01	M-13/S2133	2.840	.	0.669	0.045	0.012	7.274	0.050	2.226	0.629	1.413	8.315	0.411	22.603	0.027	2.707	0.050
300	SM01	M-13/S2133	2.805	.	0.674	0.047	0.011	7.264	0.080	2.174	0.637	1.437	8.427	0.407	22.159	0.027	2.650	0.049
300	SM32	M-13/S2133	-0.082	.	0.020	-0.011	0.000	-0.036	-0.221	-0.002	-0.003	0.005	-0.158	-0.014	0.265	-0.005	-0.233	-0.020
300	SM32	M-13/S2133	-0.087	.	-0.001	-0.006	-0.001	-0.025	-0.303	0.006	-0.003	0.006	-0.175	-0.017	0.095	-0.006	-0.250	-0.022
300	SM32	M-13/S2133	0.039	.	-0.020	-0.009	-0.003	-0.058	-0.004	-0.013	-0.004	0.016	-0.110	-0.013	-0.031	0.003	-0.148	0.001
300	SM32	M-13/S2133	-0.042	.	-0.017	-0.008	0.095	-0.064	-0.266	-0.017	-0.003	0.014	-0.100	-0.011	-0.056	0.000	-0.147	0.001
301	ARGB	M-13/S2133	2.283	.	0.955	0.061	0.009	9.568	2.074	1.478	0.497	1.383	8.285	0.769	21.106	0.669	-0.001	0.098
301	ARGB	M-13/S2133	2.242	.	0.948	0.059	0.004	9.420	2.143	1.454	0.487	1.364	8.155	0.757	20.777	0.648	-0.048	0.095
301	ARGB	M-13/S2133	2.337	.	0.983	0.058	-0.007	9.470	2.174	1.450	0.499	1.382	8.089	0.775	20.857	0.671	-0.019	0.090
301	ARGB	M-13/S2133	2.314	.	0.985	0.056	-0.006	9.411	2.252	1.470	0.495	1.366	8.300	0.776	20.525	0.682	-0.080	0.089
301	SM01	M-13/S2133	3.085	.	0.754	0.053	0.017	8.271	0.042	2.124	0.731	1.634	8.984	0.450	21.956	0.028	2.892	0.049
301	SM01	M-13/S2133	3.272	.	0.820	0.053	0.023	8.507	0.147	2.171	0.773	1.734	9.274	0.494	22.205	0.027	3.130	0.055
301	SM01	M-13/S2133	3.201	.	0.802	0.057	0.022	8.529	-0.090	2.082	0.757	1.694	9.065	0.489	21.167	0.027	3.044	0.055
301	SM01	M-13/S2133	3.179	.	0.781	0.050	0.022	8.195	-0.124	2.145	0.755	1.689	9.296	0.462	21.579	0.026	2.982	0.052
301	SM32	M-13/S2133	-0.026	.	-0.015	-0.009	-0.001	-0.018	-0.322	-0.006	-0.009	0.012	-0.111	-0.005	-0.001	-0.001	-0.145	-0.002
301	SM32	M-13/S2133	-0.052	.	-0.016	-0.012	-0.018	0.021	-0.412	-0.011	-0.006	0.009	-0.087	-0.022	-0.054	0.001	-0.112	-0.008
301	SM32	M-13/S2133	-0.047	.	-0.015	-0.012	-0.015	0.018	-0.293	-0.013	-0.005	0.010	-0.170	-0.017	0.045	0.001	-0.123	-0.009
302	ARGB	M-13/S2133	2.249	.	0.971	0.068	0.001	9.535	2.194	1.491	0.506	1.384	8.179	0.785	20.686	0.661	-0.136	0.094
302	ARGB	M-13/S2133	2.303	.	0.994	0.069	-0.002	9.506	1.744	1.457	0.504	1.398	8.162	0.798	21.200	0.658	-0.138	0.094
302	SM01	M-13/S2133	2.938	.	0.732	0.056	0.011	7.922	0.133	2.193	0.707	1.596	8.613	0.449	22.068	0.023	2.890	0.048
302	SM01	M-13/S2133	2.885	.	0.690	0.052	0.013	7.836	-0.057	2.195	0.686	1.520	8.536	0.435	22.144	0.022	2.839	0.047
302	SM01	M-13/S2133	2.875	.	0.723	0.052	0.013	7.674	-0.271	2.194	0.703	1.529	8.911	0.430	22.353	0.022	2.762	0.047
302	SM01	M-13/S2133	2.959	.	0.740	0.063	0.012	7.931	-0.426	2.205	0.697	1.550	8.377	0.465	22.453	0.024	2.877	0.051
302	SM01	M-13/S2133	2.878	.	0.698	0.057	0.012	7.643	-0.131	2.210	0.677	1.521	8.599	0.439	22.589	0.023	2.759	0.046
302	SM01	M-13/S2133	2.918	.	0.721	0.057	0.014	7.898	-0.126	2.196	0.711	1.561	8.776	0.445	21.972	0.022	2.899	0.048
302	SM32	M-13/S2133	-0.075	.	-0.012	0.004	-0.007	-0.032	-0.955	-0.034	-0.001	0.000	-0.095	-0.005	0.044	-0.003	-0.279	-0.005
302	SM32	M-13/S2133	-0.028	.	-0.015	0.001	-0.004	-0.024	-0.130	-0.028	-0.003	-0.003	-0.073	-0.009	-0.086	-0.001	-0.194	-0.001
303	ARGB	M-13/S2133	2.302	.	1.010	0.061	0.001	9.484	2.535	1.502	0.519	1.370	8.303	0.804	21.314	0.673	-0.115	0.098
303	ARGB	M-13/S2133	2.275	.	1.014	0.063	0.006	9.509	2.329	1.482	0.505	1.375	8.259	0.824	21.548	0.666	-0.116	0.098
303	SM01	M-13/S2133	2.809	.	0.689	0.045	0.013	7.449	0.069	2.261	0.649	1.471	8.644	0.426	22.562	0.023	2.693	0.046
303	SM01	M-13/S2133	2.809	.	0.694	0.049	0.012	7.680	-0.143	2.241	0.656	1.544	8.708	0.450	23.089	0.023	2.647	0.048
303	SM01	M-13/S2133	2.790	.	0.706	0.049	0.020	7.475	-0.119	2.290	0.647	1.510	8.560	0.430	23.099	0.025	2.750	0.049
303	SM01	M-13/S2133	2.701	.	1.094	0.052	0.013	7.312	0.220	2.296	0.640	1.457	8.626	0.427	23.542	0.024	2.631	0.049
303	SM01	M-13/S2133	2.731	.	0.688	0.049	0.011	7.449	-0.039	2.282	0.655	1.500	8.754	0.438	23.020	0.024	2.524	0.047
303	SM01	M-13/S2133	2.772	.	0.701	0.048	0.015	7.480	-0.115	2.275	0.650	1.496	8.582	0.435	22.588	0.022	2.644	0.046
303	SM32	M-13/S2133	-0.051	.	-0.003	-0.008	0.000	0.023	0.031	0.008	0.004	0.023	0.019	-0.012	0.226	-0.004	-0.274	-0.001

Table A3. Mixed Acid Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
303	SM32	M-13/S2133	-0.086	.	-0.011	-0.006	-0.008	0.010	-0.275	-0.001	0.004	0.022	-0.003	-0.006	0.384	-0.006	-0.267	-0.003
304	ARGB	M-13/S2133	2.361	.	1.039	0.079	0.011	9.710	2.863	1.540	0.515	1.363	8.301	0.833	21.884	0.681	0.041	0.101
304	ARGB	M-13/S2133	2.296	.	1.006	0.073	0.005	9.450	2.057	1.501	0.507	1.380	8.246	0.804	21.264	0.685	-0.095	0.095
304	SM01	M-13/S2133	2.735	.	0.660	0.063	0.016	7.364	0.410	2.331	0.589	1.383	8.252	0.427	23.543	0.031	2.637	0.046
304	SM01	M-13/S2133	2.697	.	0.675	0.056	0.023	7.292	0.749	2.257	0.583	1.356	8.115	0.432	23.184	0.031	2.686	0.048
304	SM01	M-13/S2133	2.713	.	0.690	0.057	0.023	7.266	0.649	2.337	0.610	1.413	8.416	0.424	23.163	0.032	2.790	0.049
304	SM01	M-13/S2133	2.763	.	0.689	0.065	0.025	7.608	0.557	2.261	0.632	1.423	8.519	0.470	23.133	0.032	2.790	0.049
304	SM01	M-13/S2133	2.774	.	0.691	0.058	0.022	7.380	0.720	2.360	0.647	1.424	8.494	0.426	23.849	0.033	2.811	0.050
304	SM01	M-13/S2133	2.803	.	0.702	0.069	0.023	7.810	0.536	2.271	0.646	1.455	8.679	0.477	23.570	0.032	2.899	0.051
304	SM32	M-13/S2133	-0.003	.	0.031	0.011	0.006	-0.013	-0.319	-0.004	-0.001	0.018	0.082	0.000	-0.023	0.004	-0.089	-0.003
304	SM32	M-13/S2133	-0.011	.	-0.003	0.007	0.001	-0.042	0.383	0.015	-0.003	0.016	0.062	0.011	0.155	0.004	-0.159	-0.001
305	ARGB	M-13/S2133	2.199	.	0.960	0.079	-0.003	9.560	2.037	1.464	0.512	1.371	8.258	0.801	21.061	0.645	-0.224	0.085
305	ARGB	M-13/S2133	2.235	.	0.952	0.080	-0.004	9.196	2.042	1.496	0.492	1.357	8.365	0.784	21.197	0.646	-0.197	0.087
305	SM01	M-13/S2133	2.793	.	0.705	0.066	0.009	7.757	1.419	2.218	0.732	1.573	8.651	0.459	22.603	0.018	2.662	0.042
305	SM01	M-13/S2133	2.716	.	0.683	0.066	0.008	7.683	0.836	2.204	0.692	1.533	8.636	0.457	22.507	0.015	2.549	0.039
305	SM01	M-13/S2133	2.702	.	0.681	0.066	0.009	7.383	-0.065	2.243	0.669	1.513	8.899	0.439	22.284	0.015	2.611	0.040
305	SM01	M-13/S2133	2.672	.	0.676	0.065	0.007	7.448	0.049	2.237	0.668	1.483	8.824	0.430	22.932	0.017	2.552	0.040
305	SM01	M-13/S2133	2.507	.	0.639	0.066	0.007	7.194	4.357	2.094	0.637	1.442	8.187	0.428	21.160	0.014	2.343	0.035
305	SM01	M-13/S2133	2.743	.	0.667	0.066	0.009	7.548	0.124	2.219	0.655	1.483	8.866	0.458	22.825	0.016	2.631	0.041
305	SM32	M-13/S2133	-0.063	.	-0.018	0.010	-0.009	-0.029	-0.090	-0.013	-0.004	0.006	-0.122	-0.012	-0.263	-0.010	-0.283	-0.010
305	SM32	M-13/S2133	-0.122	.	-0.017	0.011	-0.015	-0.008	-0.749	-0.026	-0.004	0.009	-0.114	-0.001	-0.083	-0.012	-0.460	-0.012
306	ARGB	M-13/S2133	2.281	.	1.009	0.071	-0.002	9.501	1.688	1.517	0.507	1.358	8.583	0.816	21.642	0.680	-0.143	0.097
306	ARGB	M-13/S2133	2.305	.	0.998	0.072	-0.003	9.672	2.315	1.509	0.510	1.400	8.416	0.823	21.518	0.672	-0.151	0.093
306	SM01	M-13/S2133	2.880	.	0.733	0.063	0.013	8.027	-0.250	2.151	0.731	1.618	8.982	0.481	22.279	0.029	2.663	0.050
306	SM01	M-13/S2133	2.902	.	0.747	0.060	0.014	7.901	0.106	2.206	0.743	1.630	9.121	0.465	22.619	0.030	2.835	0.050
306	SM01	M-13/S2133	2.946	.	0.750	0.059	0.013	8.038	-0.096	2.181	0.718	1.599	9.241	0.475	22.528	0.030	2.868	0.053
306	SM01	M-13/S2133	2.901	.	0.737	0.064	0.013	8.079	-0.471	2.180	0.732	1.627	9.308	0.475	22.705	0.028	2.723	0.049
306	SM01	M-13/S2133	2.864	.	0.740	0.061	0.012	7.935	-0.285	2.226	0.733	1.620	9.255	0.481	23.073	0.031	2.769	0.050
306	SM01	M-13/S2133	2.917	.	0.758	0.062	0.015	8.050	-0.110	2.233	0.728	1.616	8.915	0.471	22.867	0.058	2.943	0.052
306	SM32	M-13/S2133	-0.051	.	-0.010	0.003	-0.006	0.010	-0.619	0.003	-0.004	0.025	0.050	-0.003	-0.236	-0.006	-0.281	-0.008
306	SM32	M-13/S2133	-0.060	.	-0.012	-0.004	-0.010	0.010	-0.357	0.002	-0.004	0.025	0.080	-0.002	-0.064	-0.009	-0.328	-0.011
307	ARGB	M-13/S2133	2.246	.	0.980	0.062	-0.007	9.374	1.752	1.494	0.515	1.363	8.321	0.797	21.445	0.666	-0.139	0.095
307	ARGB	M-13/S2133	2.383	.	1.017	0.073	0.000	9.910	2.168	1.540	0.541	1.441	8.560	0.833	22.030	0.703	-0.085	0.098
307	SM01	M-13/S2133	2.835	.	0.734	0.058	0.010	7.923	-0.047	2.268	0.713	1.580	9.211	0.466	22.493	0.034	2.896	0.049
307	SM01	M-13/S2133	2.816	.	0.701	0.054	0.007	7.510	-0.507	2.244	0.660	1.494	8.823	0.443	22.600	0.033	2.754	0.047
307	SM01	M-13/S2133	2.895	.	0.695	0.061	0.009	7.964	-0.230	2.349	0.703	1.545	9.058	0.478	24.182	0.035	2.860	0.052
307	SM01	M-13/S2133	2.907	.	0.711	0.060	0.011	8.153	-0.243	2.331	0.708	1.557	8.912	0.483	24.017	0.036	2.968	0.050
307	SM01	M-13/S2133	2.722	.	0.672	0.052	0.010	7.417	-0.135	2.155	0.667	1.448	8.488	0.432	22.422	0.033	2.680	0.047
307	SM01	M-13/S2133	2.832	.	0.719	0.057	0.009	7.878	-0.282	2.269	0.706	1.543	8.917	0.452	23.222	0.033	2.873	0.049
307	SM32	M-13/S2133	-0.035	.	-0.018	-0.001	-0.008	-0.104	-0.307	-0.007	-0.005	0.022	-0.080	-0.008	-0.173	-0.003	-0.144	-0.005
307	SM32	M-13/S2133	-0.054	.	-0.020	0.000	-0.007	-0.108	-0.438	-0.004	-0.004	0.023	-0.080	0.003	-0.068	-0.001	-0.227	-0.005
308	ARGB	M-13/S2133	2.274	.	0.986	0.065	-0.002	9.513	2.048	1.489	0.512	1.385	8.349	0.802	21.146	0.634	-0.088	0.092
308	ARGB	M-13/S2133	2.300	.	0.986	0.074	-0.003	9.529	2.087	1.502	0.502	1.376	8.321	0.821	20.946	0.636	-0.135	0.091
308	SM01	M-13/S2133	2.745	.	0.693	0.051	0.011	7.602	0.267	2.243	0.673	1.508	8.626	0.440	22.740	0.038	2.775	0.047
308	SM01	M-13/S2133	2.670	.	0.803	0.059	0.008	7.532	-0.018	2.261	0.669	1.489	8.575	0.457	23.203	0.036	2.675	0.047
308	SM01	M-13/S2133	2.766	.	0.703	0.059	0.008	7.705	0.623	2.229	0.675	1.535	8.666	0.460	23.074	0.038	2.755	0.048
308	SM01	M-13/S2133	2.831	.	0.704	0.056	0.011	8.010	0.086	2.343	0.688	1.550	9.033	0.476	23.652	0.040	2.941	0.048
308	SM01	M-13/S2133	2.698	.	0.675	0.056	0.008	7.528	0.168	2.202	0.649	1.483	8.393	0.466	22.843	0.038	2.676	0.045
308	SM01	M-13/S2133	2.723	.	0.695	0.057	0.010	7.741	0.435	2.252	0.679	1.528	8.795	0.461	23.285	0.038	2.769	0.045
308	SM32	M-13/S2133	-0.082	.	-0.026	-0.001	-0.014	-0.007	-0.090	0.008	-0.011	0.021	-0.071	0.005	-0.007	-0.001	-0.193	-0.010

Table A3. Mixed Acid Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
308	SM32	M-13/S2133	-0.075	.	-0.019	-0.007	-0.010	-0.012	0.300	0.005	-0.011	0.022	-0.079	-0.010	-0.131	0.000	-0.262	-0.008
309	ARGB	M-13/S2133	2.233	.	0.977	0.076	0.002	9.769	1.884	1.473	0.509	1.391	8.211	0.818	21.142	0.648	-0.221	0.100
309	ARGB	M-13/S2133	2.310	.	0.969	0.071	0.003	9.485	1.878	1.459	0.498	1.350	8.392	0.812	21.105	0.646	-0.207	0.100
309	SM01	M-13/S2133	2.790	.	0.675	0.059	0.012	7.886	-0.176	2.194	0.660	1.566	8.670	0.465	22.632	0.032	2.702	0.059
309	SM01	M-13/S2133	2.755	.	0.667	0.066	0.013	7.888	-0.111	2.218	0.651	1.510	8.746	0.469	22.616	0.031	2.636	0.058
309	SM01	M-13/S2133	2.851	.	0.719	0.067	0.012	8.228	-0.528	2.141	0.699	1.616	8.945	0.485	21.578	0.032	2.827	0.060
309	SM01	M-13/S2133	2.839	.	0.690	0.063	0.013	7.827	-0.545	2.197	0.682	1.548	8.706	0.486	22.422	0.033	2.715	0.060
309	SM01	M-13/S2133	2.624	.	0.645	0.052	0.012	7.518	-0.259	2.138	0.633	1.510	8.165	0.451	21.626	0.031	2.671	0.056
309	SM01	M-13/S2133	1.619	.	0.440	0.040	0.006	4.389	-0.599	1.270	0.402	0.870	4.935	0.265	13.185	0.016	1.403	0.035
309	SM32	M-13/S2133	-0.101	.	-0.027	0.001	-0.003	-0.044	-0.299	-0.013	0.000	0.021	-0.053	0.010	-0.214	-0.001	-0.348	0.006
309	SM32	M-13/S2133	-0.075	.	-0.027	0.000	-0.005	-0.046	-0.875	-0.016	0.000	0.021	-0.004	0.015	-0.088	-0.001	-0.391	0.008
310	ARGB	M-13/S2133	2.309	.	0.997	0.072	-0.001	9.411	2.306	1.480	0.506	1.408	8.230	0.806	21.252	0.667	-0.071	0.103
310	ARGB	M-13/S2133	2.268	.	0.996	0.079	0.004	9.622	1.630	1.495	0.511	1.387	8.305	0.846	21.389	0.684	-0.093	0.103
310	SM01	M-13/S2133	2.722	.	0.695	0.058	0.014	7.534	-0.147	2.290	0.634	1.466	8.941	0.441	23.001	0.032	2.682	0.056
310	SM01	M-13/S2133	2.683	.	0.671	0.058	0.012	7.462	-0.484	2.313	0.627	1.457	8.798	0.431	23.020	0.033	2.676	0.054
310	SM01	M-13/S2133	2.755	.	0.666	0.066	0.011	7.700	-0.490	2.323	0.603	1.403	8.424	0.459	22.986	0.033	2.652	0.056
310	SM01	M-13/S2133	2.653	.	0.650	0.064	0.011	7.532	-0.280	2.245	0.588	1.390	8.385	0.454	23.266	0.031	2.618	0.054
310	SM01	M-13/S2133	2.679	.	0.646	0.062	0.014	7.397	-0.140	2.350	0.581	1.365	8.465	0.443	23.603	0.033	2.502	0.055
310	SM01	M-13/S2133	2.642	.	0.638	0.063	0.011	7.399	-0.585	2.131	0.587	1.364	8.164	0.441	21.511	0.030	2.525	0.053
310	SM32	M-13/S2133	-0.019	.	-0.014	0.011	-0.007	-0.068	-0.722	0.008	0.006	0.030	0.011	0.003	-0.003	-0.001	-0.248	0.003
310	SM32	M-13/S2133	-0.063	.	-0.011	0.007	-0.008	-0.055	-0.513	0.014	0.010	0.033	0.023	-0.022	-0.199	0.000	-0.255	0.003
311	ARGB	M-13/S2133	2.233	.	1.006	0.063	-0.012	9.718	1.647	1.473	0.510	1.394	8.517	0.794	21.152	0.657	-0.028	0.097
311	ARGB	M-13/S2133	2.215	.	0.987	0.061	-0.010	9.651	1.707	1.450	0.519	1.382	8.401	0.811	21.606	0.653	0.029	0.095
311	SM01	M-13/S2133	2.674	.	0.672	0.050	0.006	7.779	-0.686	2.307	0.651	1.426	8.705	0.443	23.773	0.028	2.726	0.054
311	SM01	M-13/S2133	2.749	.	0.660	0.052	0.006	7.694	0.014	2.381	0.618	1.400	8.628	0.435	24.397	0.030	2.758	0.054
311	SM01	M-13/S2133	2.676	.	0.681	0.054	0.001	7.790	-0.577	2.302	0.647	1.449	8.851	0.443	23.787	0.028	2.753	0.051
311	SM01	M-13/S2133	2.644	.	0.648	0.048	-0.001	7.333	-0.432	2.357	0.582	1.358	8.517	0.417	23.546	0.028	2.542	0.052
311	SM01	M-13/S2133	2.804	.	0.682	0.052	0.003	7.828	-0.996	2.438	0.617	1.451	8.843	0.437	24.905	0.029	2.776	0.054
311	SM01	M-13/S2133	2.648	.	0.670	0.060	0.003	7.597	-0.345	2.253	0.635	1.401	8.573	0.453	22.859	0.029	2.622	0.051
311	SM32	M-13/S2133	-0.108	.	-0.007	-0.013	-0.013	-0.016	-0.490	-0.028	-0.004	0.005	-0.125	-0.013	-0.219	-0.003	-0.054	0.001
311	SM32	M-13/S2133	-0.127	.	0.000	-0.016	-0.013	-0.019	-0.029	-0.030	-0.004	0.007	-0.049	-0.019	0.056	-0.003	-0.042	0.003
312	ARGB	M-13/S2133	2.284	.	0.981	0.063	-0.003	9.630	2.283	1.481	0.494	1.404	8.474	0.790	21.317	0.652	-0.106	0.087
312	ARGB	M-13/S2133	2.290	.	0.984	0.071	-0.004	9.408	1.957	1.473	0.495	1.400	8.676	0.812	21.734	0.664	-0.133	0.090
312	SM01	M-13/S2133	2.803	.	0.687	0.054	0.008	7.511	-0.057	2.224	0.645	1.482	9.051	0.441	23.111	0.034	2.587	0.048
312	SM01	M-13/S2133	2.909	.	0.710	0.054	0.007	7.971	0.473	2.254	0.666	1.527	8.795	0.464	22.958	0.033	2.700	0.047
312	SM01	M-13/S2133	2.807	.	0.707	0.054	0.007	7.614	0.281	2.183	0.691	1.536	9.151	0.444	22.461	0.032	2.645	0.045
312	SM01	M-13/S2133	2.839	.	0.712	0.058	0.008	7.920	0.593	2.173	0.683	1.597	9.058	0.466	22.352	0.033	2.663	0.046
312	SM01	M-13/S2133	2.802	.	0.681	0.056	0.006	7.639	-0.115	2.244	0.640	1.516	8.912	0.452	23.317	0.031	2.641	0.046
312	SM01	M-13/S2133	2.801	.	0.714	0.055	0.010	7.725	-0.042	2.220	0.665	1.542	9.210	0.453	22.535	0.034	2.667	0.048
312	SM32	M-13/S2133	-0.116	.	-0.012	-0.003	-0.007	-0.099	-0.338	-0.012	-0.004	-0.019	0.087	-0.011	-0.010	-0.007	-0.238	-0.015
312	SM32	M-13/S2133	-0.119	.	-0.012	-0.003	-0.011	-0.095	0.169	-0.009	-0.003	-0.019	0.087	0.005	-0.037	-0.008	-0.266	-0.014
313	ARGB	M-13/S2133	2.277	.	0.972	0.058	-0.040	9.393	2.049	1.478	0.500	1.359	8.175	0.788	21.046	0.657	-0.071	0.083
313	ARGB	M-13/S2133	2.332	.	0.985	0.069	-0.039	9.543	2.022	1.496	0.509	1.395	8.428	0.813	21.134	0.653	0.007	0.083
313	SM01	M-13/S2133	2.702	.	0.674	0.048	-0.034	7.228	0.591	2.246	0.633	1.406	8.333	0.421	22.146	0.028	2.592	0.037
313	SM01	M-13/S2133	2.643	.	0.620	0.045	-0.024	7.070	-0.538	2.271	0.578	1.336	8.327	0.408	23.515	0.026	2.501	0.033
313	SM01	M-13/S2133	2.631	.	0.635	0.049	-0.034	7.195	-0.028	2.265	0.614	1.395	8.588	0.435	23.052	0.021	2.449	0.031
313	SM01	M-13/S2133	2.251	.	0.461	0.032	-0.017	5.835	-0.504	2.573	0.397	1.004	7.373	0.332	24.759	0.030	1.033	0.030
313	SM01	M-13/S2133	2.727	.	0.626	0.048	-0.010	7.281	0.191	2.328	0.579	1.390	8.293	0.421	23.774	0.027	2.599	0.036
313	SM01	M-13/S2133	2.795	.	0.662	0.047	-0.027	7.375	-0.286	2.304	0.613	1.424	8.429	0.425	23.478	0.029	2.691	0.038
313	SM32	M-13/S2133	-0.093	.	-0.015	-0.010	-0.032	-0.051	-0.577	-0.016	-0.005	-0.012	-0.027	-0.010	-0.345	-0.008	-0.053	-0.016

Table A3. Mixed Acid Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
313	SM32	M-13/S2133	-0.148	.	0.007	-0.007	-0.045	-0.057	-0.233	-0.026	-0.006	-0.013	-0.059	-0.009	-0.226	-0.010	0.016	-0.021
314	ARGB	M-13/S2133	2.333	.	1.002	0.079	-0.002	9.653	1.955	1.496	0.509	1.372	8.321	0.803	21.895	0.672	-0.077	0.087
314	ARGB	M-13/S2133	2.287	.	0.979	0.074	-0.004	9.743	2.080	1.498	0.509	1.388	8.324	0.807	21.937	0.661	-0.225	0.084
314	SM01	M-13/S2133	2.777	.	0.695	0.062	0.007	7.586	-0.323	2.265	0.673	1.511	8.878	0.441	23.256	0.025	2.634	0.038
314	SM01	M-13/S2133	2.761	.	0.676	0.060	0.019	7.554	-0.191	2.229	0.644	1.473	8.388	0.438	23.065	0.025	2.659	0.039
314	SM01	M-13/S2133	2.801	.	0.696	0.067	0.021	7.515	-0.402	2.296	0.656	1.472	8.705	0.453	23.553	0.025	2.567	0.036
314	SM01	M-13/S2133	2.871	.	0.706	0.063	0.017	7.866	-0.139	2.191	0.640	1.496	8.550	0.464	22.904	0.025	2.643	0.042
314	SM01	M-13/S2133	2.823	.	0.690	0.063	0.018	7.580	-0.155	2.245	0.655	1.493	8.667	0.460	23.278	0.026	2.662	0.041
314	SM01	M-13/S2133	2.820	.	0.704	0.065	0.017	7.599	-0.171	2.283	0.662	1.505	8.926	0.436	23.498	0.026	2.693	0.042
314	SM32	M-13/S2133	-0.070	.	0.001	0.010	-0.006	-0.035	0.731	-0.005	0.002	-0.022	-0.005	-0.013	-0.046	-0.012	-0.309	-0.016
314	SM32	M-13/S2133	-0.080	.	-0.004	0.013	-0.008	-0.035	-0.609	-0.006	0.002	-0.019	-0.018	0.004	0.218	-0.012	-0.418	-0.017
315	ARGB	M-13/S2133	1.576	.	0.689	0.044	0.001	6.838	1.499	1.070	0.361	0.995	5.902	0.582	14.671	0.472	-0.385	0.055
315	ARGB	M-13/S2133	2.520	.	1.100	0.071	0.004	10.703	1.999	1.661	0.566	1.535	9.237	0.880	23.897	0.761	-0.271	0.096
315	SM01	M-13/S2133	2.746	.	0.694	0.049	0.013	7.480	-0.043	2.286	0.639	1.483	8.740	0.443	23.171	0.031	2.451	0.037
315	SM01	M-13/S2133	3.046	.	0.763	0.055	0.015	8.180	-0.044	2.397	0.719	1.634	9.705	0.476	23.562	0.034	2.805	0.045
315	SM01	M-13/S2133	2.745	.	0.692	0.051	0.013	7.510	-0.269	2.274	0.657	1.515	8.732	0.426	22.395	0.030	2.397	0.027
315	SM01	M-13/S2133	2.740	.	0.704	0.049	0.018	7.338	-0.332	2.179	0.667	1.534	8.690	0.435	21.385	0.031	2.532	0.039
315	SM01	M-13/S2133	2.751	.	0.725	0.051	0.016	7.386	-0.248	2.259	0.675	1.541	8.912	0.443	22.748	0.033	2.525	0.037
315	SM01	M-13/S2133	2.825	.	0.717	0.049	0.012	7.565	-0.265	2.292	0.680	1.551	8.934	0.454	22.593	0.031	2.407	0.036
315	SM32	M-13/S2133	0.078	.	-0.008	-0.013	0.003	-0.117	-0.394	-0.007	-0.004	-0.018	-0.078	-0.008	0.071	-0.007	-0.478	-0.021
315	SM32	M-13/S2133	-0.075	.	-0.004	-0.012	0.000	-0.066	-0.239	0.000	-0.003	-0.011	0.001	-0.011	0.042	-0.003	-0.356	-0.025
316	ARGB	M-13/S2133	2.109	.	0.920	0.063	0.005	8.764	2.126	1.358	0.470	1.279	7.661	0.718	19.283	0.618	-0.227	0.080
316	ARGB	M-13/S2133	2.311	.	1.004	0.072	0.011	9.770	2.388	1.481	0.522	1.430	8.393	0.771	21.299	0.690	-0.169	0.091
316	SM01	M-13/S2133	2.797	.	0.702	0.055	0.017	7.590	0.533	2.238	0.680	1.544	8.947	0.435	22.187	0.036	2.576	0.042
316	SM01	M-13/S2133	2.756	.	0.685	0.058	0.017	7.647	0.107	2.291	0.660	1.522	8.919	0.435	23.007	0.036	2.487	0.040
316	SM01	M-13/S2133	2.759	.	0.726	0.059	0.015	7.729	0.198	2.256	0.698	1.558	9.350	0.411	22.351	0.036	2.499	0.041
316	SM01	M-13/S2133	2.769	.	0.727	0.061	0.021	7.799	0.147	2.292	0.689	1.571	9.136	0.426	22.399	0.038	2.576	0.044
316	SM01	M-13/S2133	2.794	.	0.657	0.057	0.021	7.610	0.450	2.336	0.573	1.404	7.949	0.409	22.937	0.038	2.606	0.043
316	SM01	M-13/S2133	2.850	.	0.731	0.059	0.022	7.917	0.228	2.242	0.692	1.604	8.890	0.435	22.005	0.039	2.698	0.045
316	SM32	M-13/S2133	-0.038	.	0.003	-0.004	0.001	-0.068	-0.095	0.009	0.001	-0.005	0.000	-0.011	0.286	-0.004	-0.392	-0.015
316	SM32	M-13/S2133	-0.049	.	-0.004	-0.001	0.001	-0.082	-0.278	-0.003	0.003	-0.003	-0.023	-0.013	0.142	-0.003	-0.418	-0.013
317	ARGB	M-13/S2133	2.272	.	0.977	0.069	-0.003	9.784	1.993	1.402	0.512	1.394	8.388	0.784	21.762	0.684	-0.021	0.085
317	ARGB	M-13/S2133	2.297	.	0.966	0.079	-0.004	9.986	2.070	1.418	0.537	1.450	8.234	0.756	21.902	0.675	-0.008	0.090
317	SM01	M-13/S2133	2.862	.	0.717	0.062	0.013	8.018	0.040	2.045	0.719	1.603	8.917	0.438	22.982	0.036	2.989	0.041
317	SM01	M-13/S2133	2.766	.	0.709	0.064	0.009	8.121	0.091	2.012	0.741	1.659	9.134	0.419	21.738	0.034	2.913	0.040
317	SM01	M-13/S2133	2.865	.	0.774	0.069	0.008	8.486	-0.365	2.039	0.750	1.678	9.189	0.439	20.682	0.034	2.968	0.040
317	SM01	M-13/S2133	2.735	.	0.682	0.071	0.007	8.069	-0.351	2.020	0.712	1.601	8.635	0.403	21.793	0.031	2.831	0.035
317	SM01	M-13/S2133	2.837	.	0.724	0.068	0.007	8.353	-0.143	2.048	0.746	1.668	9.070	0.429	22.630	0.034	2.937	0.039
317	SM01	M-13/S2133	2.868	.	0.734	0.068	0.009	8.220	-0.504	2.167	0.753	1.689	9.379	0.425	23.645	0.033	2.946	0.040
317	SM32	M-13/S2133	-0.118	.	-0.029	-0.001	-0.011	-0.064	-0.470	-0.015	0.001	-0.028	-0.143	-0.027	0.044	-0.011	-0.122	-0.017
317	SM32	M-13/S2133	-0.092	.	-0.026	0.007	-0.012	-0.053	-0.652	0.001	0.003	-0.026	-0.107	-0.038	0.285	-0.010	-0.145	-0.019
318	ARGB	M-13/S2133	2.336	.	0.995	0.076	0.008	9.808	1.895	1.494	0.511	1.414	8.302	0.802	21.097	0.678	-0.194	0.088
318	ARGB	M-13/S2133	2.313	.	1.019	0.076	0.010	9.549	1.924	1.481	0.513	1.395	8.400	0.843	21.357	0.679	-0.041	0.094
318	SM01	M-13/S2133	3.092	.	0.777	0.065	0.023	8.086	0.197	2.182	0.778	1.692	8.945	0.463	21.462	0.030	2.726	0.041
318	SM01	M-13/S2133	3.007	.	0.784	0.061	0.016	8.162	0.253	2.159	0.783	1.700	9.083	0.467	21.459	0.028	2.797	0.042
318	SM01	M-13/S2133	2.946	.	0.738	0.062	0.018	7.949	-0.255	2.130	0.736	1.628	8.909	0.467	21.388	0.028	2.697	0.044
318	SM01	M-13/S2133	2.962	.	0.718	0.066	0.018	8.209	0.658	2.239	0.740	1.625	8.425	0.495	22.660	0.035	2.753	0.042
318	SM01	M-13/S2133	3.007	.	0.769	0.065	0.021	8.034	0.466	2.244	0.755	1.636	8.768	0.471	22.741	0.033	2.859	0.046
318	SM01	M-13/S2133	3.031	.	0.768	0.067	0.025	7.978	-0.211	2.228	0.735	1.612	8.873	0.479	22.526	0.031	2.865	0.044
318	SM32	M-13/S2133	-0.103	.	-0.005	0.003	0.002	-0.071	-0.143	-0.011	0.000	-0.008	-0.114	-0.018	-0.040	-0.016	-0.132	-0.016

Table A3. Mixed Acid Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
318	SM32	M-13/S2133	-0.066	.	0.009	0.009	0.003	-0.077	-0.136	-0.012	0.002	-0.006	-0.101	0.012	0.210	-0.012	-0.195	-0.012
319	ARGB	M-13/S2133	2.288	.	0.994	0.071	0.006	9.642	1.619	1.483	0.514	1.382	8.269	0.815	21.624	0.671	-0.078	0.091
319	ARGB	M-13/S2133	2.283	.	1.012	0.074	0.012	9.446	2.184	1.489	0.504	1.380	8.252	0.837	21.153	0.690	0.035	0.095
319	SM01	M-13/S2133	2.730	.	0.681	0.056	0.023	7.264	-0.252	2.392	0.599	1.363	8.333	0.422	23.177	0.041	2.536	0.045
319	SM01	M-13/S2133	2.752	.	0.663	0.057	0.022	7.394	-0.498	2.433	0.582	1.361	8.280	0.441	24.187	0.034	2.578	0.045
319	SM01	M-13/S2133	2.696	.	0.678	0.052	0.019	7.128	0.299	2.387	0.602	1.346	8.228	0.424	24.045	0.033	2.567	0.044
319	SM01	M-13/S2133	2.723	.	0.687	0.057	0.022	7.276	-0.098	2.412	0.604	1.349	8.365	0.428	24.215	0.034	2.575	0.047
319	SM01	M-13/S2133	2.740	.	0.684	0.052	0.022	7.276	-0.138	2.400	0.611	1.385	8.373	0.424	23.685	0.032	2.500	0.043
319	SM01	M-13/S2133	1.879	.	0.513	0.041	0.018	5.113	18.675	1.619	0.517	1.080	5.917	0.315	16.555	0.021	1.702	0.028
319	SM32	M-13/S2133	-0.038	.	-0.004	0.007	0.003	-0.035	-0.694	-0.019	0.004	-0.019	-0.026	0.000	0.028	-0.007	-0.135	-0.010
319	SM32	M-13/S2133	-0.078	.	-0.013	0.000	0.001	-0.089	-0.558	-0.022	0.003	-0.016	-0.031	0.009	0.173	-0.009	-0.251	-0.012
320	ARGB	M-14/S2150	2.352	.	1.016	0.063	0.001	9.398	2.121	1.497	0.509	1.404	8.499	0.821	20.490	0.703	-0.111	0.095
320	ARGB	M-14/S2150	2.308	.	0.980	0.061	0.000	9.233	2.013	1.479	0.488	1.357	8.160	0.781	20.279	0.677	-0.112	0.092
320	SM01	M-14/S2150	2.993	.	0.763	0.050	0.011	7.699	-0.040	2.284	0.715	1.549	9.026	0.450	22.528	0.035	2.872	0.049
320	SM01	M-14/S2150	3.065	.	0.765	0.053	0.017	7.612	-0.115	2.202	0.714	1.556	8.997	0.455	20.120	0.037	2.837	0.047
320	SM01	M-14/S2150	2.982	.	0.744	0.051	0.010	7.554	-0.085	2.205	0.702	1.542	9.049	0.460	22.044	0.035	2.817	0.049
320	SM01	M-14/S2150	2.989	.	0.744	0.049	0.012	7.741	-0.116	2.242	0.689	1.536	8.640	0.465	22.377	0.036	2.894	0.051
320	SM01	M-14/S2150	3.018	.	0.766	0.055	0.013	7.734	-0.011	2.182	0.727	1.590	8.849	0.455	21.253	0.038	2.810	0.048
320	SM01	M-14/S2150	2.965	.	0.748	0.051	0.014	7.615	0.067	2.286	0.720	1.559	8.869	0.445	22.652	0.036	2.797	0.050
320	SM32	M-14/S2150	-0.044	.	0.007	-0.001	-0.004	-0.030	-0.079	-0.005	0.004	0.004	-0.138	-0.005	0.168	-0.001	-0.192	-0.008
320	SM32	M-14/S2150	-0.055	.	0.008	-0.001	-0.004	-0.030	-0.269	-0.008	0.004	0.003	-0.111	0.013	0.136	-0.001	-0.176	-0.005
321	ARGB	M-13/S2133	2.317	.	1.014	0.064	0.003	9.586	2.430	1.430	0.519	1.394	8.167	0.812	20.743	0.667	-0.234	0.088
321	ARGB	M-13/S2133	2.366	.	0.989	0.069	-0.001	9.702	2.275	1.475	0.523	1.396	8.250	0.829	20.979	0.689	-0.087	0.093
321	SM01	M-13/S2133	2.826	.	0.702	0.055	0.008	7.468	0.402	2.294	0.674	1.496	8.642	0.436	22.656	0.029	2.653	0.041
321	SM01	M-13/S2133	2.463	.	0.613	0.050	0.006	6.571	-0.217	1.970	0.596	1.333	7.712	0.392	19.899	0.025	2.332	0.039
321	SM01	M-13/S2133	2.319	.	0.570	0.043	0.009	6.149	-0.067	1.853	0.532	1.222	6.918	0.366	18.797	0.025	2.255	0.037
321	SM01	M-13/S2133	2.799	.	0.702	0.052	0.007	7.442	0.333	2.227	0.667	1.472	8.539	0.439	21.385	0.029	2.702	0.042
321	SM01	M-13/S2133	2.814	.	0.682	0.053	0.008	7.530	-0.167	2.249	0.659	1.483	8.500	0.454	22.792	0.028	2.637	0.043
321	SM01	M-13/S2133	2.755	.	0.690	0.053	0.006	7.201	0.219	2.289	0.670	1.462	8.643	0.454	23.165	0.024	2.556	0.038
321	SM32	M-13/S2133	-0.094	.	-0.033	-0.003	-0.011	-0.183	0.325	-0.025	-0.004	-0.017	-0.235	-0.006	0.039	-0.012	-0.379	-0.014
321	SM32	M-13/S2133	-0.113	.	-0.028	-0.010	-0.017	-0.239	0.334	-0.037	-0.004	-0.020	-0.236	-0.010	0.125	-0.014	-0.472	-0.016
322	ARGB	M-14/S2150	2.399	.	1.034	0.060	0.001	9.714	2.294	1.491	0.521	1.441	8.549	0.820	21.420	0.721	-0.008	0.103
322	ARGB	M-14/S2150	2.370	.	1.031	0.058	0.001	9.506	2.272	1.472	0.518	1.380	8.403	0.798	21.281	0.704	-0.046	0.102
322	SM01	M-14/S2150	2.718	.	0.705	0.040	0.011	7.019	-0.008	2.119	0.659	1.468	8.429	0.410	21.618	0.036	2.633	0.050
322	SM01	M-14/S2150	2.893	.	0.748	0.043	0.013	7.300	0.006	2.145	0.701	1.529	8.945	0.432	21.997	0.034	2.863	0.054
322	SM01	M-14/S2150	3.179	.	0.846	0.051	0.016	8.433	0.046	2.355	0.765	1.665	9.414	0.474	23.365	0.035	3.082	0.059
322	SM01	M-14/S2150	2.981	.	0.738	0.042	0.013	7.618	0.195	2.237	0.699	1.556	8.715	0.433	22.384	0.039	3.005	0.055
322	SM01	M-14/S2150	3.018	.	0.772	0.041	0.015	7.569	-0.058	2.260	0.713	1.572	9.140	0.438	22.872	0.033	2.938	0.056
322	SM01	M-14/S2150	2.932	.	0.734	0.052	0.013	7.583	0.068	2.237	0.704	1.580	8.771	0.466	22.262	0.033	2.876	0.056
322	SM32	M-14/S2150	-0.024	.	0.009	-0.013	-0.004	-0.212	-0.203	-0.032	0.004	-0.021	-0.120	-0.011	-0.008	-0.003	-0.124	0.003
322	SM32	M-14/S2150	-0.026	.	0.012	-0.009	-0.001	-0.218	-0.041	-0.036	0.004	-0.022	-0.115	0.007	-0.095	0.000	-0.023	0.004
323	ARGB	M-14/S2150	2.427	.	1.030	0.064	-0.001	9.604	2.331	1.521	0.522	1.418	8.616	0.819	21.705	0.699	-0.038	0.097
323	ARGB	M-14/S2150	2.377	.	0.993	0.064	-0.003	9.591	2.300	1.502	0.510	1.396	8.407	0.804	21.216	0.693	-0.046	0.094
323	SM01	M-14/S2150	3.005	.	0.744	0.050	0.013	7.747	0.037	2.253	0.710	1.583	8.991	0.450	22.500	0.044	2.855	0.048
323	SM01	M-14/S2150	3.000	.	0.742	0.051	0.011	7.532	0.115	2.232	0.698	1.565	9.020	0.446	22.181	0.041	2.883	0.049
323	SM01	M-14/S2150	2.955	.	0.739	0.053	0.010	7.632	0.092	2.224	0.709	1.614	9.134	0.446	22.097	0.045	2.653	0.048
323	SM01	M-14/S2150	2.994	.	0.749	0.050	0.012	7.742	0.182	2.225	0.718	1.608	8.946	0.453	22.191	0.040	2.876	0.049
323	SM01	M-14/S2150	2.908	.	0.716	0.048	0.012	7.416	0.080	2.304	0.677	1.542	8.941	0.429	22.537	0.042	2.758	0.047
323	SM01	M-14/S2150	2.979	.	0.743	0.050	0.012	7.770	0.112	2.214	0.702	1.571	9.116	0.443	22.321	0.041	2.910	0.048
323	SM32	M-14/S2150	-0.085	.	0.019	-0.001	-0.008	-0.240	0.139	-0.011	0.008	-0.016	-0.122	-0.014	0.010	-0.001	-0.124	-0.006

Table A3. Mixed Acid Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
323	SM32	M-14/S2150	-0.078	.	-0.005	-0.003	-0.006	-0.223	0.108	-0.006	0.007	-0.016	-0.105	-0.012	0.177	0.000	-0.290	-0.007
324	ARGB	M-14/S2150	2.366	.	0.989	0.064	-0.012	9.589	2.414	1.496	0.511	1.397	8.545	0.818	20.647	0.673	-0.229	0.089
324	ARGB	M-14/S2150	2.476	.	1.058	0.072	-0.009	10.043	2.029	1.576	0.536	1.461	8.985	0.840	21.022	0.719	-0.099	0.095
324	SM01	M-14/S2150	2.790	.	0.694	0.051	0.001	7.197	0.168	2.402	0.651	1.454	9.072	0.440	22.897	0.030	2.782	0.043
324	SM01	M-14/S2150	2.742	.	0.681	0.044	0.005	7.237	-0.119	2.342	0.634	1.467	8.694	0.433	22.206	0.030	2.700	0.043
324	SM01	M-14/S2150	2.807	.	0.704	0.048	0.002	7.339	-0.170	2.336	0.658	1.486	9.066	0.433	21.605	0.028	2.722	0.040
324	SM01	M-14/S2150	2.705	.	0.686	0.037	-0.007	7.037	-0.169	2.418	0.640	1.440	8.810	0.418	22.510	0.025	2.406	0.039
324	SM01	M-14/S2150	2.769	.	0.708	0.042	0.004	7.292	0.321	2.322	0.668	1.491	8.994	0.453	21.250	0.028	2.659	0.042
324	SM01	M-14/S2150	2.668	.	0.677	0.050	-0.001	7.129	-0.123	2.349	0.636	1.446	8.833	0.445	21.684	0.026	2.608	0.040
324	SM32	M-14/S2150	-0.058	.	0.003	0.009	-0.016	-0.053	-0.391	-0.013	0.003	0.000	-0.018	0.011	0.175	-0.010	-0.125	-0.013
324	SM32	M-14/S2150	-0.108	.	-0.018	-0.010	-0.018	-0.166	0.117	-0.004	-0.003	-0.006	-0.015	-0.006	0.188	-0.010	-0.236	-0.014
325	ARGB	M-14/S2150	2.325	.	0.978	0.057	-0.009	9.350	2.250	1.475	0.499	1.370	8.325	0.789	20.269	0.690	-0.030	0.092
325	ARGB	M-14/S2150	2.347	.	0.977	0.056	-0.008	9.329	2.139	1.459	0.503	1.363	8.192	0.800	20.798	0.687	-0.025	0.093
325	SM01	M-14/S2150	2.767	.	0.678	0.038	0.003	7.150	-0.001	2.328	0.639	1.405	8.698	0.424	23.186	0.037	2.698	0.048
325	SM01	M-14/S2150	2.927	.	0.709	0.040	0.003	7.342	0.392	2.263	0.670	1.460	8.967	0.425	22.315	0.041	2.820	0.051
325	SM01	M-14/S2150	2.816	.	0.680	0.038	0.001	7.234	-0.023	2.327	0.648	1.407	8.797	0.430	22.992	0.037	2.726	0.047
325	SM01	M-14/S2150	2.681	.	0.660	0.043	0.000	6.935	0.320	2.276	0.635	1.354	8.611	0.433	22.007	0.036	2.536	0.045
325	SM01	M-14/S2150	2.743	.	0.690	0.042	0.001	7.245	0.023	2.301	0.671	1.428	8.778	0.446	22.778	0.037	2.728	0.048
325	SM01	M-14/S2150	2.698	.	0.668	0.038	0.002	6.956	0.033	2.342	0.646	1.382	8.857	0.409	22.949	0.038	2.520	0.050
325	SM32	M-14/S2150	-0.055	.	0.009	-0.007	-0.015	-0.155	-0.165	-0.014	0.010	-0.012	-0.106	-0.001	-0.072	0.000	-0.121	-0.006
325	SM32	M-14/S2150	-0.061	.	0.001	-0.002	-0.017	-0.175	0.135	-0.009	0.009	-0.011	-0.045	0.043	0.102	-0.002	-0.131	-0.007
326	ARGB	M-14/S2150	2.463	.	1.024	0.054	-0.005	9.502	2.098	1.512	0.512	1.441	8.519	0.810	21.212	0.700	-0.024	0.093
326	ARGB	M-14/S2150	2.313	.	0.997	0.056	-0.008	9.384	2.092	1.448	0.501	1.380	8.329	0.786	20.408	0.685	-0.111	0.089
326	SM01	M-14/S2150	2.840	.	0.719	0.036	0.000	7.242	-0.123	2.279	0.695	1.557	8.883	0.423	21.446	0.038	2.677	0.044
326	SM01	M-14/S2150	2.873	.	0.746	0.040	0.005	7.441	-0.142	2.300	0.703	1.538	8.877	0.431	22.089	0.041	2.812	0.044
326	SM01	M-14/S2150	2.864	.	0.712	0.037	0.004	7.247	-0.159	2.300	0.680	1.490	8.672	0.434	21.412	0.036	2.689	0.043
326	SM01	M-14/S2150	2.890	.	0.721	0.040	0.005	7.501	-0.199	2.302	0.687	1.546	8.844	0.452	22.129	0.037	2.859	0.045
326	SM01	M-14/S2150	2.918	.	0.711	0.038	0.008	7.441	-0.085	2.336	0.664	1.495	8.622	0.436	22.255	0.040	2.758	0.045
326	SM01	M-14/S2150	2.856	.	0.707	0.040	0.008	7.402	-0.147	2.332	0.658	1.501	8.489	0.435	22.102	0.040	2.759	0.045
326	SM32	M-14/S2150	-0.029	.	-0.003	-0.017	-0.012	-0.181	-0.277	-0.021	-0.008	-0.004	-0.145	-0.017	-0.162	-0.004	-0.140	-0.011
326	SM32	M-14/S2150	-0.018	.	0.001	-0.014	-0.014	-0.177	-0.056	-0.014	-0.007	-0.004	-0.093	-0.013	-0.042	0.003	-0.155	-0.009
327	ARGB	M-13/S2133	2.390	.	1.016	0.058	-0.007	9.510	2.331	1.527	0.500	1.417	8.475	0.798	20.903	0.710	-0.130	0.094
327	ARGB	M-13/S2133	2.386	.	1.025	0.060	-0.003	9.609	2.156	1.495	0.505	1.410	8.413	0.799	20.999	0.711	-0.027	0.098
327	SM01	M-13/S2133	2.831	.	0.750	0.044	0.009	7.556	0.066	2.310	0.697	1.582	9.513	0.435	21.836	0.041	2.806	0.048
327	SM01	M-13/S2133	2.911	.	0.731	0.045	0.007	7.494	-0.035	2.334	0.692	1.606	9.105	0.457	22.423	0.043	2.885	0.049
327	SM01	M-13/S2133	2.859	.	0.727	0.043	0.006	7.613	-0.050	2.305	0.699	1.578	9.348	0.442	22.063	0.045	2.749	0.047
327	SM01	M-13/S2133	2.904	.	0.736	0.042	0.007	7.586	-0.074	2.338	0.699	1.601	9.172	0.453	22.058	0.043	2.837	0.046
327	SM01	M-13/S2133	2.891	.	0.712	0.042	0.006	7.521	0.024	2.354	0.653	1.534	9.024	0.444	22.400	0.043	2.785	0.048
327	SM01	M-13/S2133	2.858	.	0.745	0.043	0.005	7.503	-0.049	2.267	0.684	1.561	9.021	0.439	21.395	0.048	2.758	0.048
327	SM32	M-13/S2133	-0.035	.	-0.022	-0.007	-0.012	-0.209	-0.041	-0.017	-0.005	-0.013	-0.136	-0.019	-0.136	0.002	-0.125	-0.002
327	SM32	M-13/S2133	-0.017	.	-0.025	-0.011	-0.012	-0.209	-0.089	-0.022	-0.005	-0.013	-0.185	-0.022	0.028	0.007	-0.168	-0.004
328	ARGB	M-14/S2150	2.351	.	1.013	0.057	0.003	9.239	1.951	1.470	0.490	1.370	8.347	0.806	19.233	0.681	-0.029	0.091
328	ARGB	M-14/S2150	2.360	.	0.998	0.055	0.001	9.449	2.160	1.490	0.497	1.405	8.466	0.800	17.622	0.695	-0.033	0.090
328	SM01	M-14/S2150	2.853	.	0.677	0.045	0.013	7.415	-0.105	2.432	0.605	1.425	8.978	0.442	19.225	0.037	2.635	0.046
328	SM01	M-14/S2150	2.862	.	0.690	0.048	0.013	7.296	-0.118	2.433	0.625	1.461	9.141	0.428	22.527	0.037	2.663	0.043
328	SM01	M-14/S2150	2.971	.	0.714	0.046	0.014	7.712	-0.035	2.401	0.658	1.537	9.261	0.456	21.990	0.034	2.796	0.048
328	SM01	M-14/S2150	2.904	.	0.707	0.045	0.014	7.452	-0.101	2.300	0.658	1.494	9.112	0.430	20.745	0.032	2.706	0.044
328	SM01	M-14/S2150	2.928	.	0.704	0.043	0.009	7.542	-0.142	2.365	0.650	1.529	9.301	0.454	21.218	0.031	2.774	0.044
328	SM01	M-14/S2150	2.922	.	0.704	0.043	0.014	7.358	-0.186	2.354	0.644	1.495	9.048	0.447	20.410	0.032	2.725	0.043
328	SM32	M-14/S2150	-0.069	.	-0.012	-0.008	-0.003	-0.312	-0.213	-0.016	-0.008	-0.011	0.042	-0.020	-0.048	-0.008	-0.124	-0.016

Table A3. Mixed Acid Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
328	SM32	M-14/S2150	-0.077	.	-0.003	-0.010	-0.001	-0.302	-0.392	-0.026	-0.005	-0.010	0.180	-0.021	0.065	-0.010	-0.110	-0.014
329	ARGB	M-13/S2133	2.364	.	1.010	0.066	-0.006	9.528	2.092	1.484	0.505	1.411	8.347	0.822	21.433	0.681	-0.181	0.089
329	ARGB	M-13/S2133	2.288	.	0.990	0.067	-0.009	9.565	1.970	1.464	0.509	1.408	8.549	0.803	20.475	0.659	-0.212	0.085
329	SM01	M-13/S2133	2.918	.	0.727	0.055	0.004	7.978	-0.151	2.259	0.695	1.597	9.286	0.470	21.671	0.029	2.695	0.046
329	SM01	M-13/S2133	2.827	.	0.677	0.071	0.001	7.544	-0.057	2.231	0.639	1.481	8.773	0.449	21.804	0.027	2.659	0.042
329	SM01	M-13/S2133	2.991	.	0.688	0.053	0.005	7.679	0.044	2.286	0.642	1.510	8.803	0.449	22.423	0.029	2.663	0.102
329	SM01	M-13/S2133	2.825	.	0.695	0.061	0.003	7.533	-0.148	2.282	0.643	1.463	8.846	0.468	21.331	0.026	2.589	0.044
329	SM01	M-13/S2133	2.882	.	0.688	0.053	0.004	7.544	-0.127	2.301	0.649	1.485	8.815	0.435	21.724	0.029	2.665	0.044
329	SM01	M-13/S2133	2.890	.	0.688	0.049	0.001	7.435	-0.132	2.355	0.635	1.472	8.928	0.436	20.201	0.028	2.586	0.042
329	SM32	M-13/S2133	-0.118	.	-0.017	-0.009	-0.016	-0.231	-0.069	-0.004	-0.007	-0.015	-0.009	-0.015	-0.096	-0.009	-0.397	-0.017
329	SM32	M-13/S2133	-0.092	.	-0.017	-0.007	-0.023	-0.200	-0.282	-0.017	-0.006	-0.010	-0.029	0.004	0.083	-0.010	-0.359	-0.017
330	ARGB	M-13/S2133	2.248	.	0.976	0.056	-0.010	9.265	2.120	1.473	0.502	1.359	8.326	0.763	20.324	0.658	-0.073	0.091
330	ARGB	M-13/S2133	2.246	.	0.983	0.055	-0.015	9.290	2.196	1.460	0.498	1.354	8.453	0.768	21.109	0.670	-0.112	0.090
330	ARGB	M-13/S2133	2.353	.	0.997	0.058	-0.007	9.196	2.400	1.457	0.490	1.366	8.323	0.805	20.039	0.677	-0.027	0.093
330	ARGB	M-13/S2133	2.267	.	0.978	0.052	-0.013	9.134	2.493	1.436	0.489	1.386	8.493	0.817	20.840	0.667	0.003	0.093
330	SM01	M-13/S2133	2.967	.	0.717	0.051	-0.001	8.033	0.121	2.282	0.657	1.514	8.789	0.455	21.765	0.029	2.856	0.049
330	SM01	M-13/S2133	2.915	.	0.738	0.044	-0.001	7.716	-0.106	2.292	0.676	1.533	9.197	0.444	21.620	0.028	2.843	0.047
330	SM01	M-13/S2133	2.873	.	0.704	0.044	-0.001	7.834	0.262	2.246	0.649	1.527	8.674	0.448	21.541	0.034	2.826	0.049
330	SM01	M-13/S2133	2.920	.	0.718	0.044	0.000	7.672	-0.022	2.258	0.664	1.529	9.165	0.435	21.303	0.029	2.864	0.048
330	SM01	M-13/S2133	2.903	.	0.747	0.041	0.000	7.729	0.261	2.185	0.697	1.573	9.162	0.431	21.299	0.027	2.883	0.047
330	SM01	M-13/S2133	3.022	.	0.763	0.049	0.001	8.150	0.466	2.251	0.719	1.656	9.460	0.450	21.828	0.029	2.924	0.048
330	SM32	M-13/S2133	-0.064	.	-0.015	-0.008	-0.019	-0.181	-0.007	-0.011	0.000	-0.018	-0.066	-0.019	-0.220	-0.013	-0.157	-0.011
330	SM32	M-13/S2133	-0.083	.	-0.017	-0.013	-0.020	-0.197	0.032	-0.005	0.000	-0.019	-0.055	-0.019	-0.141	-0.014	-0.182	-0.012
331	ARGB	M-14/S2150	2.375	.	0.994	0.063	-0.015	9.664	2.032	1.484	0.501	1.366	8.323	0.788	20.837	0.684	-0.201	0.090
331	ARGB	M-14/S2150	2.362	.	1.023	0.068	-0.010	9.715	2.274	1.484	0.505	1.328	8.384	0.774	20.520	0.683	-0.155	0.092
331	SM01	M-14/S2150	2.999	.	0.782	0.055	0.000	8.175	0.149	2.315	0.722	1.611	9.544	0.452	21.847	0.031	2.944	0.046
331	SM01	M-14/S2150	2.916	.	0.753	0.054	0.002	7.934	0.107	2.341	0.674	1.535	9.478	0.438	21.700	0.042	2.845	0.044
331	SM01	M-14/S2150	2.962	.	0.739	0.052	-0.001	8.117	-0.028	2.333	0.678	1.547	9.316	0.439	21.736	0.037	2.838	0.044
331	SM01	M-14/S2150	2.828	.	0.749	0.051	0.000	7.717	0.024	2.342	0.692	1.530	9.427	0.413	21.523	0.033	2.707	0.043
331	SM01	M-14/S2150	3.047	.	0.796	0.056	0.000	8.163	-0.140	2.354	0.714	1.588	9.423	0.452	21.611	0.039	2.825	0.045
331	SM01	M-14/S2150	2.911	.	0.743	0.054	0.002	7.954	0.000	2.303	0.685	1.567	9.305	0.439	21.400	0.030	2.869	0.045
331	SM32	M-14/S2150	-0.053	.	-0.004	0.002	-0.017	0.051	-0.007	-0.004	0.009	-0.021	-0.017	-0.006	-0.198	0.002	-0.157	-0.009
331	SM32	M-14/S2150	-0.050	.	-0.009	-0.001	-0.021	0.014	-0.135	-0.009	0.005	-0.026	0.036	-0.010	-0.058	-0.005	-0.137	-0.010
332	ARGB	M-13/S2133	2.324	.	0.980	0.059	-0.017	9.338	1.067	1.456	0.505	1.366	8.264	0.765	21.672	0.690	-0.249	0.095
332	ARGB	M-13/S2133	2.268	.	0.978	0.059	-0.018	9.535	1.180	1.453	0.534	1.388	8.525	0.804	22.219	0.685	-0.212	0.093
332	SM01	M-13/S2133	2.796	.	0.696	0.048	-0.008	7.568	-0.329	2.232	0.694	1.552	9.000	0.441	22.457	0.021	2.565	0.054
332	SM01	M-13/S2133	2.907	.	0.740	0.044	-0.002	7.600	-0.839	2.296	0.713	1.579	9.130	0.441	22.803	0.028	2.680	0.053
332	SM01	M-13/S2133	2.872	.	0.745	0.046	-0.003	7.677	-0.220	2.327	0.703	1.566	9.136	0.438	23.167	0.022	2.627	0.052
332	SM01	M-13/S2133	2.834	.	0.731	0.046	-0.003	7.596	-0.612	2.317	0.680	1.539	9.071	0.430	23.095	0.022	2.637	0.053
332	SM01	M-13/S2133	2.878	.	0.723	0.044	-0.004	7.608	-0.762	2.328	0.683	1.548	9.067	0.432	23.079	0.021	2.472	0.053
332	SM01	M-13/S2133	2.783	.	0.695	0.044	-0.002	7.401	-0.122	2.275	0.694	1.577	8.791	0.438	22.289	0.022	2.555	0.052
332	SM32	M-13/S2133	-0.114	.	-0.001	-0.013	-0.026	-0.184	-1.021	-0.058	0.002	-0.001	-0.087	-0.001	0.337	-0.011	-0.341	-0.008
332	SM32	M-13/S2133	-0.105	.	0.012	-0.012	-0.026	-0.208	-0.641	-0.102	0.001	-0.006	-0.275	0.001	0.608	-0.018	-0.502	-0.009
333	ARGB	M-13/S2133	2.271	.	0.977	0.059	-0.008	9.409	1.631	1.430	0.497	1.388	8.062	0.773	21.227	0.670	-0.306	0.083
333	ARGB	M-13/S2133	2.249	.	0.977	0.057	-0.008	9.288	1.742	1.409	0.489	1.365	7.970	0.762	21.179	0.676	-0.301	0.082
333	SM01	M-13/S2133	2.907	.	0.728	0.051	0.007	7.608	-0.691	2.181	0.656	1.508	8.609	0.430	21.870	0.033	2.550	0.044
333	SM01	M-13/S2133	2.884	.	0.704	0.047	0.007	7.587	-0.474	2.257	0.645	1.483	8.775	0.427	22.412	0.032	2.600	0.046
333	SM01	M-13/S2133	2.755	.	0.668	0.044	0.006	7.228	-0.367	2.166	0.612	1.412	8.210	0.398	21.733	0.032	2.392	0.042
333	SM01	M-13/S2133	2.817	.	0.670	0.045	0.006	7.310	-0.152	2.233	0.580	1.379	8.143	0.407	22.834	0.035	2.440	0.047
333	SM01	M-13/S2133	2.772	.	0.648	0.044	0.007	7.138	-0.291	2.286	0.569	1.327	8.310	0.375	23.120	0.035	2.380	0.047

Table A3. Mixed Acid Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
333	SM01	M-13/S2133	2.862	.	0.695	0.048	0.010	7.502	-0.500	2.133	0.604	1.421	8.174	0.414	22.108	0.034	2.505	0.047
333	SM32	M-13/S2133	-0.129	.	-0.012	-0.010	-0.017	-0.112	-0.661	-0.007	-0.007	-0.026	-0.205	-0.024	-0.003	-0.009	-0.474	-0.021
333	SM32	M-13/S2133	-0.126	.	-0.010	-0.014	-0.016	-0.113	-0.540	0.017	-0.005	-0.030	-0.301	-0.026	0.157	-0.009	-0.472	-0.016
334	ARGB	M-13/S2133	2.354	.	0.993	0.051	-0.005	9.337	2.180	1.518	0.489	1.370	8.366	0.772	21.653	0.675	0.039	0.088
334	ARGB	M-13/S2133	2.351	.	0.996	0.047	-0.004	9.114	2.309	1.481	0.482	1.353	8.384	0.741	21.053	0.672	0.043	0.088
334	SM01	M-13/S2133	3.119	.	0.731	0.037	0.008	8.030	-0.019	2.233	0.640	1.522	8.915	0.432	21.913	0.037	3.050	0.056
334	SM01	M-13/S2133	3.068	.	0.716	0.038	0.010	7.746	-0.002	2.247	0.617	1.476	8.540	0.422	22.148	0.033	2.958	0.055
334	SM01	M-13/S2133	3.150	.	0.753	0.041	0.009	7.930	0.106	2.181	0.649	1.513	9.090	0.434	21.500	0.033	3.067	0.056
334	SM01	M-13/S2133	3.103	.	0.762	0.037	0.009	7.775	0.040	2.263	0.668	1.553	9.085	0.428	21.888	0.039	2.982	0.056
334	SM01	M-13/S2133	2.995	.	0.728	0.048	0.008	7.719	0.104	2.246	0.650	1.493	9.059	0.430	21.922	0.034	2.963	0.054
334	SM01	M-13/S2133	3.208	.	0.786	0.043	0.011	8.210	0.125	2.238	0.698	1.606	9.485	0.466	21.934	0.033	3.198	0.056
334	SM32	M-13/S2133	-0.048	.	-0.006	-0.015	-0.010	-0.144	-0.021	-0.026	-0.007	-0.017	-0.028	-0.022	0.548	-0.007	0.005	-0.012
334	SM32	M-13/S2133	-0.051	.	-0.010	-0.018	-0.008	-0.149	-0.075	-0.024	-0.007	-0.017	-0.091	-0.024	0.511	-0.010	-0.002	-0.012
335	ARGB	M-13/S2133	2.286	.	0.981	0.067	-0.016	9.314	0.841	1.335	0.496	1.357	8.355	0.785	20.859	0.658	-0.103	0.091
335	ARGB	M-13/S2133	2.332	.	0.994	0.068	-0.018	9.339	2.261	1.352	0.501	1.382	8.398	0.800	21.226	0.675	-0.089	0.090
335	SM01	M-13/S2133	3.022	.	0.762	0.057	-0.004	7.774	-1.197	2.049	0.724	1.607	9.345	0.457	21.912	0.033	2.940	0.053
335	SM01	M-13/S2133	3.145	.	0.753	0.058	-0.004	8.050	-0.336	1.942	0.714	1.617	9.171	0.470	21.531	0.030	2.987	0.055
335	SM01	M-13/S2133	3.181	.	0.780	0.058	0.001	8.098	-1.004	2.008	0.741	1.684	9.423	0.480	21.061	0.040	3.066	0.053
335	SM01	M-13/S2133	3.093	.	0.770	0.059	-0.003	8.000	-0.743	1.973	0.728	1.643	9.270	0.480	21.031	0.029	2.923	0.053
335	SM01	M-13/S2133	3.199	.	0.789	0.061	0.000	8.230	-0.829	1.975	0.746	1.669	9.467	0.484	20.900	0.030	3.091	0.054
335	SM01	M-13/S2133	3.204	.	0.804	0.063	-0.004	8.221	-0.369	1.924	0.754	1.685	9.626	0.493	20.873	0.027	3.022	0.054
335	SM32	M-13/S2133	-0.140	.	-0.006	-0.001	-0.027	-0.068	-0.561	0.004	-0.001	-0.012	0.244	-0.006	0.032	-0.008	-0.133	-0.011
335	SM32	M-13/S2133	-0.170	.	-0.036	-0.006	-0.031	-0.089	-1.166	-0.014	-0.005	-0.018	0.021	-0.003	0.004	-0.009	-0.302	-0.015
336	ARGB	M-14/S2150	2.391	.	1.029	0.063	-0.002	9.823	2.426	1.499	0.541	1.467	9.990	0.829	21.716	0.691	0.059	0.091
336	ARGB	M-14/S2150	2.399	.	1.013	0.064	0.000	9.736	2.436	1.477	0.529	1.438	8.480	0.820	21.308	0.680	0.051	0.089
336	SM01	M-14/S2150	3.143	.	0.810	0.051	0.010	8.448	0.087	2.146	0.803	1.782	9.830	0.471	21.208	0.034	3.142	0.051
336	SM01	M-14/S2150	3.138	.	0.794	0.054	0.011	8.443	0.996	2.206	0.793	1.782	9.772	0.497	21.714	0.035	3.127	0.052
336	SM01	M-14/S2150	3.236	.	0.807	0.053	0.009	8.515	0.271	2.183	0.794	1.844	9.349	0.481	21.339	0.033	3.140	0.052
336	SM01	M-14/S2150	3.132	.	0.780	0.055	0.009	8.465	0.502	2.219	0.773	1.754	9.240	0.473	21.990	0.035	3.126	0.054
336	SM01	M-14/S2150	3.193	.	0.794	0.056	0.012	8.420	0.365	2.206	0.788	1.776	9.539	0.495	21.905	0.035	3.109	0.052
336	SM01	M-14/S2150	2.853	.	0.720	0.047	0.009	7.664	9.960	1.916	0.724	1.658	8.558	0.442	18.755	0.030	2.871	0.046
336	SM32	M-14/S2150	0.022	.	0.044	-0.001	-0.011	-0.127	0.042	-0.004	0.000	-0.007	1.741	-0.001	0.042	-0.009	-0.074	-0.011
336	SM32	M-14/S2150	0.022	.	0.004	-0.002	-0.008	-0.115	0.362	0.005	0.002	-0.006	1.724	0.006	0.123	-0.006	0.049	-0.009
337	ARGB	M-13/S2133	2.330	.	0.999	0.070	0.003	9.516	2.277	1.415	0.514	1.388	8.221	0.811	21.193	0.677	-0.080	0.099
337	ARGB	M-13/S2133	2.379	.	1.006	0.069	0.002	9.396	2.478	1.372	0.512	1.377	8.116	0.798	21.012	0.681	-0.097	0.116
337	SM01	M-13/S2133	3.084	.	0.756	0.058	0.016	8.084	0.170	2.123	0.706	1.607	8.921	0.469	21.490	0.036	2.902	0.060
337	SM01	M-13/S2133	2.956	.	0.738	0.056	0.015	7.712	0.001	2.142	0.699	1.564	9.128	0.466	21.841	0.036	2.741	0.066
337	SM01	M-13/S2133	3.045	.	0.721	0.056	0.012	7.854	0.381	2.107	0.664	1.506	8.692	0.461	22.236	0.034	2.830	0.056
337	SM01	M-13/S2133	2.980	.	0.723	0.057	0.016	7.676	0.586	1.977	0.673	1.506	8.130	0.457	20.864	0.034	2.821	0.057
337	SM01	M-13/S2133	3.265	.	0.808	0.060	0.018	8.481	0.390	2.333	0.754	1.706	9.426	0.505	24.094	0.040	3.168	0.065
337	SM01	M-13/S2133	2.792	.	0.696	0.052	0.013	7.235	0.546	1.960	0.633	1.435	7.968	0.429	20.086	0.034	2.607	0.057
337	SM32	M-13/S2133	-0.072	.	-0.014	-0.005	-0.008	-0.169	0.271	-0.015	-0.007	-0.025	-0.164	-0.005	-0.058	-0.007	-0.173	0.000
337	SM32	M-13/S2133	-0.037	.	-0.007	-0.001	-0.003	-0.133	-0.794	-0.046	-0.005	-0.023	-0.220	-0.001	0.109	-0.007	-0.226	0.000
338	ARGB	M-14/S2150	2.359	.	1.010	0.053	-0.002	9.404	1.984	1.514	0.517	1.418	8.322	0.842	21.359	0.678	-0.164	0.082
338	ARGB	M-14/S2150	2.314	.	0.992	0.055	-0.004	9.349	1.958	1.512	0.519	1.376	8.277	0.799	21.588	0.677	-0.155	0.085
338	ARGB	M-14/S2150	2.285	.	0.966	0.066	-0.009	9.444	2.348	1.470	0.505	1.382	8.299	0.800	20.494	0.676	-0.089	0.092
338	ARGB	M-14/S2150	2.390	.	0.989	0.061	-0.005	9.304	2.415	1.483	0.497	1.346	8.371	0.778	20.582	0.676	-0.086	0.093
338	SM01	M-14/S2150	3.007	.	0.755	0.045	0.011	7.647	0.166	2.130	0.738	1.608	9.191	0.446	20.910	0.034	2.714	0.043
338	SM01	M-14/S2150	3.023	.	0.770	0.044	0.011	7.813	0.144	2.271	0.758	1.660	9.481	0.471	22.112	0.035	2.908	0.045
338	SM01	M-14/S2150	3.068	.	0.769	0.045	0.012	7.980	0.109	2.237	0.753	1.673	9.162	0.472	22.070	0.034	2.885	0.044

Table A3. Mixed Acid Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
338	SM01	M-14/S2150	3.068	.	0.875	0.046	0.012	7.968	0.369	2.247	0.787	1.702	9.423	0.485	21.641	0.035	2.920	0.045
338	SM01	M-14/S2150	3.056	.	0.774	0.047	0.012	7.837	-0.160	2.198	0.742	1.655	9.398	0.468	21.876	0.034	2.893	0.045
338	SM01	M-14/S2150	3.107	.	0.768	0.044	0.013	7.886	-0.282	2.245	0.745	1.655	9.657	0.479	22.040	0.035	2.921	0.045
338	SM01	M-14/S2150	3.192	.	0.775	0.050	0.007	8.067	0.411	2.120	0.723	1.589	9.269	0.444	20.647	0.041	3.024	0.062
338	SM01	M-14/S2150	3.309	.	0.786	0.057	0.002	8.592	0.242	2.115	0.734	1.682	9.209	0.489	20.418	0.040	3.269	0.062
338	SM01	M-14/S2150	3.195	.	0.771	0.053	0.005	8.018	0.229	2.132	0.726	1.603	9.222	0.457	20.575	0.042	3.019	0.059
338	SM01	M-14/S2150	3.069	.	0.716	0.050	0.003	7.622	0.321	2.284	0.671	1.508	8.704	0.442	21.761	0.043	2.807	0.058
338	SM01	M-14/S2150	3.163	.	0.777	0.052	0.006	8.055	0.389	2.167	0.748	1.645	9.191	0.465	20.941	0.042	2.987	0.060
338	SM01	M-14/S2150	3.159	.	0.743	0.051	0.005	7.831	0.294	2.113	0.708	1.584	9.144	0.457	20.681	0.041	2.967	0.058
338	SM32	M-14/S2150	-0.063	.	-0.008	-0.008	-0.004	-0.114	-0.261	-0.012	-0.001	0.000	-0.240	-0.004	0.297	-0.009	-0.143	-0.016
338	SM32	M-14/S2150	-0.054	.	-0.006	-0.013	-0.004	-0.119	-0.433	-0.022	-0.003	0.000	-0.281	-0.001	0.381	-0.009	-0.222	-0.016
338	SM32	M-14/S2150	-0.057	.	-0.013	-0.001	-0.012	0.025	0.092	0.001	0.004	-0.006	-0.024	-0.007	-0.089	-0.001	-0.117	-0.007
338	SM32	M-14/S2150	-0.038	.	-0.017	-0.001	-0.015	0.029	0.423	0.004	0.004	-0.005	-0.037	-0.023	0.231	-0.001	-0.084	-0.006
340	ARGB	M-13/S2133	2.286	.	1.012	0.071	-0.012	9.602	1.224	1.444	0.518	1.410	8.236	0.840	21.236	0.675	-0.255	0.095
340	ARGB	M-13/S2133	2.267	.	0.968	0.061	-0.007	9.162	1.342	1.403	0.497	1.359	8.159	0.781	20.899	0.666	-0.101	0.093
340	SM01	M-13/S2133	3.058	.	0.780	0.070	-0.008	8.230	-0.682	2.163	0.764	1.709	9.494	0.572	20.312	0.031	2.718	0.051
340	SM01	M-13/S2133	3.076	.	0.768	0.059	0.008	8.296	0.291	2.174	0.750	1.660	9.339	0.500	20.692	0.034	2.927	0.059
340	SM01	M-13/S2133	3.124	.	0.774	0.054	0.005	8.307	0.051	2.203	0.750	1.691	9.205	0.485	20.996	0.034	2.980	0.057
340	SM01	M-13/S2133	2.208	.	0.587	0.041	-0.001	5.812	0.040	1.466	0.581	1.262	6.595	0.355	11.138	0.022	2.070	0.040
340	SM01	M-13/S2133	3.079	.	0.775	0.049	-0.001	8.145	-0.832	1.973	0.772	1.714	8.867	0.470	20.697	0.030	2.713	0.055
340	SM01	M-13/S2133	3.142	.	0.779	0.057	-0.006	8.274	-0.067	2.115	0.774	1.703	9.137	0.504	21.133	0.031	2.753	0.057
340	SM32	M-13/S2133	-0.076	.	-0.014	-0.007	-0.018	0.018	-0.495	-0.014	-0.002	0.004	-0.145	-0.012	-0.129	-0.005	-0.239	-0.006
340	SM32	M-13/S2133	-0.050	.	-0.008	-0.009	-0.017	0.016	-0.704	-0.046	-0.001	0.003	-0.203	-0.011	-0.051	-0.006	-0.266	-0.008
341	ARGB	M-14/S2150	2.323	.	0.983	0.053	-0.008	9.424	2.270	1.476	0.498	1.385	8.320	0.788	20.272	0.674	-0.202	0.092
341	ARGB	M-14/S2150	2.402	.	1.017	0.058	-0.005	9.673	2.156	1.522	0.509	1.407	8.587	0.826	20.868	0.689	-0.137	0.095
341	SM01	M-14/S2150	3.042	.	0.801	0.045	0.008	8.274	0.193	2.235	0.769	1.718	9.495	0.487	20.846	0.041	2.998	0.054
341	SM01	M-14/S2150	3.059	.	0.806	0.047	0.005	8.270	0.310	2.198	0.790	1.731	9.650	0.490	20.678	0.041	3.082	0.056
341	SM01	M-14/S2150	3.095	.	0.790	0.046	0.005	8.289	0.299	2.210	0.767	1.743	9.456	0.481	20.887	0.040	3.053	0.054
341	SM01	M-14/S2150	2.845	.	2.528	0.041	0.004	7.561	0.240	2.047	0.758	1.599	8.848	0.431	18.933	0.048	2.751	0.048
341	SM01	M-14/S2150	3.079	.	0.785	0.049	0.005	8.297	0.160	2.217	0.757	1.750	9.507	0.486	20.062	0.041	3.021	0.054
341	SM01	M-14/S2150	3.115	.	0.791	0.045	0.009	8.333	0.200	2.215	0.771	1.730	9.614	0.484	20.528	0.041	3.031	0.053
341	SM32	M-14/S2150	-0.056	.	-0.008	-0.008	-0.013	-0.028	-0.064	-0.015	-0.001	-0.005	-0.083	-0.001	0.009	0.009	-0.181	-0.003
341	SM32	M-14/S2150	-0.080	.	-0.014	-0.016	-0.015	-0.050	0.331	-0.007	-0.003	-0.007	-0.083	-0.012	0.084	0.000	-0.326	-0.005
342	ARGB	M-14/S2150	2.381	.	1.010	0.063	-0.004	9.821	2.013	1.497	0.509	1.413	5.615	0.818	21.732	0.692	-0.060	0.096
342	ARGB	M-14/S2150	2.384	.	1.008	0.061	-0.003	9.929	2.293	1.543	0.517	1.410	5.234	0.798	22.326	0.687	-0.185	0.094
342	SM01	M-14/S2150	2.887	.	0.726	0.046	0.006	7.742	0.069	2.123	0.694	1.584	8.918	0.443	20.051	0.032	2.902	0.057
342	SM01	M-14/S2150	3.163	.	0.806	0.047	0.008	8.444	0.084	2.213	0.790	1.804	9.605	0.493	20.700	0.034	3.152	0.061
342	SM01	M-14/S2150	3.102	.	0.789	0.048	0.009	8.276	0.057	2.255	0.750	1.699	9.736	0.473	21.288	0.035	3.085	0.061
342	SM01	M-14/S2150	3.073	.	0.789	0.050	0.007	8.380	0.167	2.277	0.767	1.761	9.843	0.500	21.218	0.035	3.139	0.062
342	SM01	M-14/S2150	3.278	.	0.836	0.048	0.011	8.699	0.324	2.381	0.808	1.841	10.351	0.496	22.600	0.035	3.199	0.066
342	SM01	M-14/S2150	2.943	.	0.740	0.046	0.009	7.762	0.507	2.223	0.710	1.624	9.202	0.445	20.828	0.034	2.896	0.059
342	SM32	M-14/S2150	-0.081	.	-0.013	-0.009	-0.008	-0.024	-0.392	-0.012	-0.007	0.001	-0.976	-0.021	-0.172	-0.003	-0.141	-0.007
342	SM32	M-14/S2150	-0.069	.	-0.010	-0.010	-0.016	-0.023	-0.037	0.000	-0.007	-0.001	-0.750	-0.014	-0.049	-0.003	-0.289	-0.007
343	ARGB	M-14/S2150	2.312	.	0.978	0.049	-0.008	9.583	2.154	1.491	0.499	1.383	8.280	0.771	20.568	0.673	-0.087	0.093
343	ARGB	M-14/S2150	2.366	.	1.000	0.051	-0.007	9.561	2.200	1.480	0.509	1.406	8.327	0.803	20.104	0.689	-0.090	0.094
343	SM01	M-14/S2150	2.959	.	0.774	0.044	0.004	8.139	0.040	2.228	0.774	1.780	9.266	0.478	21.162	0.044	2.867	0.083
343	SM01	M-14/S2150	3.109	.	0.771	0.042	0.008	8.375	0.146	2.157	0.749	1.692	9.193	0.470	20.544	0.057	2.904	0.085
343	SM01	M-14/S2150	3.068	.	0.766	0.043	0.008	8.334	-0.034	2.197	0.743	1.694	9.207	0.477	21.122	0.044	2.943	0.086
343	SM01	M-14/S2150	3.100	.	0.803	0.043	0.008	8.260	-0.036	2.183	0.768	1.744	9.330	0.474	21.164	0.043	3.100	0.089
343	SM01	M-14/S2150	3.067	.	0.790	0.039	0.006	8.200	0.489	2.199	0.772	1.747	9.483	0.479	20.425	0.045	2.857	0.086

Table A3. Mixed Acid Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
343	SM01	M-14/S2150	3.102	.	0.782	0.039	0.007	8.196	-0.024	2.201	0.735	1.685	9.255	0.486	20.640	0.043	2.896	0.085
343	SM32	M-14/S2150	-0.041	.	-0.004	-0.016	-0.012	-0.046	-0.067	-0.007	-0.012	-0.001	-0.045	-0.028	-0.351	-0.001	-0.334	-0.006
343	SM32	M-14/S2150	-0.050	.	-0.009	-0.020	-0.011	-0.055	-0.044	-0.005	-0.012	-0.002	-0.030	-0.026	-0.266	-0.001	-0.278	-0.006
344	ARGB	M-14/S2150	2.337	.	0.983	0.065	-0.007	9.229	2.395	1.486	0.507	1.373	8.441	0.798	20.836	0.689	-0.099	0.085
344	ARGB	M-14/S2150	2.198	.	0.941	0.060	-0.006	8.739	2.184	1.432	0.484	1.311	8.008	0.751	19.093	0.649	-0.077	0.079
344	SM01	M-14/S2150	3.076	.	0.744	0.054	0.006	7.864	-0.027	2.230	0.705	1.578	9.089	0.451	22.199	0.042	3.016	0.070
344	SM01	M-14/S2150	3.014	.	0.775	0.055	0.006	7.903	1.115	2.208	0.718	1.654	8.915	0.462	21.661	0.041	2.993	0.069
344	SM01	M-14/S2150	2.999	.	0.744	0.054	0.008	7.907	0.126	2.221	0.671	1.618	9.010	0.462	21.752	0.042	3.078	0.072
344	SM01	M-14/S2150	3.015	.	0.726	0.056	0.006	8.113	0.005	2.229	0.661	1.585	8.570	0.468	21.137	0.042	2.953	0.072
344	SM01	M-14/S2150	2.870	.	0.666	0.054	0.007	7.797	0.157	2.250	0.600	1.574	8.570	0.460	22.017	0.042	3.016	0.071
344	SM01	M-14/S2150	2.930	.	0.727	0.050	0.006	7.917	0.255	2.177	0.656	1.559	8.689	0.453	20.988	0.042	2.847	0.068
344	SM32	M-14/S2150	-0.055	.	-0.014	0.000	-0.011	-0.188	0.095	-0.023	0.004	-0.009	0.001	-0.023	-0.698	-0.005	-0.125	-0.019
344	SM32	M-14/S2150	-0.048	.	-0.001	-0.001	-0.013	-0.164	0.079	-0.023	0.004	-0.006	-0.003	-0.023	-0.595	-0.005	-0.098	-0.018
345	ARGB	M-14/S2150	2.398	.	1.004	0.055	0.000	9.397	2.321	1.496	0.499	1.373	8.367	0.788	21.021	0.682	0.015	0.100
345	ARGB	M-14/S2150	2.388	.	0.996	0.055	-0.001	9.221	2.202	1.472	0.490	1.362	8.233	0.790	19.838	0.679	0.064	0.097
345	SM01	M-14/S2150	3.096	.	0.745	0.043	0.013	7.689	0.652	2.265	0.689	1.561	8.655	0.457	22.143	0.047	2.937	0.076
345	SM01	M-14/S2150	3.158	.	0.765	0.042	0.013	7.701	0.875	2.239	0.696	1.560	8.776	0.448	21.847	0.047	2.953	0.076
345	SM01	M-14/S2150	3.113	.	0.762	0.038	0.013	7.674	0.859	2.250	0.705	1.565	8.695	0.451	22.091	0.050	2.961	0.076
345	SM01	M-14/S2150	3.308	.	0.792	0.041	0.014	8.147	0.476	2.207	0.734	1.653	9.187	0.461	21.439	0.049	3.052	0.076
345	SM01	M-14/S2150	3.296	.	0.794	0.044	0.015	8.184	0.782	2.228	0.713	1.590	8.801	0.483	21.149	0.049	3.128	0.076
345	SM01	M-14/S2150	3.313	.	0.799	0.046	0.015	8.251	0.729	2.277	0.718	1.582	8.915	0.467	21.379	0.049	3.133	0.077
345	SM32	M-14/S2150	-0.020	.	-0.004	-0.015	-0.004	-0.208	-0.312	-0.039	-0.001	-0.006	-0.074	-0.025	-0.066	0.004	0.046	-0.002
345	SM32	M-14/S2150	-0.004	.	-0.001	-0.013	-0.001	-0.191	0.070	-0.030	0.000	-0.005	-0.021	-0.018	-0.044	0.004	0.040	-0.001
346	ARGB	M-14/S2150	2.357	.	0.988	0.059	-0.013	9.463	2.142	1.506	0.504	1.393	8.380	0.822	21.352	0.682	-0.057	0.103
346	ARGB	M-14/S2150	2.361	.	0.978	0.055	-0.012	9.578	2.090	1.482	0.503	1.385	8.267	0.807	21.129	0.670	-0.003	0.092
346	SM01	M-14/S2150	3.179	.	0.760	0.059	-0.004	9.894	0.230	2.193	0.782	1.834	8.949	0.563	26.402	0.058	2.843	0.074
346	SM01	M-14/S2150	2.319	.	0.552	0.038	-0.002	6.788	0.100	2.207	0.590	1.346	9.031	0.406	18.585	0.034	2.084	0.054
346	SM01	M-14/S2150	2.465	.	0.586	0.029	-0.002	6.180	0.228	1.784	0.527	1.194	7.119	0.350	16.133	0.036	2.214	0.058
346	SM01	M-14/S2150	3.125	.	0.755	0.043	-0.003	7.824	0.018	2.202	0.679	1.552	9.115	0.467	21.421	0.047	2.752	0.075
346	SM01	M-14/S2150	3.065	.	0.732	0.045	-0.001	8.053	0.112	2.193	0.666	1.549	8.914	0.458	21.530	0.047	2.807	0.076
346	SM01	M-14/S2150	2.319	.	0.552	0.038	-0.002	6.788	0.100	2.207	0.590	1.346	9.031	0.406	18.585	0.034	2.084	0.054
346	SM01	M-14/S2150	2.465	.	0.586	0.029	-0.002	6.180	0.228	1.784	0.527	1.194	7.119	0.350	16.133	0.036	2.214	0.058
346	SM01	M-14/S2150	3.016	.	0.711	0.048	0.001	8.111	0.491	2.140	0.641	1.504	8.410	0.462	21.644	0.046	2.808	0.076
346	SM32	M-14/S2150	-0.024	.	-0.009	-0.009	-0.020	-0.214	-0.109	-0.009	0.001	-0.008	-0.001	-0.006	0.018	-0.004	-0.021	-0.008
346	SM32	M-14/S2150	0.025	.	0.005	-0.013	-0.018	0.031	-0.228	-0.004	0.001	-0.009	0.083	-0.011	0.034	-0.004	-0.093	-0.005
347	ARGB	M-14/S2150	2.333	.	1.000	0.065	-0.004	9.538	2.042	1.507	0.518	1.407	8.415	0.811	20.988	0.686	-0.087	0.095
347	ARGB	M-14/S2150	2.330	.	0.988	0.070	-0.004	9.524	2.129	1.492	0.517	1.408	8.306	0.823	21.517	0.681	-0.137	0.094
347	SM01	M-14/S2150	3.024	.	0.744	0.051	0.007	7.840	0.104	2.205	0.739	1.610	8.736	0.445	21.797	0.056	2.787	0.072
347	SM01	M-14/S2150	3.031	.	0.783	0.054	0.010	8.070	0.107	2.113	0.770	1.705	9.195	0.467	21.930	0.055	2.844	0.072
347	SM01	M-14/S2150	3.104	.	0.794	0.056	0.011	8.266	-0.083	2.192	0.775	1.703	9.218	0.471	21.338	0.056	2.934	0.073
347	SM01	M-14/S2150	3.085	.	0.763	0.052	0.009	8.167	0.164	2.180	0.754	1.688	9.322	0.472	22.057	0.055	2.890	0.072
347	SM01	M-14/S2150	3.114	.	0.768	0.056	0.005	8.161	-0.108	2.184	0.743	1.673	9.306	0.479	21.247	0.056	2.964	0.070
347	SM01	M-14/S2150	3.099	.	0.787	0.056	0.012	8.059	-0.089	2.174	0.755	1.690	9.226	0.481	20.946	0.055	2.877	0.071
347	SM32	M-14/S2150	-0.055	.	-0.015	-0.001	-0.012	-0.238	-0.022	-0.026	0.001	-0.001	-0.056	-0.012	-0.075	0.003	-0.210	-0.008
347	SM32	M-14/S2150	-0.032	.	-0.017	-0.001	-0.007	-0.232	0.041	-0.030	0.001	-0.002	-0.041	-0.010	-0.053	0.001	-0.197	-0.006
348	ARGB	M-14/S2150	2.463	.	1.010	0.050	-0.020	9.700	2.505	1.571	0.525	1.454	8.584	0.802	17.399	0.715	-0.103	0.103
348	ARGB	M-14/S2150	2.447	.	1.011	0.053	-0.019	9.604	2.284	1.578	0.520	1.444	8.560	0.824	21.459	0.703	-0.174	0.101
348	SM01	M-14/S2150	3.319	.	0.864	0.053	0.004	8.730	0.104	2.204	0.837	1.870	9.442	0.545	20.809	0.047	3.129	0.077
348	SM01	M-14/S2150	3.393	.	0.830	0.046	-0.005	8.639	0.299	2.202	0.834	1.902	9.075	0.535	-0.466	0.047	3.083	0.076
348	SM01	M-14/S2150	3.262	.	0.815	0.041	-0.006	8.643	0.370	2.164	0.813	1.801	9.410	0.512	20.302	0.045	2.967	0.075

Table A3. Mixed Acid Measurement Data Set *(continued)*

Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
348	SM01	M-14/S2150	3.367	.	0.801	0.040	-0.006	8.398	0.271	2.237	0.777	1.750	9.034	0.469	21.500	0.047	2.948	0.074
348	SM01	M-14/S2150	3.277	.	0.813	0.047	-0.004	8.607	0.248	2.178	0.800	1.813	9.162	0.550	15.967	0.047	2.990	0.076
348	SM01	M-14/S2150	3.339	.	0.816	0.040	-0.008	8.295	0.082	2.205	0.810	1.811	9.306	0.489	21.242	0.044	2.922	0.074
348	SM32	M-14/S2150	-0.084	.	-0.019	-0.024	-0.028	-0.330	0.147	-0.018	0.001	0.015	-0.097	-0.022	-0.012	-0.003	-0.238	0.000
348	SM32	M-14/S2150	-0.057	.	-0.020	-0.020	-0.026	-0.296	0.165	-0.016	0.001	0.014	-0.133	-0.026	-0.318	-0.003	-0.207	-0.001
349	ARGB	M-13/S2133	2.263	.	1.004	0.053	-0.011	9.433	3.034	1.344	0.512	1.405	8.457	0.803	21.610	0.674	-0.240	0.094
349	ARGB	M-13/S2133	2.257	.	1.018	0.050	-0.013	9.707	2.794	1.304	0.516	1.428	8.306	0.805	22.046	0.666	-0.277	0.095
349	SM01	M-13/S2133	3.380	.	0.914	0.050	0.008	8.977	0.271	1.880	0.906	1.968	10.146	0.541	20.631	0.038	3.335	0.074
349	SM01	M-13/S2133	3.358	.	0.813	0.055	0.006	9.014	1.019	1.939	0.812	1.806	9.091	0.545	20.793	0.039	3.225	0.072
349	SM01	M-13/S2133	3.198	.	0.773	0.043	0.005	8.420	0.951	1.941	0.744	1.687	8.679	0.485	21.310	0.036	3.022	0.074
349	SM01	M-13/S2133	3.015	.	0.715	0.050	0.007	8.037	0.845	1.938	0.693	1.609	8.506	0.470	22.751	0.039	2.922	0.072
349	SM01	M-13/S2133	3.091	.	0.737	0.051	0.007	8.015	0.848	1.968	0.697	1.598	8.666	0.476	22.887	0.039	2.936	0.072
349	SM01	M-13/S2133	3.159	.	0.737	0.048	0.005	8.375	0.471	1.973	0.703	1.644	8.560	0.495	22.268	0.038	3.036	0.075
349	SM32	M-13/S2133	-0.146	.	-0.024	-0.020	-0.017	-0.236	0.610	0.012	-0.007	0.007	-0.282	-0.035	0.087	-0.007	-0.311	-0.002
349	SM32	M-13/S2133	-0.142	.	-0.023	-0.021	-0.017	-0.237	0.830	0.008	-0.006	0.009	-0.317	-0.025	0.137	-0.010	-0.326	-0.003
350	ARGB	M-13/S2133	2.357	.	0.998	0.071	-0.025	9.361	1.108	1.412	0.512	1.390	8.353	0.840	21.507	0.690	-0.190	0.096
350	ARGB	M-13/S2133	2.296	.	0.986	0.072	-0.022	9.389	1.640	1.397	0.511	1.382	8.273	0.834	21.284	0.687	-0.178	0.095
350	SM01	M-13/S2133	3.212	.	0.763	0.054	-0.010	8.079	-3.884	1.681	0.768	1.680	9.296	0.475	22.089	0.040	2.974	0.078
350	SM01	M-13/S2133	3.225	.	0.768	0.059	-0.011	8.155	-3.746	1.709	0.756	1.682	8.912	0.506	22.336	0.041	2.991	0.078
350	SM01	M-13/S2133	3.009	.	0.648	0.043	-0.010	7.139	-2.491	1.884	0.615	1.387	8.105	0.407	23.750	0.041	2.540	0.076
350	SM01	M-13/S2133	3.127	.	0.753	0.049	-0.009	7.948	-3.642	1.600	0.744	1.648	9.028	0.472	21.948	0.040	2.866	0.076
350	SM01	M-13/S2133	3.064	.	0.650	0.045	-0.006	7.317	-2.471	1.817	0.633	1.428	8.176	0.424	23.747	0.041	2.598	0.077
350	SM01	M-13/S2133	3.129	.	0.745	0.048	-0.009	7.907	-3.488	1.742	0.733	1.641	8.985	0.466	22.495	0.041	2.884	0.079
350	SM32	M-13/S2133	-0.085	.	-0.047	0.001	-0.031	-0.283	-0.769	-0.027	-0.015	-0.013	-0.065	0.013	0.026	0.000	-0.300	0.000
350	SM32	M-13/S2133	-0.160	.	-0.062	-0.007	-0.044	-0.321	-6.793	-0.162	-0.017	-0.014	-0.007	0.000	0.162	-0.004	-0.479	-0.007
351	ARGB	M-14/S2150	2.372	.	1.023	0.055	-0.002	9.565	2.615	1.541	0.516	1.418	8.659	0.808	20.703	0.693	-0.105	0.102
351	ARGB	M-14/S2150	2.372	.	1.015	0.051	-0.005	9.395	2.586	1.535	0.500	1.395	8.778	0.796	21.405	0.700	-0.106	0.100
351	SM01	M-14/S2150	3.394	.	0.759	0.039	0.008	7.977	0.563	2.346	0.696	1.618	9.426	0.462	22.489	0.040	2.815	0.072
351	SM01	M-14/S2150	3.372	.	0.813	0.040	0.011	8.166	0.561	2.240	0.763	1.706	9.713	0.464	21.716	0.039	3.005	0.074
351	SM01	M-14/S2150	3.349	.	0.782	0.038	0.010	8.225	0.797	2.250	0.725	1.656	9.136	0.480	21.435	0.039	2.998	0.073
351	SM01	M-14/S2150	3.312	.	0.800	0.039	0.010	8.028	0.816	2.241	0.748	1.683	9.597	0.459	20.070	0.040	2.946	0.071
351	SM01	M-14/S2150	3.401	.	0.819	0.045	0.012	8.420	0.515	2.239	0.761	1.720	9.643	0.485	21.031	0.040	3.007	0.074
351	SM01	M-14/S2150	3.436	.	0.821	0.043	0.012	8.500	0.593	2.248	0.756	1.747	9.651	0.486	21.176	0.041	3.027	0.073
351	SM32	M-14/S2150	-0.039	.	-0.020	-0.016	-0.010	-0.251	0.651	0.011	-0.009	0.004	0.268	-0.020	-0.103	-0.002	-0.186	-0.004
351	SM32	M-14/S2150	-0.086	.	-0.021	-0.020	-0.010	-0.264	0.580	0.020	-0.009	0.003	0.301	-0.029	-0.094	-0.004	-0.189	-0.004
352	ARGB	M-14/S2150	2.381	.	1.005	0.060	-0.005	9.292	2.278	1.515	0.522	1.439	8.398	0.806	21.609	0.700	-0.066	0.099
352	ARGB	M-14/S2150	2.414	.	0.994	0.062	-0.006	9.345	2.206	1.513	0.517	1.424	8.328	0.806	23.157	0.691	-0.085	0.096
352	SM01	M-14/S2150	2.881	.	0.695	0.042	0.006	7.138	0.052	1.932	0.676	1.502	8.276	0.421	18.812	0.040	2.702	0.067
352	SM01	M-14/S2150	3.326	.	0.808	0.056	0.008	8.335	0.511	2.186	0.788	1.768	9.219	0.514	21.967	0.045	3.143	0.074
352	SM01	M-14/S2150	3.389	.	0.799	0.051	0.009	8.014	0.380	2.202	0.771	1.721	9.172	0.476	22.057	0.045	3.020	0.072
352	SM01	M-14/S2150	3.334	.	0.815	0.053	0.008	8.146	0.054	2.248	0.780	1.745	9.673	0.492	21.900	0.046	3.172	0.073
352	SM01	M-14/S2150	3.239	.	0.762	0.047	0.005	7.976	0.164	2.162	0.749	1.674	9.020	0.465	21.794	0.043	3.026	0.069
352	SM01	M-14/S2150	3.288	.	0.779	0.050	0.010	8.093	0.400	2.139	0.762	1.665	9.141	0.478	21.746	0.045	3.017	0.073
352	SM32	M-14/S2150	-0.106	.	-0.006	-0.014	-0.012	-0.343	-0.155	-0.022	0.014	0.018	0.101	-0.018	0.335	-0.005	-0.071	-0.005
352	SM32	M-14/S2150	-0.130	.	-0.017	-0.019	-0.014	-0.356	-0.098	-0.020	0.011	0.014	0.006	-0.028	0.424	-0.005	-0.189	-0.008
353	ARGB	M-14/S2150	2.329	.	0.961	0.061	-0.010	9.204	2.418	1.464	0.487	1.363	8.253	0.799	21.141	0.659	-0.263	0.091
353	ARGB	M-14/S2150	2.373	.	1.003	0.057	-0.010	9.185	2.102	1.505	0.507	1.390	8.441	0.781	20.991	0.682	-0.206	0.093
353	SM01	M-14/S2150	3.361	.	0.819	0.050	0.006	8.424	0.117	2.124	0.775	1.778	9.189	0.486	21.049	0.041	3.197	0.063
353	SM01	M-14/S2150	3.424	.	0.832	0.047	0.004	8.530	0.235	2.175	0.780	1.794	9.266	0.491	22.021	0.042	3.119	0.063
353	SM01	M-14/S2150	3.419	.	0.826	0.049	0.007	8.710	0.090	2.178	0.793	1.795	9.564	0.490	21.829	0.042	3.306	0.064

Table A3. Mixed Acid Measurement Data Set *(continued)*

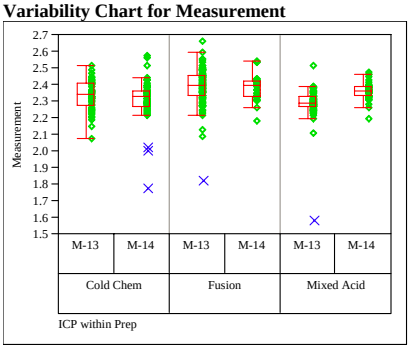
Batch	Type of Sample	ICP/ID	Al	B	Ca	Cr	Cu	Fe	K	Li	Mg	Mn	Na	Ni	Si	Ti	U	Zr
353	SM01	M-14/S2150	3.429	.	0.815	0.048	0.005	8.516	0.223	2.155	0.765	1.795	9.300	0.494	22.065	0.042	3.123	0.061
353	SM01	M-14/S2150	3.468	.	0.834	0.048	0.007	8.713	0.222	2.160	0.783	1.790	9.599	0.489	21.942	0.040	3.168	0.064
353	SM01	M-14/S2150	3.405	.	0.818	0.051	0.006	8.514	0.424	2.129	0.772	1.779	9.228	0.503	21.569	0.041	3.132	0.064
353	SM32	M-14/S2150	-0.067	.	0.004	-0.008	-0.014	-0.261	-0.084	-0.033	0.008	0.007	-0.039	-0.033	0.092	-0.004	-0.296	-0.005
353	SM32	M-14/S2150	-0.069	.	-0.018	-0.008	-0.015	-0.285	0.334	-0.026	0.006	0.004	-0.008	-0.026	0.142	-0.005	-0.360	-0.008
354	ARGB	M-13/S2133	2.282	.	0.992	0.063	-0.011	9.513	1.384	1.394	0.507	1.424	8.664	0.816	20.892	0.676	-0.097	0.096
354	ARGB	M-13/S2133	2.314	.	0.978	0.060	-0.010	9.429	1.978	1.443	0.512	1.420	8.363	0.816	20.914	0.681	-0.069	0.099
354	SM01	M-13/S2133	3.148	.	0.760	0.051	0.001	8.135	-0.306	2.140	0.702	1.648	8.678	0.469	21.381	0.041	2.894	0.069
354	SM01	M-13/S2133	3.122	.	0.752	0.048	0.001	7.906	0.048	2.181	0.676	1.583	8.733	0.465	22.488	0.043	2.725	0.069
354	SM01	M-13/S2133	3.314	.	0.810	0.053	0.007	8.537	0.186	2.163	0.737	1.718	8.768	0.505	22.047	0.044	3.010	0.071
354	SM01	M-13/S2133	3.224	.	0.787	0.055	0.006	8.486	0.144	2.172	0.701	1.643	8.698	0.483	22.305	0.042	2.932	0.071
354	SM01	M-13/S2133	3.304	.	1.097	0.061	0.003	8.998	0.402	2.050	0.805	1.783	8.841	0.550	21.558	0.086	2.874	0.074
354	SM01	M-13/S2133	3.109	.	0.765	0.051	0.005	8.063	-0.673	2.168	0.689	1.593	8.856	0.471	22.366	0.043	2.804	0.068
354	SM32	M-13/S2133	-0.130	.	-0.011	-0.004	-0.019	-0.250	-0.219	0.018	-0.006	0.003	-0.018	-0.018	-0.652	-0.003	-0.153	0.001
354	SM32	M-13/S2133	-0.115	.	-0.016	-0.004	-0.023	-0.274	-0.546	-0.047	-0.006	0.001	0.042	-0.004	-0.593	-0.004	-0.246	0.000
355	ARGB	M-14/S2150	2.349	.	1.008	0.061	0.002	9.362	2.144	1.503	0.497	1.429	8.518	0.808	20.766	0.694	-0.058	0.096
355	ARGB	M-14/S2150	2.265	.	0.951	0.059	-0.002	9.204	2.242	1.471	0.484	1.388	8.390	0.791	20.346	0.667	-0.196	0.090
355	SM01	M-14/S2150	2.970	.	0.741	0.046	0.014	7.561	0.199	2.376	0.709	1.546	8.580	0.449	23.976	0.042	2.565	0.082
355	SM01	M-14/S2150	2.857	.	0.697	0.042	0.010	7.228	0.573	2.369	0.682	1.479	8.199	0.417	23.485	0.039	2.445	0.080
355	SM01	M-14/S2150	2.909	.	0.668	0.044	0.008	7.334	0.380	2.407	0.656	1.450	7.953	0.433	24.646	0.040	2.554	0.082
355	SM01	M-14/S2150	2.882	.	0.697	0.045	0.013	7.304	0.535	2.335	0.685	1.494	8.398	0.434	23.161	0.041	2.466	0.081
355	SM01	M-14/S2150	2.916	.	0.724	0.047	0.013	7.132	0.297	2.332	0.704	1.516	8.432	0.412	21.465	0.041	2.580	0.079
355	SM01	M-14/S2150	2.923	.	0.674	0.044	0.010	7.359	0.454	2.401	0.653	1.463	7.867	0.427	23.920	0.039	2.446	0.081
355	SM32	M-14/S2150	-0.110	.	0.003	-0.004	-0.003	-0.126	-0.338	-0.012	-0.005	-0.006	0.035	-0.006	-0.498	-0.004	-0.117	-0.004
355	SM32	M-14/S2150	-0.101	.	0.007	-0.005	-0.007	-0.124	0.099	-0.007	-0.005	-0.008	0.023	-0.016	-0.465	-0.003	-0.226	-0.007
356	ARGB	M-13/S2133	2.383	.	1.066	0.066	0.000	9.871	2.474	1.555	0.533	1.438	8.719	0.847	22.388	0.712	0.008	0.117
356	ARGB	M-13/S2133	2.389	.	1.039	0.065	-0.001	9.659	2.376	1.511	0.517	1.440	8.407	0.814	21.716	0.680	0.008	0.112
356	ARGB	M-14/S2150	2.360	.	0.990	0.062	-0.002	9.746	2.405	1.511	0.522	1.416	8.431	0.814	21.792	0.700	-0.177	0.094
356	ARGB	M-14/S2150	2.340	.	0.995	0.060	0.000	9.485	1.972	1.485	0.507	1.398	8.426	0.805	20.721	0.680	-0.161	0.094
356	SM01	M-13/S2133	3.169	.	0.771	0.051	0.013	7.927	-0.011	2.272	0.683	1.579	8.103	0.445	23.924	0.057	3.123	0.131
356	SM01	M-13/S2133	2.983	.	0.732	0.048	0.014	7.991	0.047	2.111	0.660	1.574	7.834	0.465	21.732	0.056	3.037	0.128
356	SM01	M-13/S2133	2.990	.	0.720	0.049	0.012	7.677	-0.143	2.175	0.649	1.473	7.717	0.448	22.269	0.055	2.602	0.108
356	SM01	M-13/S2133	3.102	.	0.751	0.049	0.014	7.649	0.106	2.125	0.666	1.500	7.769	0.448	21.532	0.052	3.036	0.122
356	SM01	M-13/S2133	3.230	.	0.799	0.056	0.014	8.221	-0.026	2.280	0.724	1.592	8.272	0.470	23.229	0.054	3.222	0.133
356	SM01	M-13/S2133	3.103	.	0.743	0.055	0.012	7.907	-0.124	2.251	0.673	1.501	7.806	0.460	22.601	0.053	3.087	0.126
356	SM32	M-13/S2133	-0.037	.	-0.004	-0.006	-0.006	-0.099	-0.064	-0.006	-0.012	0.015	-0.031	-0.013	-0.748	0.008	-0.145	0.018
356	SM32	M-13/S2133	-0.032	.	-0.005	-0.012	-0.008	-0.113	-0.165	-0.005	-0.013	0.012	-0.074	-0.019	-0.674	0.009	-0.035	0.018

Table A4. Targeting WLs at Blending

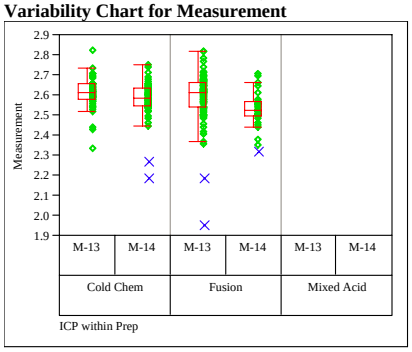
Batch	Li_2O lbs in SME Heel	Oxide lbs in SME Heel	Oxide lbs SRAT Transfer.	Li_2O lbs in SRAT Transfer	Oxide lbs in Frit	Li_2O lbs in Frit	WL Targeting at Blending
300	6503.159	314.014	7482.471	0.000	13491.564	1071.173	36.47
301	8550.541	420.021	7787.828	19.015	14241.095	1130.683	35.31
302	7664.272	350.264	7914.455	0.758	14091.189	1118.781	37.57
303	6918.459	343.210	7480.173	0.000	13791.376	1094.977	35.70
304	6655.614	330.911	6833.539	0.000	13240.955	1044.813	34.73
305	6145.347	305.068	8399.647	2.564	14989.761	1182.808	36.00
306	8575.352	410.450	8036.572	13.150	14789.897	1167.037	35.76
307	10662.923	512.057	7047.691	3.597	13487.804	1068.139	35.84
308	7111.860	338.931	8230.561	8.291	15985.546	1265.943	34.92
309	7217.491	347.646	7939.544	0.000	14486.901	1147.261	36.26
310	6251.095	299.916	7134.861	2.638	13987.352	1107.700	34.89
311	8478.505	410.171	8271.574	0.127	14490.193	1148.309	37.00
312	9033.594	461.755	7596.495	0.000	13990.531	1108.713	35.24
313	6890.516	324.557	8341.960	0.000	15989.179	1267.100	35.63
314	6730.292	332.305	7816.075	-1.272	14989.855	1187.906	35.06
315	6565.085	318.720	7691.114	3.310	14989.855	1187.906	34.83
316	6685.912	327.712	8132.780	2.638	15989.179	1267.100	34.53
317	8672.657	433.541	8226.900	1.231	14989.855	1187.906	35.75
318	7631.922	368.349	7893.112	0.000	15489.517	1227.503	35.03
319	6913.973	324.890	7497.755	11.010	14489.723	1152.750	35.21
320	6344.207	311.253	7750.735	0.000	14989.368	1192.500	34.96
321	6308.906	302.924	7199.656	6.807	14789.510	1176.600	33.93
322	6829.448	348.178	7363.588	0.171	14239.900	1132.875	34.47
323	8531.548	412.209	7534.234	1.543	14688.526	1169.986	35.30
324	6459.813	300.286	7704.002	1.204	15487.901	1233.659	34.95
325	6658.953	341.501	7688.623	2.708	15088.214	1201.823	34.01
326	6744.068	336.723	8149.556	0.000	15987.511	1273.455	34.49
327	7145.570	357.769	8813.887	0.000	17586.262	1400.800	34.13
328	7372.587	366.144	7132.176	0.000	14238.877	1134.170	34.42
329	6527.696	327.465	7655.552	0.000	15088.214	1201.823	34.36
330	6800.313	334.981	7354.763	0.000	14088.994	1122.232	35.18
331	7135.224	355.571	7352.586	0.364	14388.760	1146.109	34.65
332	7196.821	364.972	8248.868	-1.177	15088.214	1201.823	35.58
333	7258.898	362.632	7637.003	6.192	13339.580	1062.539	36.31
334	6151.657	315.124	6997.400	6.529	12790.009	1018.764	35.07
335	8938.933	429.798	6771.970	0.000	11990.633	955.091	37.19
336	10200.451	483.301	7826.763	0.422	13789.228	1098.355	37.52
337	9739.944	451.610	7567.579	0.000	14286.246	1148.550	36.94
338	9867.620	471.809	7699.541	0.000	13886.631	1116.423	37.13
339	9893.539	481.511	8234.258	0.000	13993.560	1117.200	37.63
340	10130.444	483.703	7884.211	0.000	13993.560	1117.200	37.32
341	9855.149	476.771	8164.994	0.000	14193.468	1133.160	37.37
342	10606.308	515.349	8748.489	0.000	14293.422	1141.140	38.31
343	10212.800	479.935	7677.895	0.000	14036.840	1118.661	37.11
344	9403.646	452.504	8114.956	0.000	14186.699	1130.604	37.29
345	9669.703	474.526	7728.999	5.382	13087.730	1043.022	37.26
346	7415.997	350.951	7271.204	0.000	12788.011	1019.136	37.37
347	8843.523	435.365	7475.029	0.000	12688.421	1007.857	37.30
348	8859.665	411.814	7985.664	0.000	13537.646	1075.312	38.32
349	9250.034	429.603	7682.394	0.000	12988.147	1031.665	38.46
350	9421.403	446.307	7684.914	0.000	12988.147	1031.665	38.12
351	9363.207	480.908	8047.999	0.000	12688.421	1007.857	37.67
352	11256.130	533.351	6531.105	0.000	12088.968	960.242	37.00
353	9550.308	458.522	7482.829	0.000	12988.615	1031.174	37.44
354	9506.534	433.498	8222.673	0.000	13488.177	1070.834	39.25
355	9853.231	462.115	8114.465	6.882	16985.112	1348.458	34.45
356	9876.498	505.313	7862.769	0.000	14187.564	1126.359	35.57

Exhibit A1. Standard and Process Measurements by Analyte for

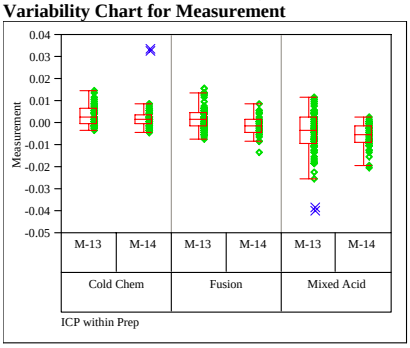
Standard/Process=ARG-1, Analyte=Al
Variability Chart for Measurement



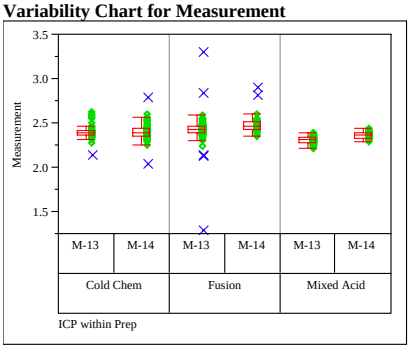
Standard/Process=ARG-1, Analyte=B
Variability Chart for Measurement



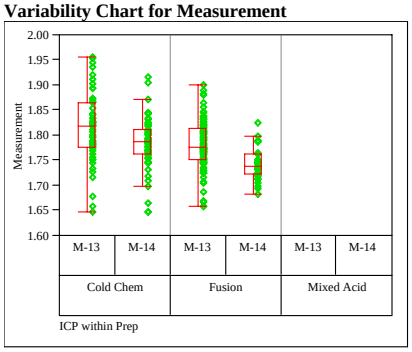
Standard/Process=ARG-1, Analyte=Cu
Variability Chart for Measurement



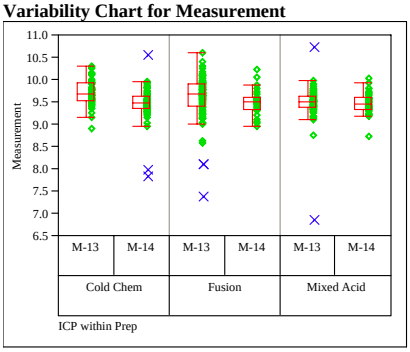
Standard/Process=ARG-1, Analyte=Al/Ca
Variability Chart for Measurement



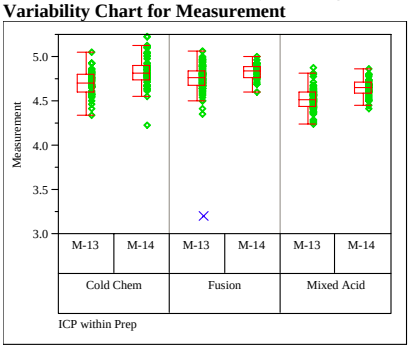
Standard/Process=ARG-1, Analyte=B/Li
Variability Chart for Measurement



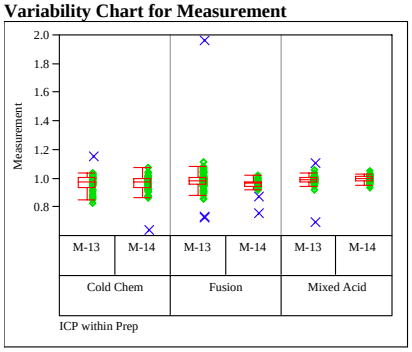
Standard/Process=ARG-1, Analyte=Fe
Variability Chart for Measurement



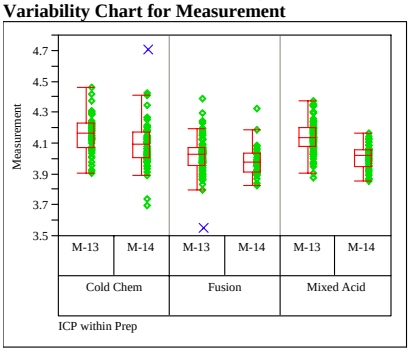
Standard/Process=ARG-1, Analyte=Al/Mg
Variability Chart for Measurement



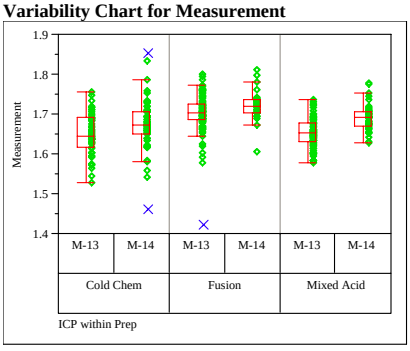
Standard/Process=ARG-1, Analyte=Ca
Variability Chart for Measurement



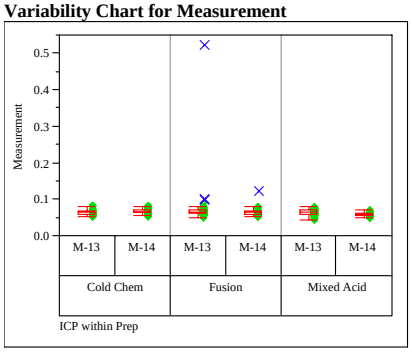
Standard/Process=ARG-1, Analyte=Fe/Al
Variability Chart for Measurement



Standard/Process=ARG-1, Analyte=Al/Mn
Variability Chart for Measurement



Standard/Process=ARG-1, Analyte=Cr
Variability Chart for Measurement



Standard/Process=ARG-1, Analyte=Fe/Ca
Variability Chart for Measurement

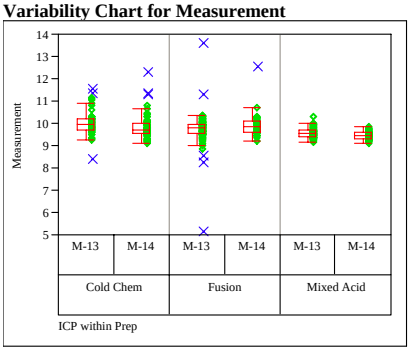
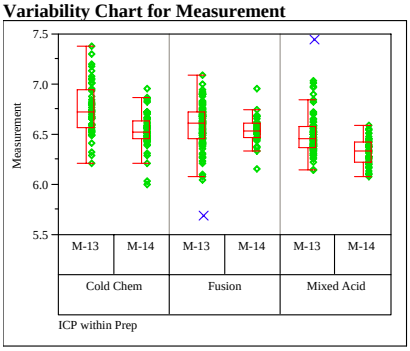
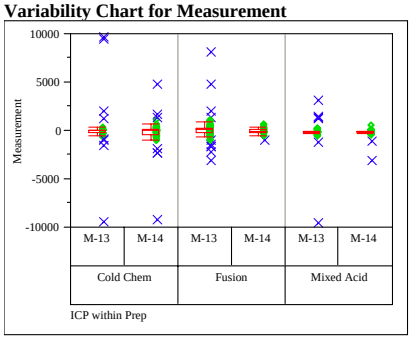


Exhibit A1. Standard and Process Measurements by Analyte for

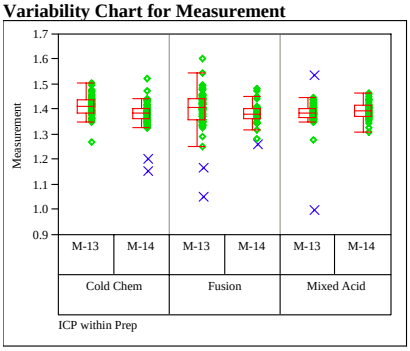
Standard/Process=ARG-1, Analyte=Fe/Li
Variability Chart for Measurement



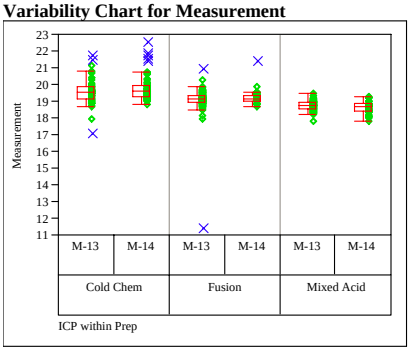
Standard/Process=ARG-1, Analyte=Fe/U
Variability Chart for Measurement



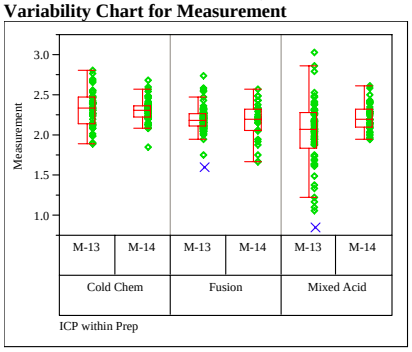
Standard/Process=ARG-1, Analyte=Mn
Variability Chart for Measurement



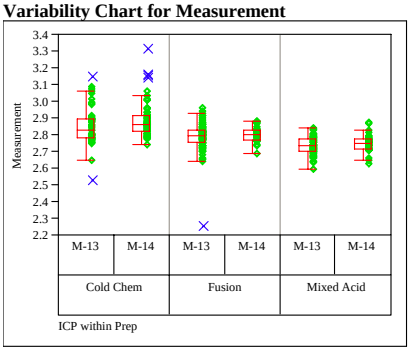
Standard/Process=ARG-1, Analyte=Fe/Mg
Variability Chart for Measurement



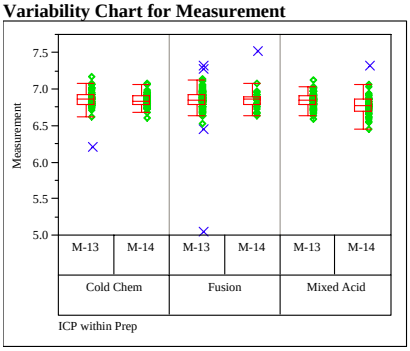
Standard/Process=ARG-1, Analyte=K
Variability Chart for Measurement



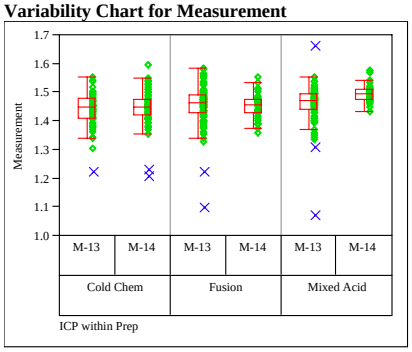
Standard/Process=ARG-1, Analyte=Mn/Mg
Variability Chart for Measurement



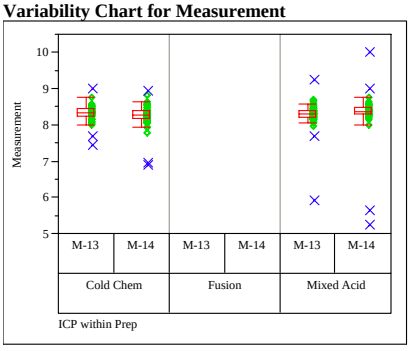
Standard/Process=ARG-1, Analyte=Fe/Mn
Variability Chart for Measurement



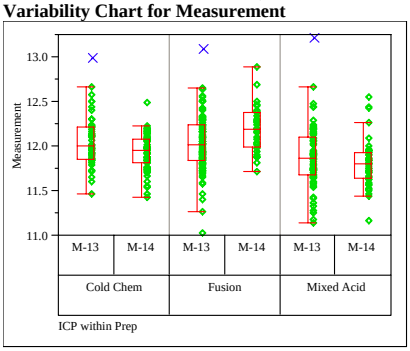
Standard/Process=ARG-1, Analyte=Li
Variability Chart for Measurement



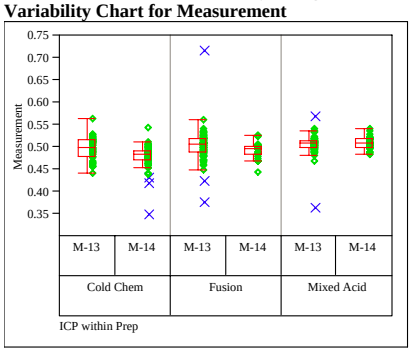
Standard/Process=ARG-1, Analyte=Na
Variability Chart for Measurement



Standard/Process=ARG-1, Analyte=Fe/Ni
Variability Chart for Measurement



Standard/Process=ARG-1, Analyte=Mg
Variability Chart for Measurement



Standard/Process=ARG-1, Analyte=Ni
Variability Chart for Measurement

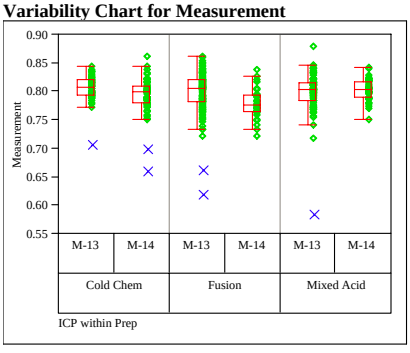
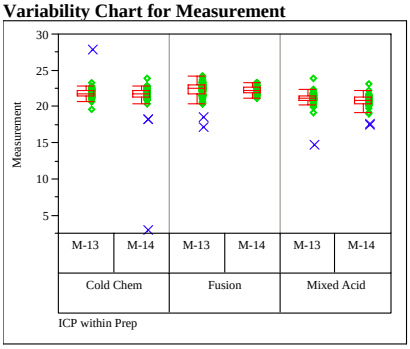
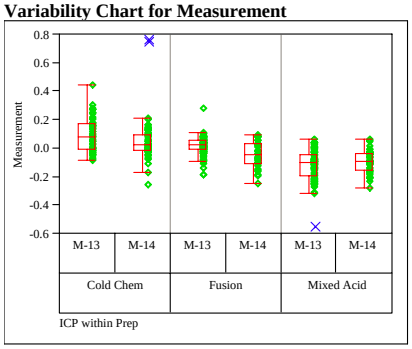


Exhibit A1. Standard and Process Measurements by Analyte for

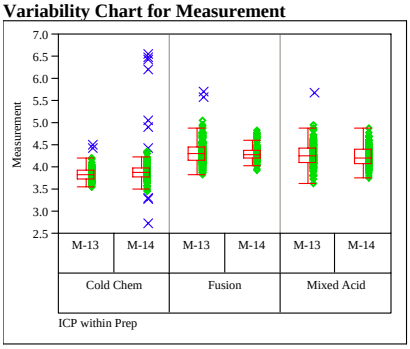
Standard/Process=ARG-1, Analyte=Si
Variability Chart for Measurement



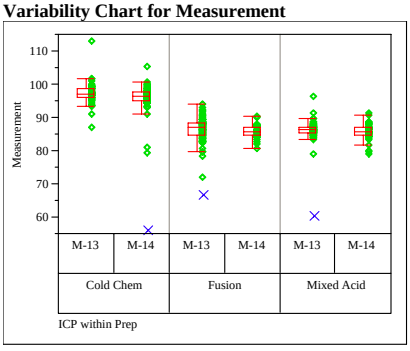
Standard/Process=ARG-1, Analyte=U/Ca
Variability Chart for Measurement



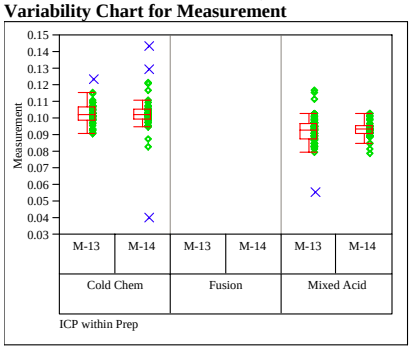
Standard/Process=Process, Analyte=Al/Mg
Variability Chart for Measurement



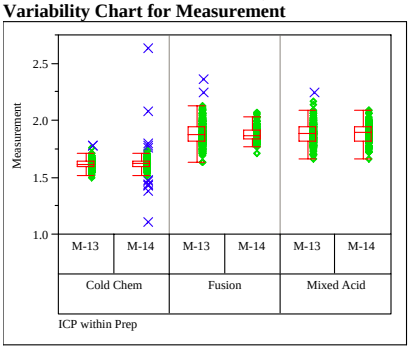
Standard/Process=ARG-1, Analyte=Sum of Oxides
Variability Chart for Measurement



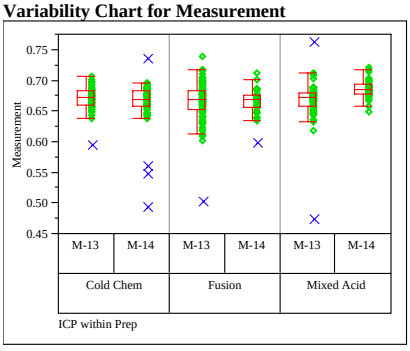
Standard/Process=ARG-1, Analyte=Zr
Variability Chart for Measurement



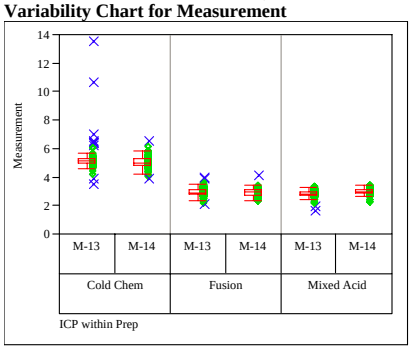
Standard/Process=Process, Analyte=Al/Mn
Variability Chart for Measurement



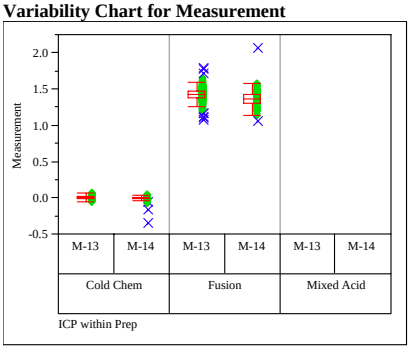
Standard/Process=ARG-1, Analyte=Ti
Variability Chart for Measurement



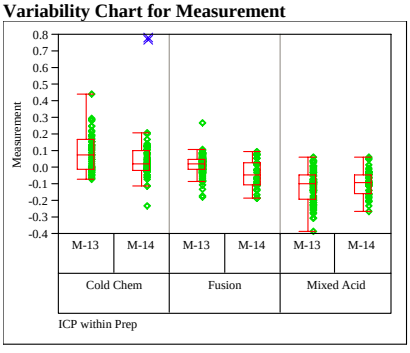
Standard/Process=Process, Analyte=Al
Variability Chart for Measurement



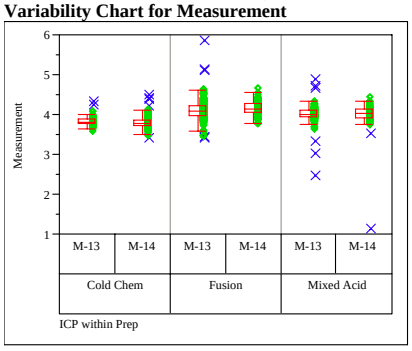
Standard/Process=Process, Analyte=B
Variability Chart for Measurement



Standard/Process=ARG-1, Analyte=U
Variability Chart for Measurement



Standard/Process=Process, Analyte=Al/Ca
Variability Chart for Measurement



Standard/Process=Process, Analyte=B/Li
Variability Chart for Measurement

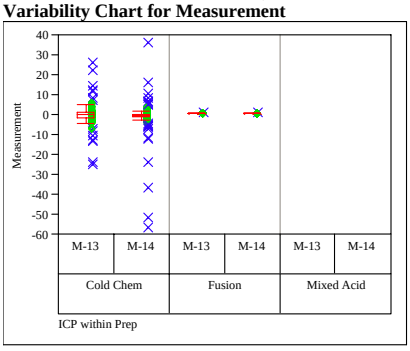
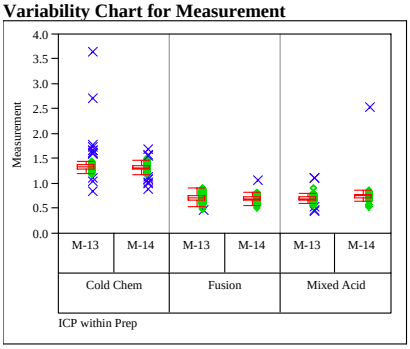
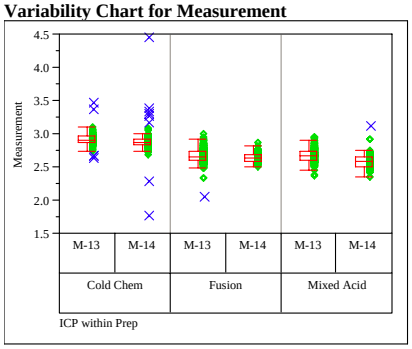


Exhibit A1. Standard and Process Measurements by Analyte for

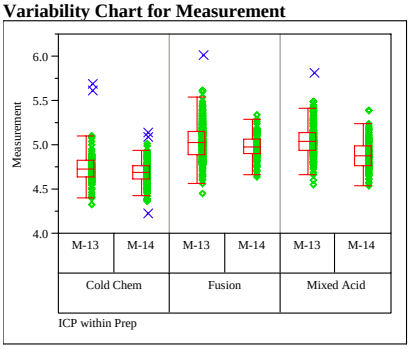
Standard/Process=Process, Analyte=Ca
Variability Chart for Measurement



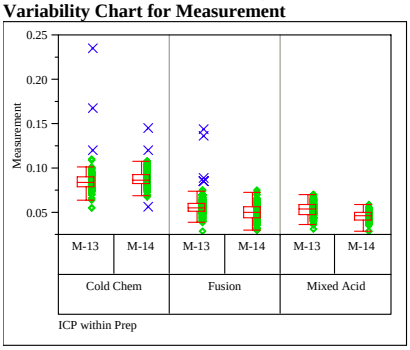
Standard/Process=Process, Analyte=Fe/Al
Variability Chart for Measurement



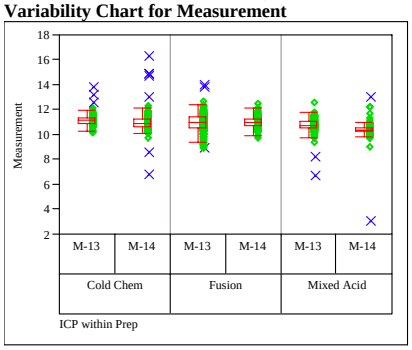
Standard/Process=Process, Analyte=Fe/Mn
Variability Chart for Measurement



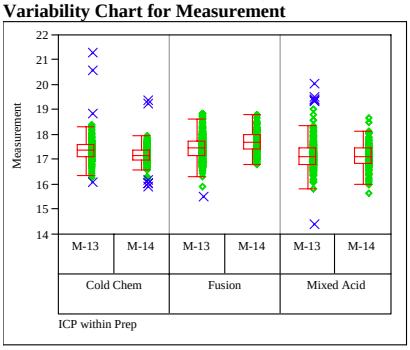
Standard/Process=Process, Analyte=Cr
Variability Chart for Measurement



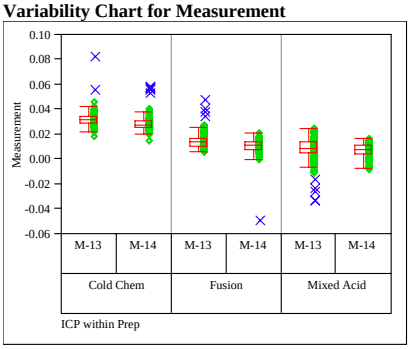
Standard/Process=Process, Analyte=Fe/Ca
Variability Chart for Measurement



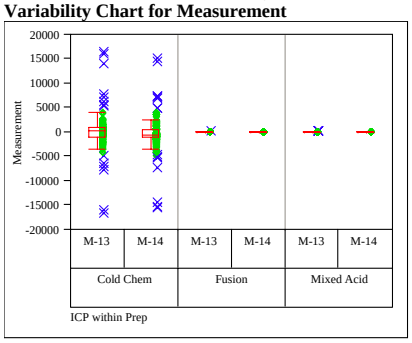
Standard/Process=Process, Analyte=Fe/Ni
Variability Chart for Measurement



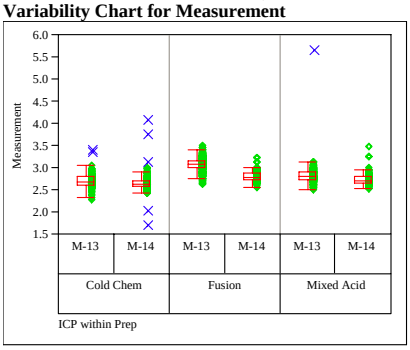
Standard/Process=Process, Analyte=Cu
Variability Chart for Measurement



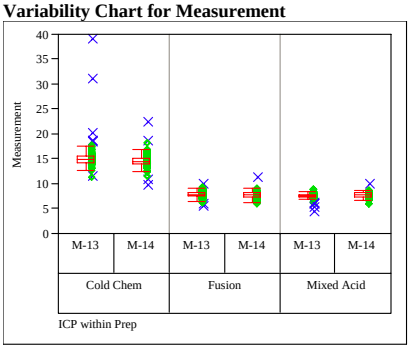
Standard/Process=Process, Analyte=Fe/Li
Variability Chart for Measurement



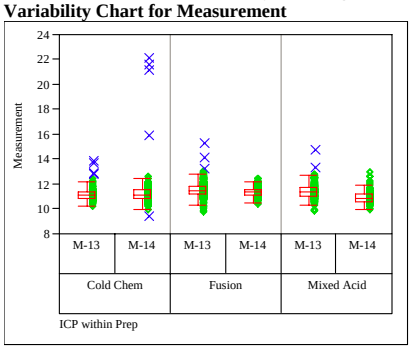
Standard/Process=Process, Analyte=Fe/U
Variability Chart for Measurement



Standard/Process=Process, Analyte=Fe
Variability Chart for Measurement



Standard/Process=Process, Analyte=Fe/Mg
Variability Chart for Measurement



Standard/Process=Process, Analyte=K
Variability Chart for Measurement

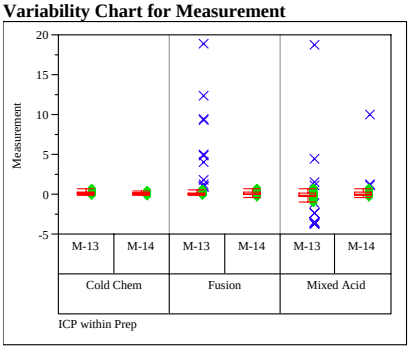
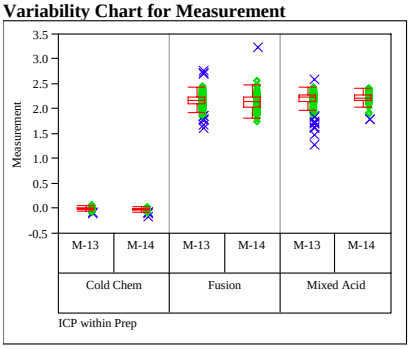
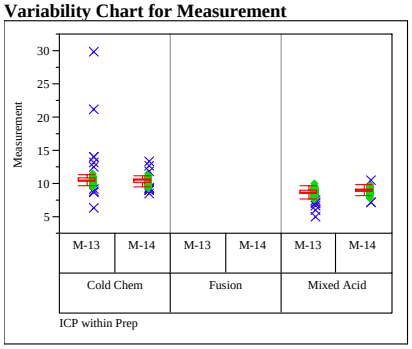


Exhibit A1. Standard and Process Measurements by Analyte for

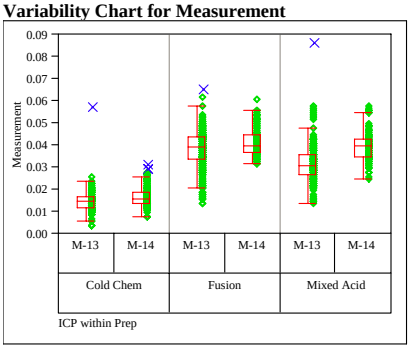
Standard/Process=Process, Analyte=Li
Variability Chart for Measurement



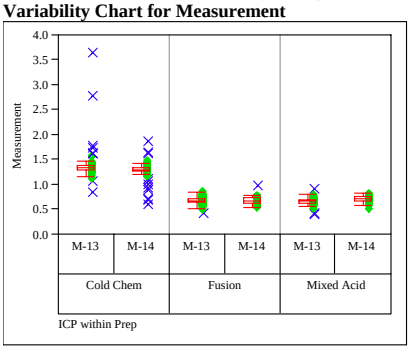
Standard/Process=Process, Analyte=Na
Variability Chart for Measurement



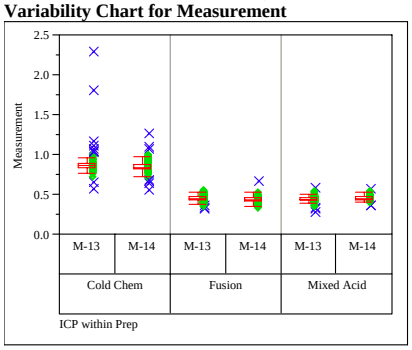
Standard/Process=Process, Analyte=Ti
Variability Chart for Measurement



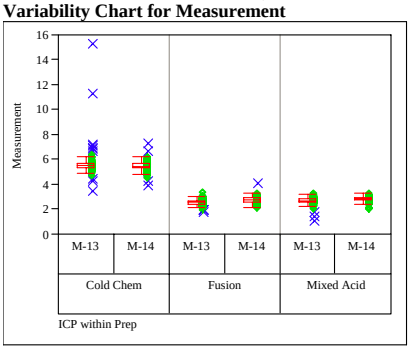
Standard/Process=Process, Analyte=Mg
Variability Chart for Measurement



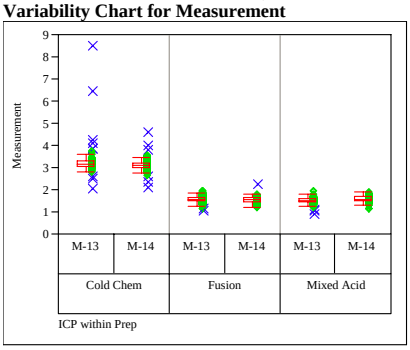
Standard/Process=Process, Analyte=Ni
Variability Chart for Measurement



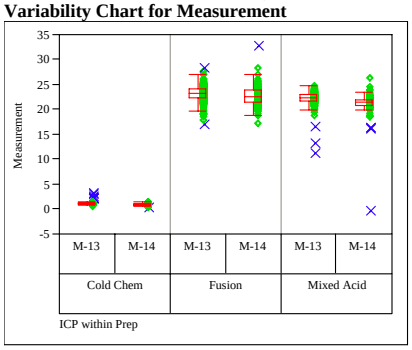
Standard/Process=Process, Analyte=U
Variability Chart for Measurement



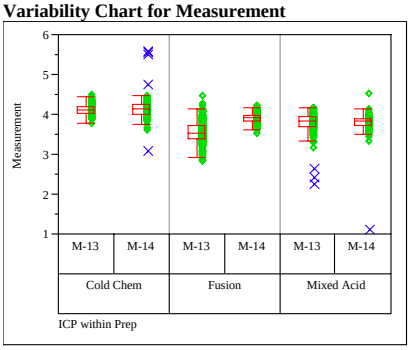
Standard/Process=Process, Analyte=Mn
Variability Chart for Measurement



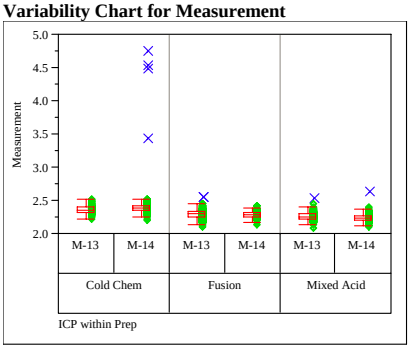
Standard/Process=Process, Analyte=Si
Variability Chart for Measurement



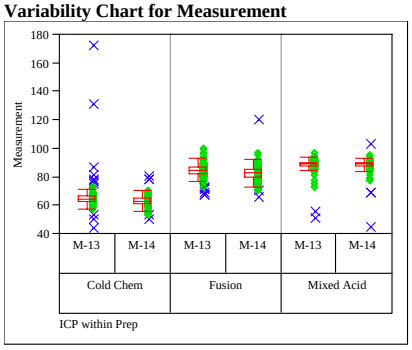
Standard/Process=Process, Analyte=U/Ca
Variability Chart for Measurement



Standard/Process=Process,
Analyte=Mn/Mg
Variability Chart for Measurement



Standard/Process=Process, Analyte=Sum of
Oxides
Variability Chart for Measurement



Standard/Process=Process, Analyte=Zr
Variability Chart for Measurement

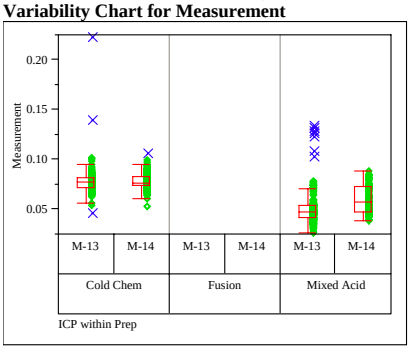
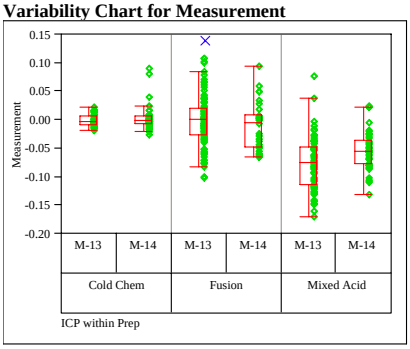
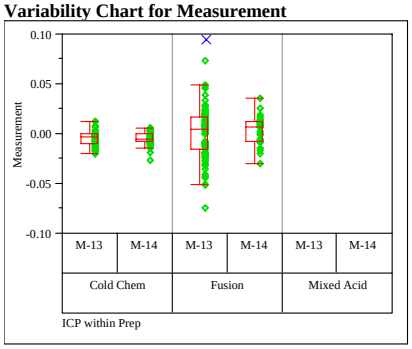


Exhibit A1. Standard and Process Measurements by Analyte for

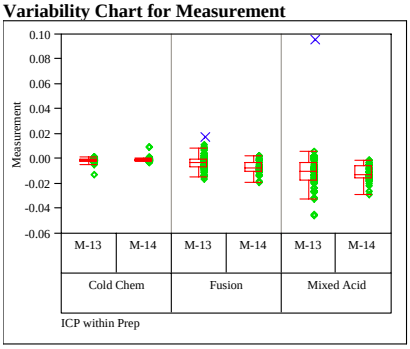
Standard/Process=blank, Analyte=Al
Variability Chart for Measurement



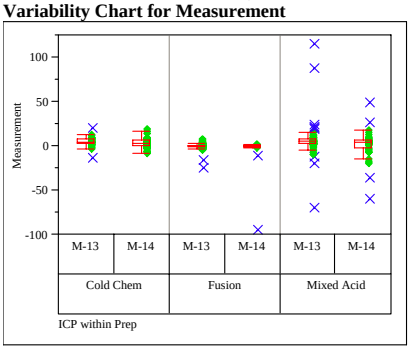
Standard/Process=blank, Analyte=B
Variability Chart for Measurement



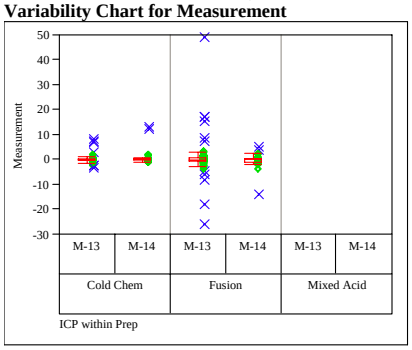
Standard/Process=blank, Analyte=Cu
Variability Chart for Measurement



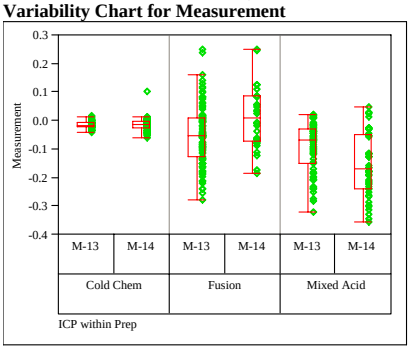
Standard/Process=blank, Analyte=Al/Ca
Variability Chart for Measurement



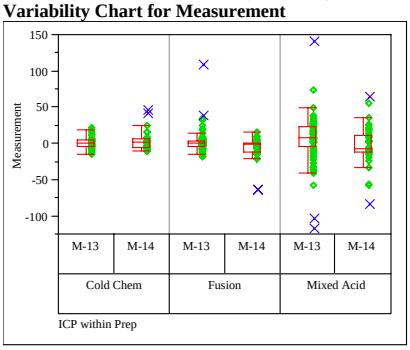
Standard/Process=blank, Analyte=B/Li
Variability Chart for Measurement



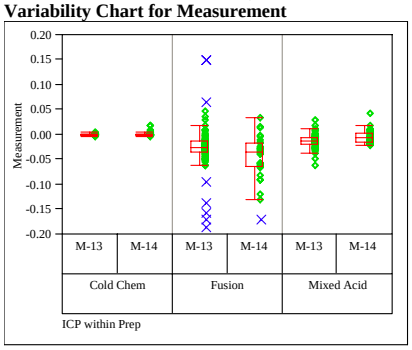
Standard/Process=blank, Analyte=Fe
Variability Chart for Measurement



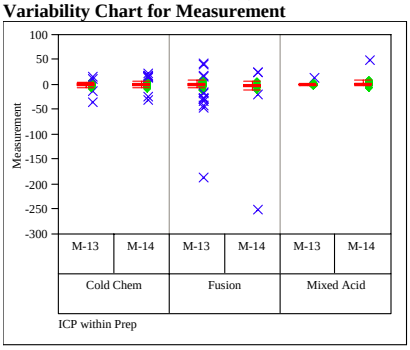
Standard/Process=blank, Analyte=Al/Mg
Variability Chart for Measurement



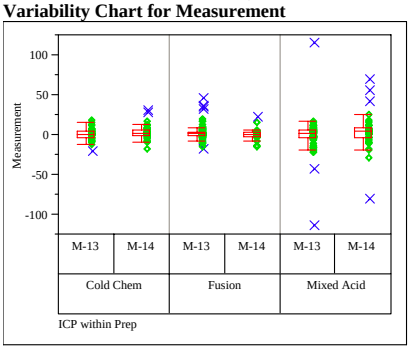
Standard/Process=blank, Analyte=Ca
Variability Chart for Measurement



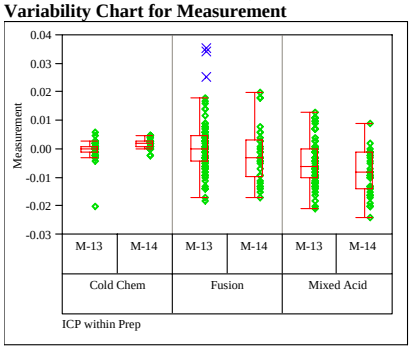
Standard/Process=blank, Analyte=Fe/Al
Variability Chart for Measurement



Standard/Process=blank, Analyte=Al/Mn
Variability Chart for Measurement



Standard/Process=blank, Analyte=Cr
Variability Chart for Measurement



Standard/Process=blank, Analyte=Fe/Ca
Variability Chart for Measurement

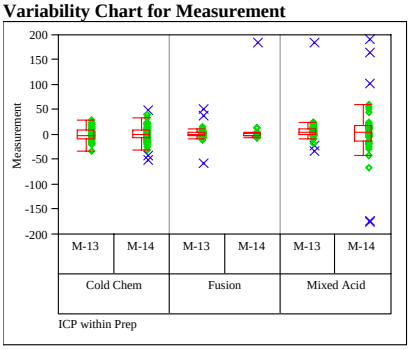
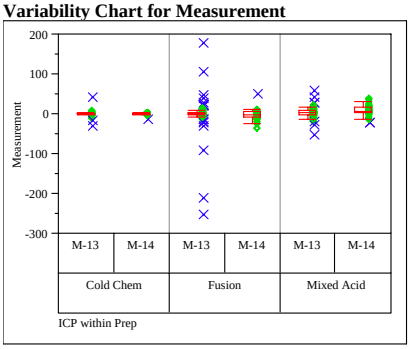
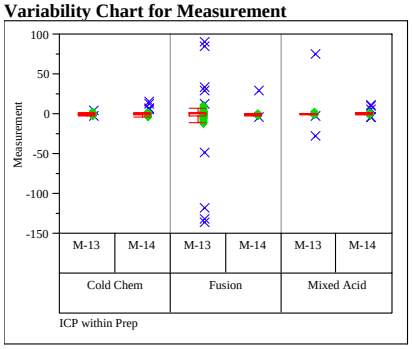


Exhibit A1. Standard and Process Measurements by Analyte for

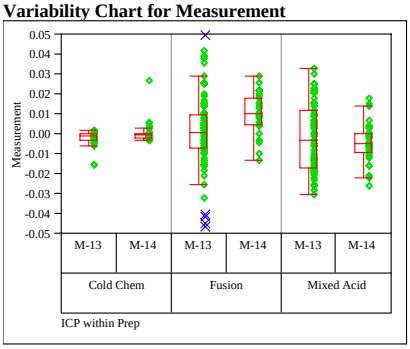
Standard/Process=blank, Analyte=Fe/Li
Variability Chart for Measurement



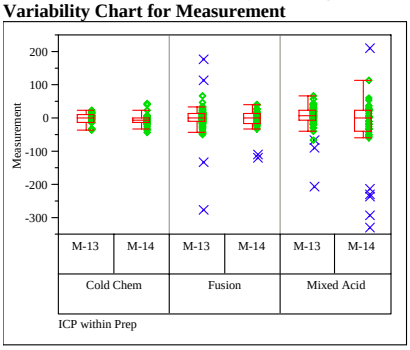
Standard/Process=blank, Analyte=Fe/U
Variability Chart for Measurement



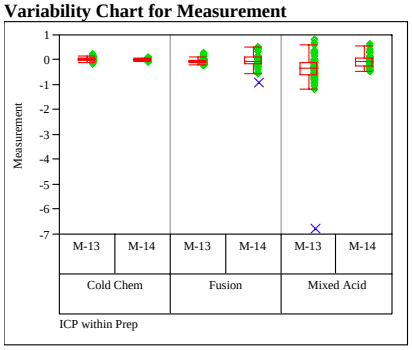
Standard/Process=blank, Analyte=Mn
Variability Chart for Measurement



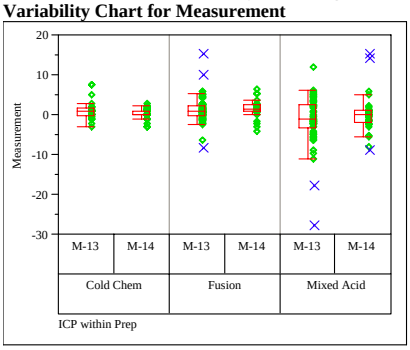
Standard/Process=blank, Analyte=Fe/Mg
Variability Chart for Measurement



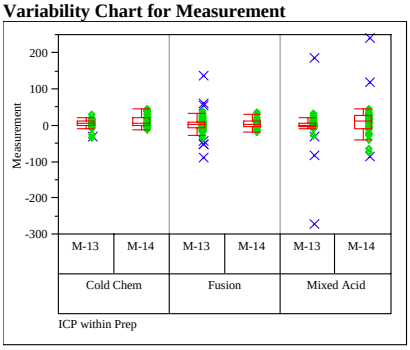
Standard/Process=blank, Analyte=K
Variability Chart for Measurement



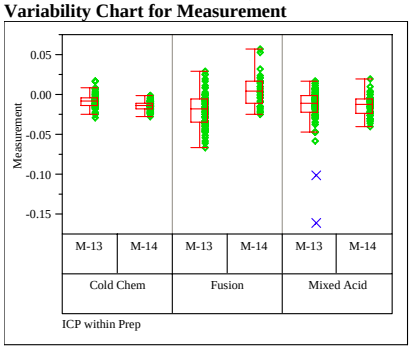
Standard/Process=blank, Analyte=Mn/Mg
Variability Chart for Measurement



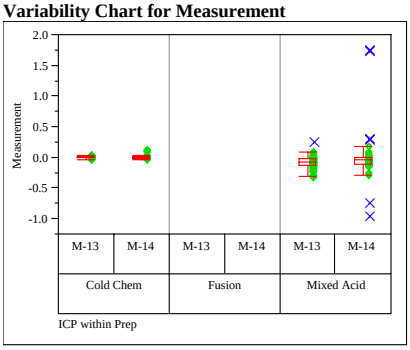
Standard/Process=blank, Analyte=Fe/Mn
Variability Chart for Measurement



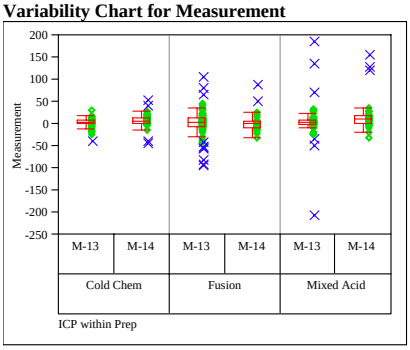
Standard/Process=blank, Analyte=Li
Variability Chart for Measurement



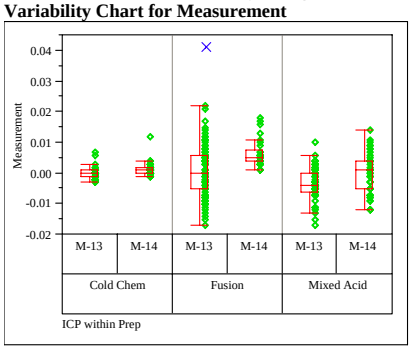
Standard/Process=blank, Analyte=Na
Variability Chart for Measurement



Standard/Process=blank, Analyte=Fe/Ni
Variability Chart for Measurement



Standard/Process=blank, Analyte=Mg
Variability Chart for Measurement



Standard/Process=blank, Analyte=Ni
Variability Chart for Measurement

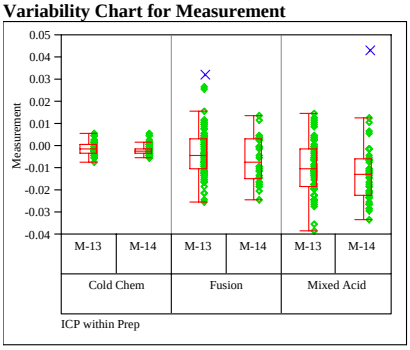
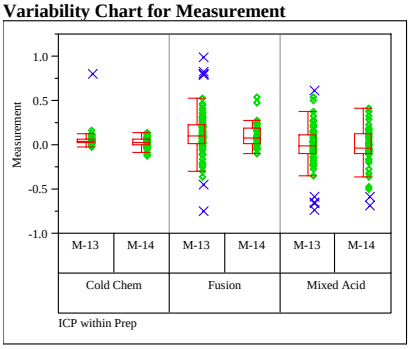
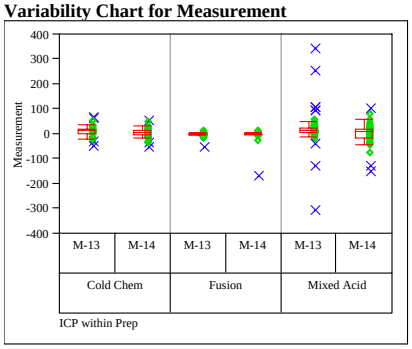


Exhibit A1. Standard and Process Measurements by Analyte for

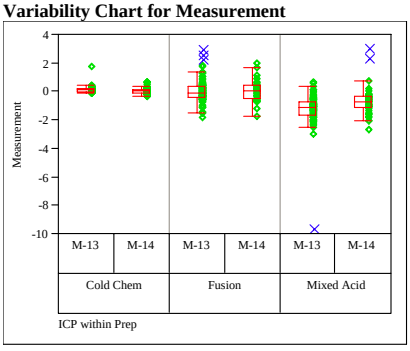
Standard/Process=blank, Analyte=Si
Variability Chart for Measurement



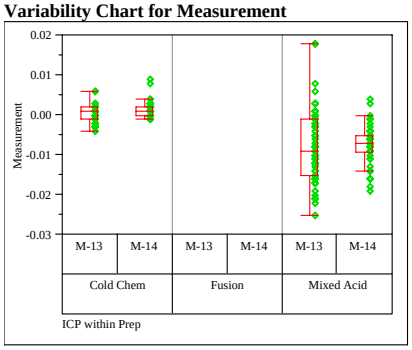
Standard/Process=blank, Analyte=U/Ca
Variability Chart for Measurement



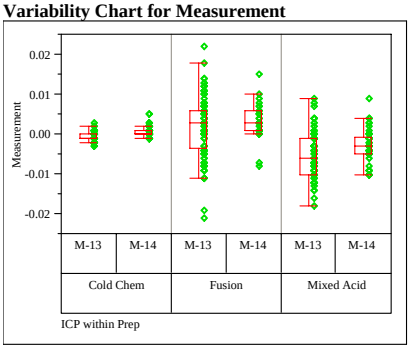
Standard/Process=blank, Analyte=Sum of Oxides
Variability Chart for Measurement



Standard/Process=blank, Analyte=Zr
Variability Chart for Measurement



Standard/Process=blank, Analyte=Ti
Variability Chart for Measurement



Standard/Process=blank, Analyte=U
Variability Chart for Measurement

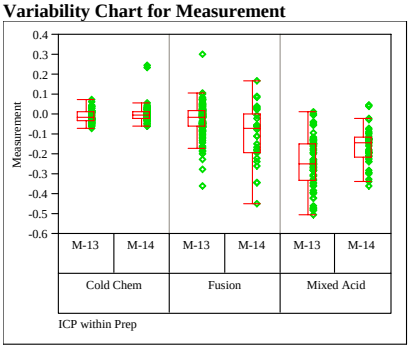
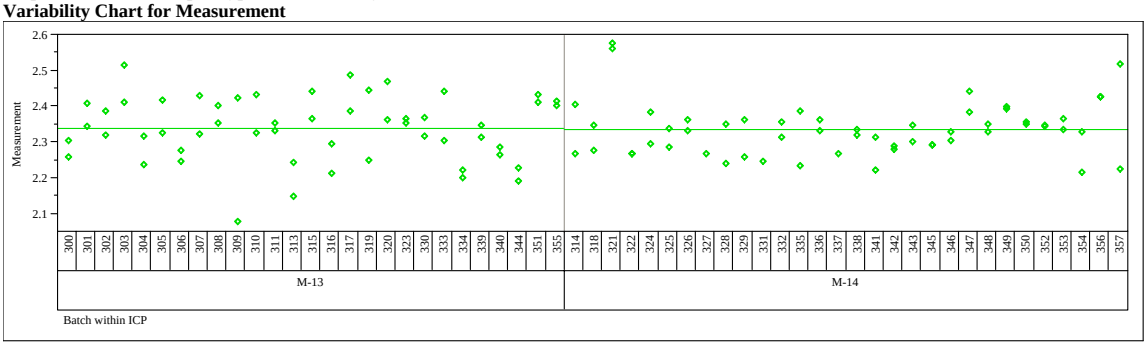
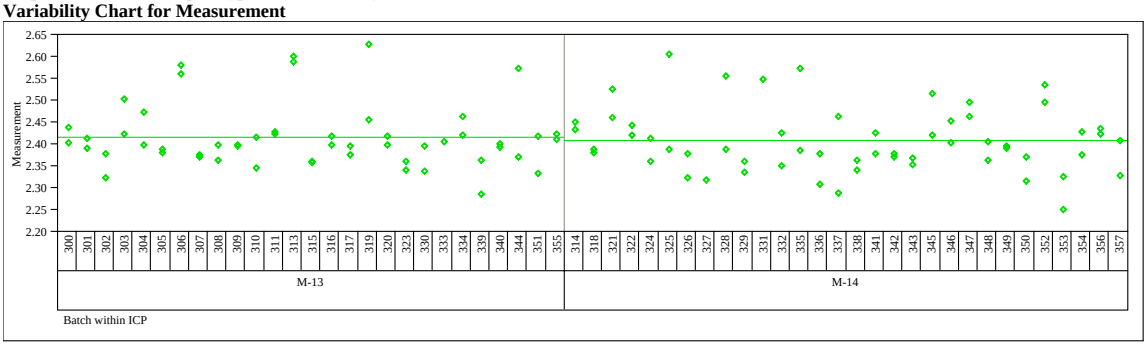


Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

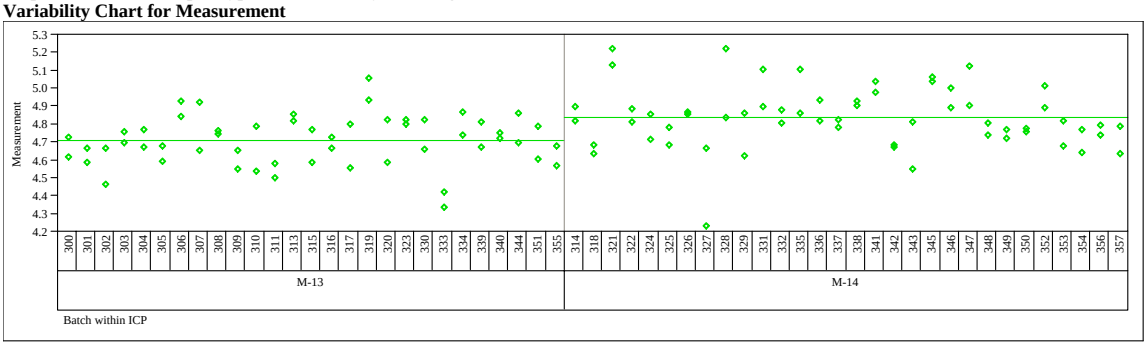
Prep=Cold Chem, Sample Type=ARG-1, Analyte=Al
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=ARG-1, Analyte=Al/Ca
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=ARG-1, Analyte=Al/Mg
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=ARG-1, Analyte=Al/Mn
Variability Chart for Measurement

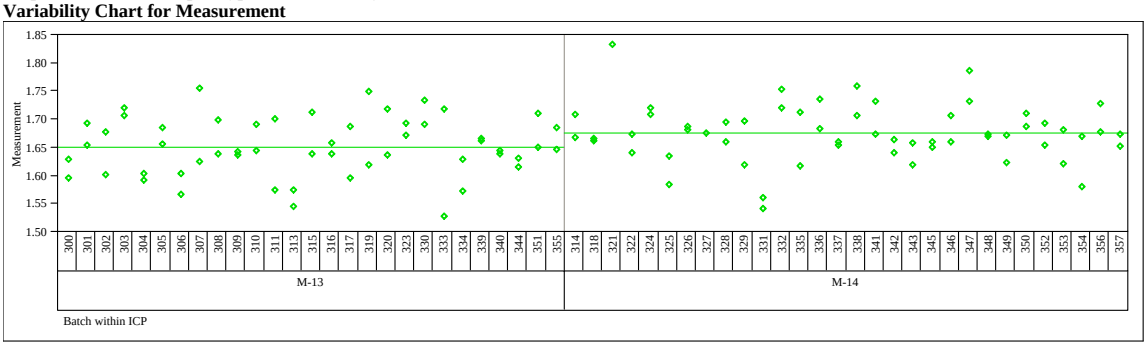
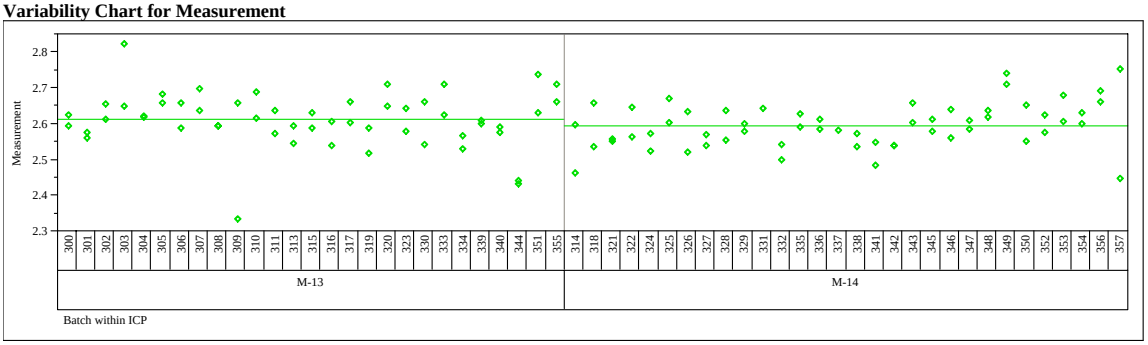


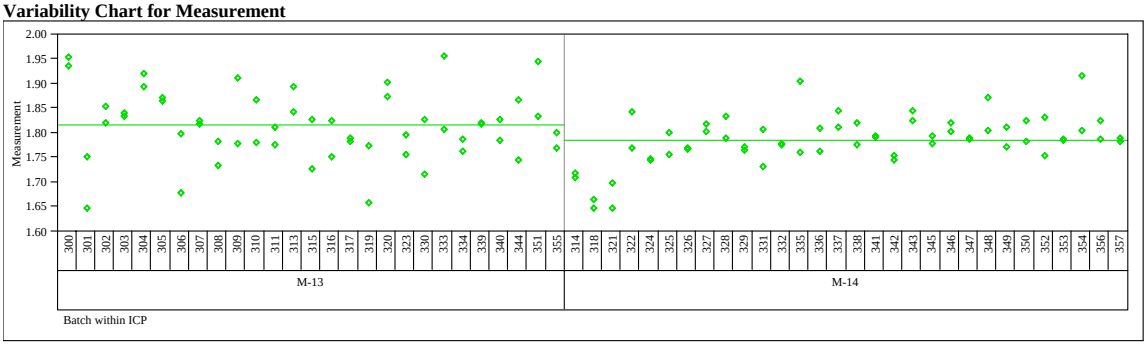
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

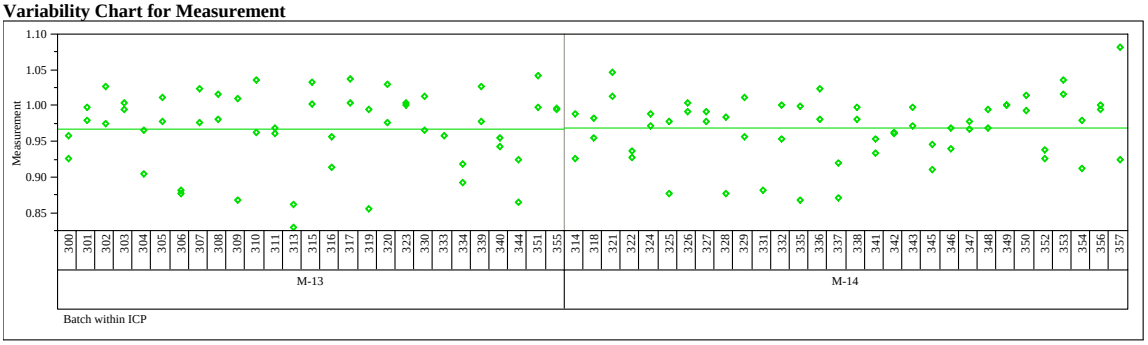
Prep=Cold Chem, Sample Type=ARG-1, Analyte=B
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=ARG-1, Analyte=B/Li
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=ARG-1, Analyte=Ca
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=ARG-1, Analyte=Cr
Variability Chart for Measurement

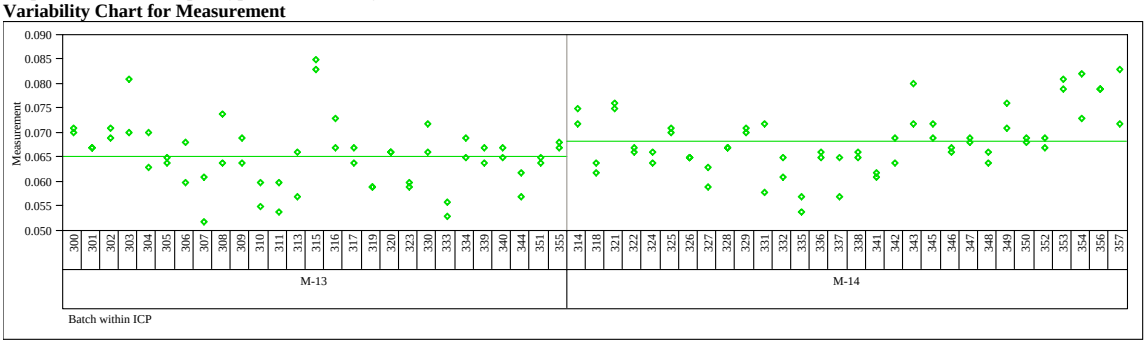
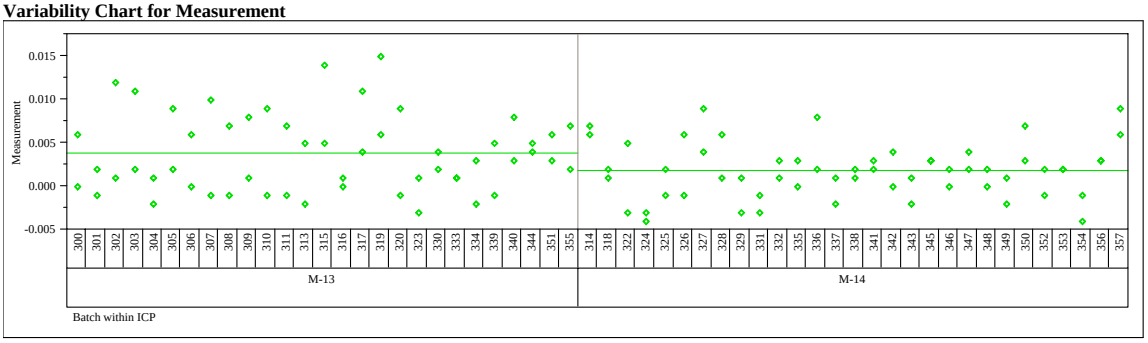


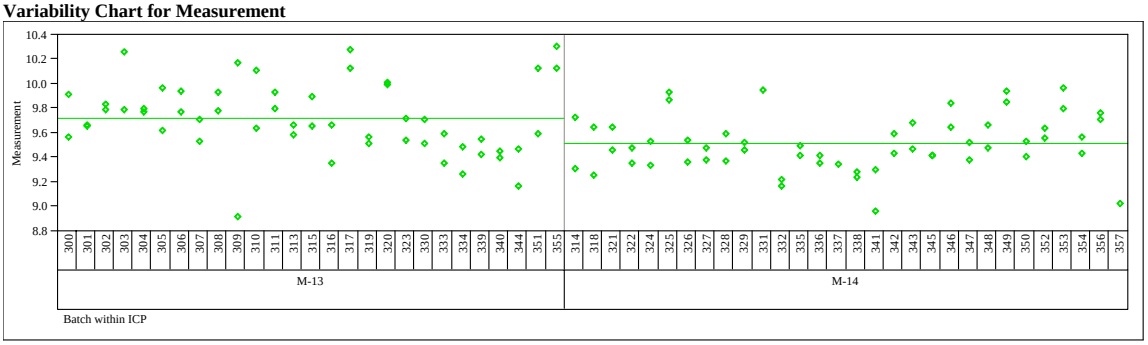
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

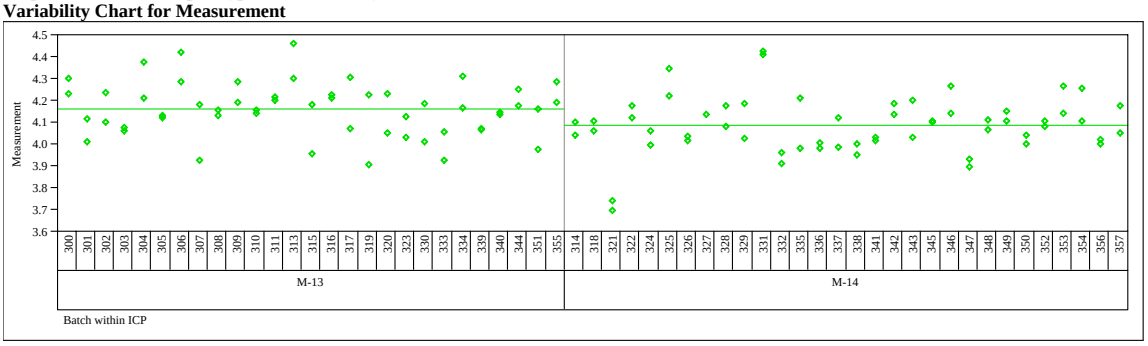
Prep=Cold Chem, Sample Type=ARG-1, Analyte=Cu
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=ARG-1, Analyte=Fe
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=ARG-1, Analyte=Fe/Al
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=ARG-1, Analyte=Fe/Ca
Variability Chart for Measurement

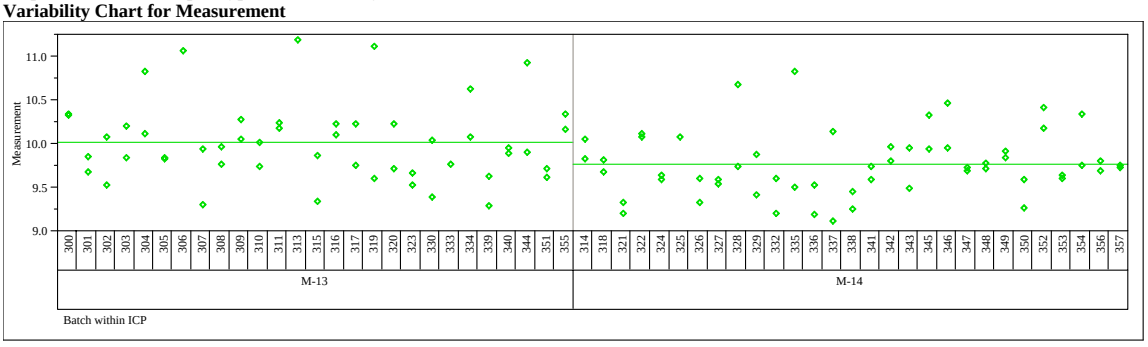
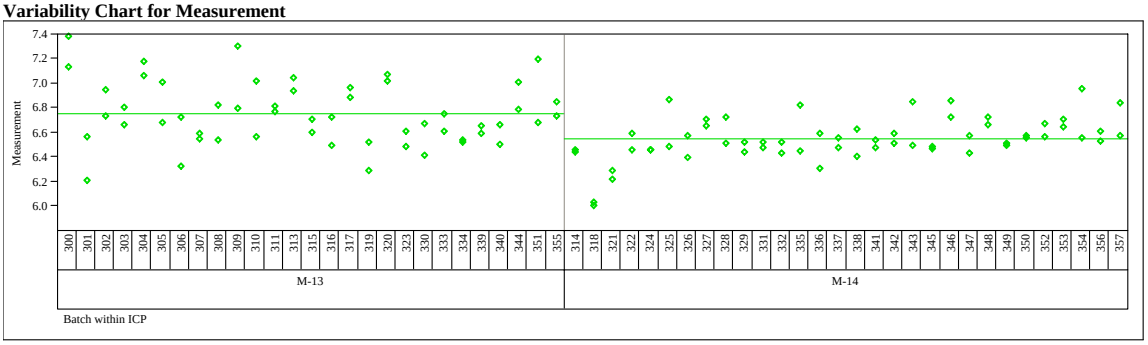


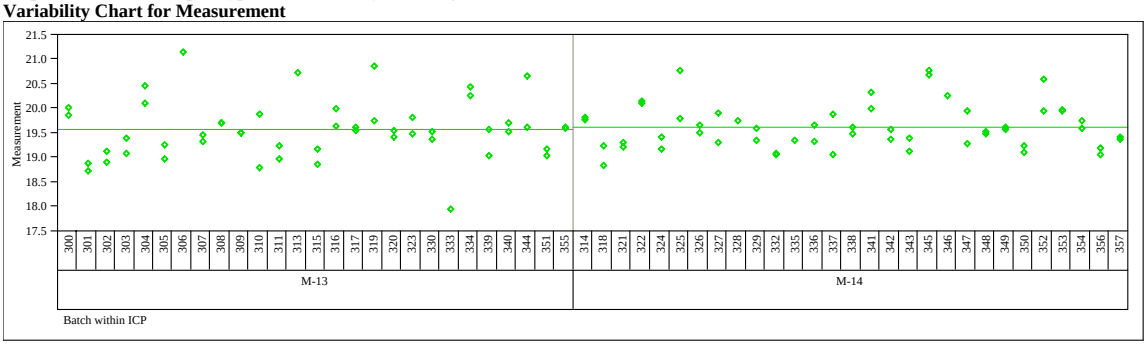
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

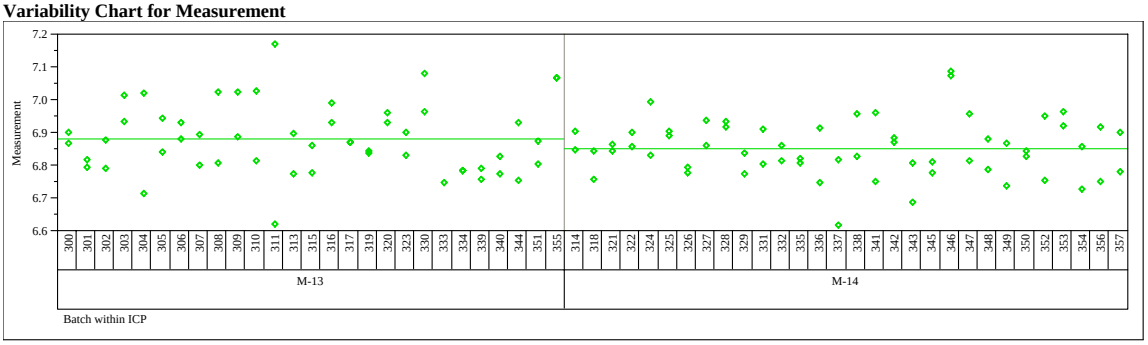
Prep=Cold Chem, Sample Type=ARG-1, Analyte=Fe/Li
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=ARG-1, Analyte=Fe/Mg
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=ARG-1, Analyte=Fe/Mn
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=ARG-1, Analyte=Fe/Ni
Variability Chart for Measurement

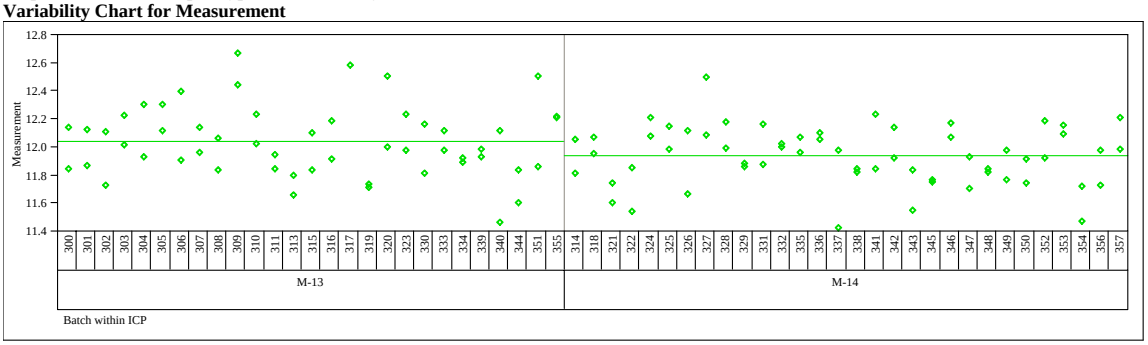
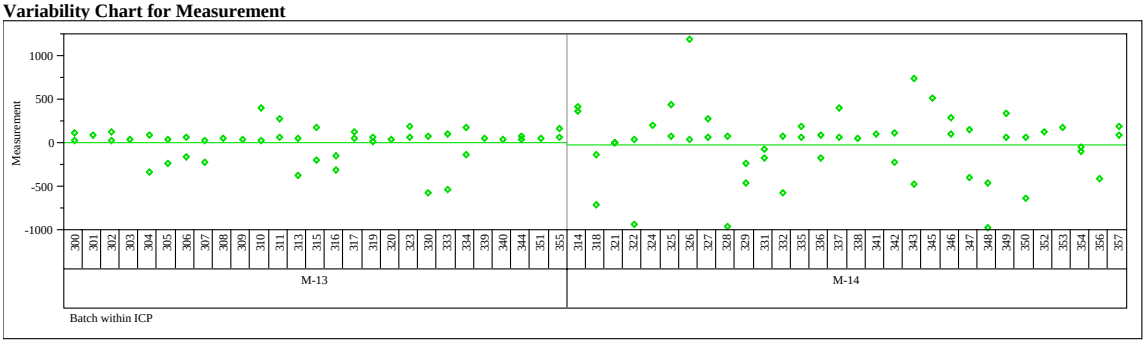


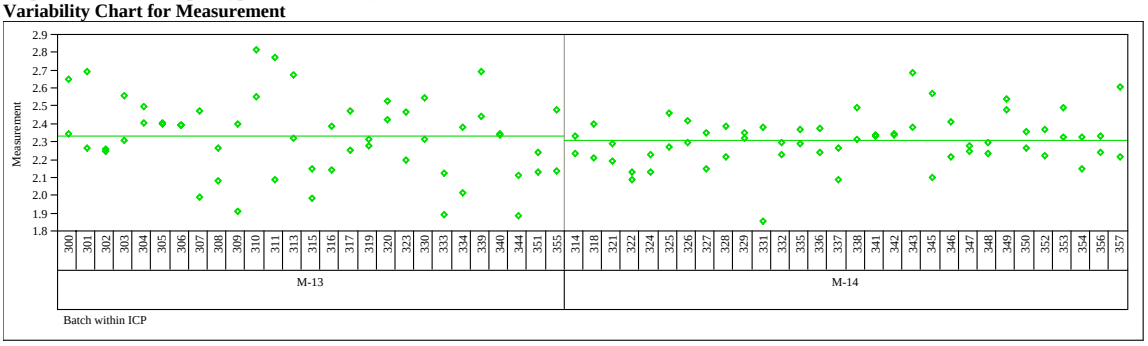
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

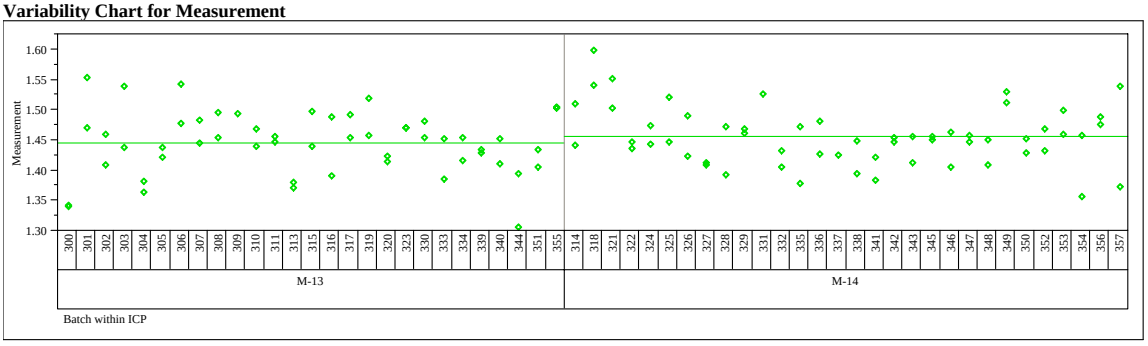
Prep=Cold Chem, Sample Type=ARG-1, Analyte=Fe/U
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=ARG-1, Analyte=K
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=ARG-1, Analyte=Li
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=ARG-1, Analyte=Mg
Variability Chart for Measurement

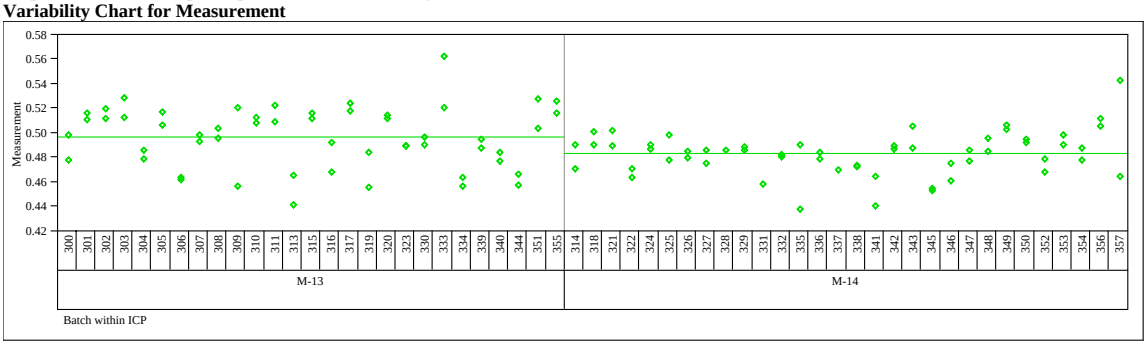
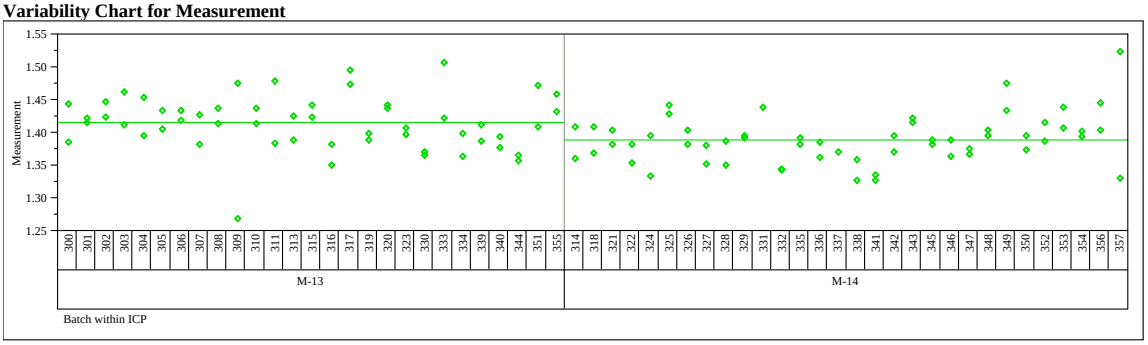


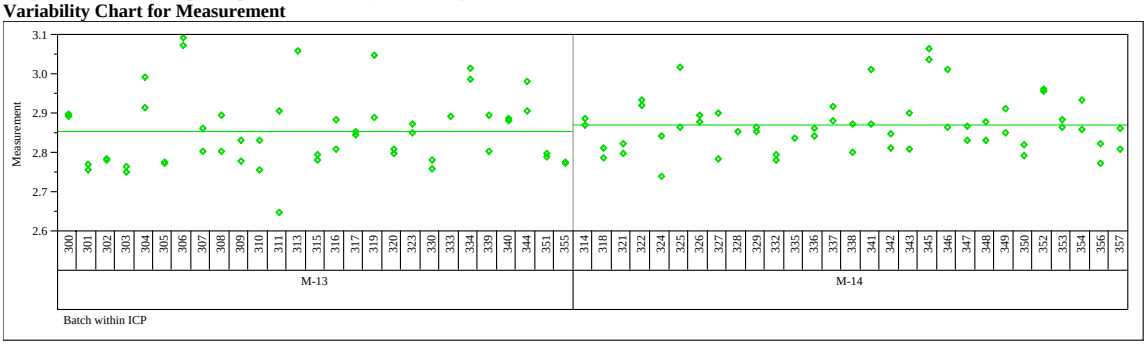
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

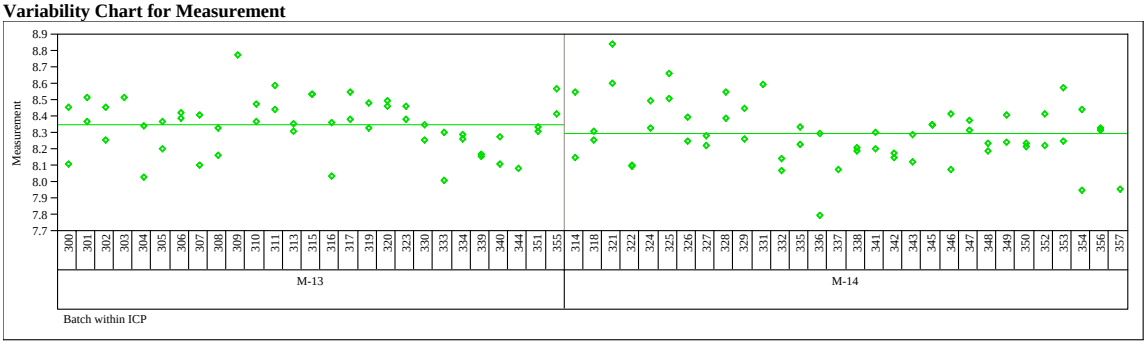
Prep=Cold Chem, Sample Type=ARG-1, Analyte=Mn
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=ARG-1, Analyte=Mn/Mg
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=ARG-1, Analyte=Na
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=ARG-1, Analyte=Ni
Variability Chart for Measurement

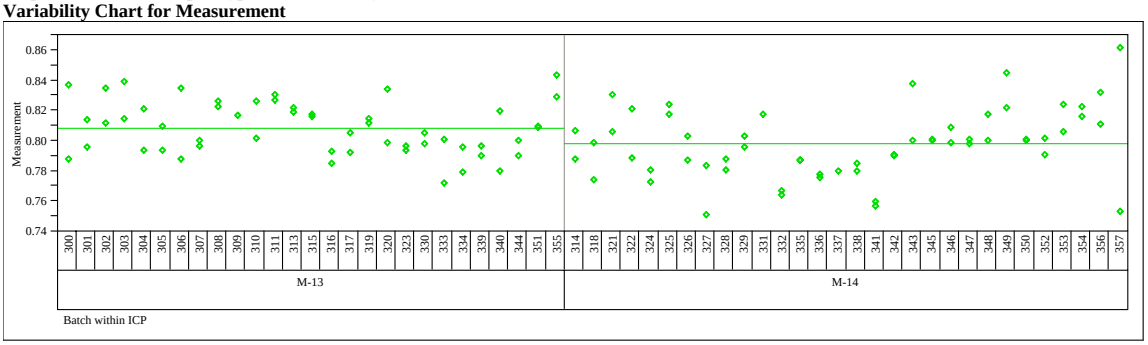
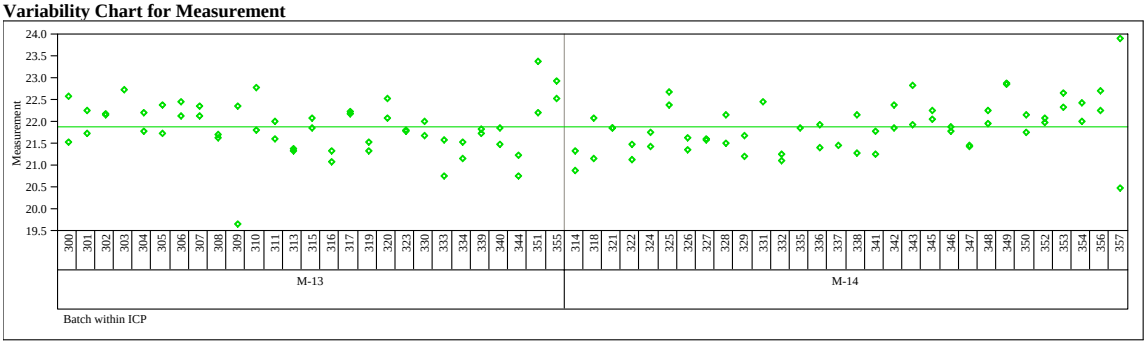


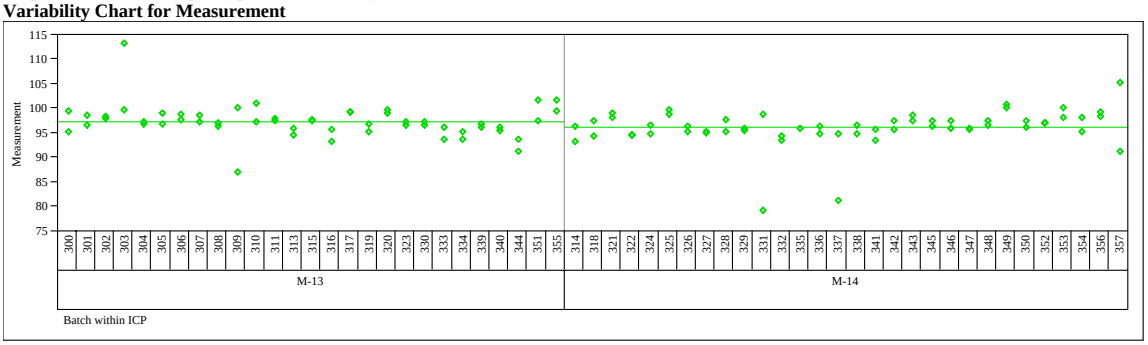
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

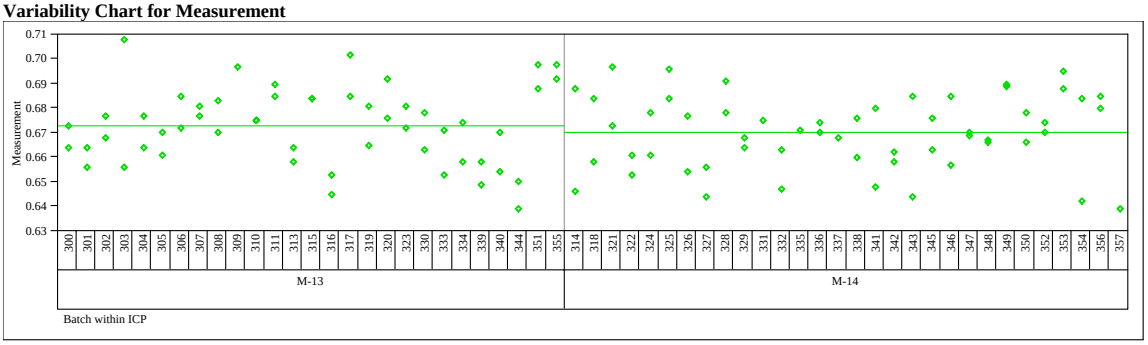
Prep=Cold Chem, Sample Type=ARG-1, Analyte=Si
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=ARG-1, Analyte=Sum of Oxides
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=ARG-1, Analyte=Ti
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=ARG-1, Analyte=U
Variability Chart for Measurement

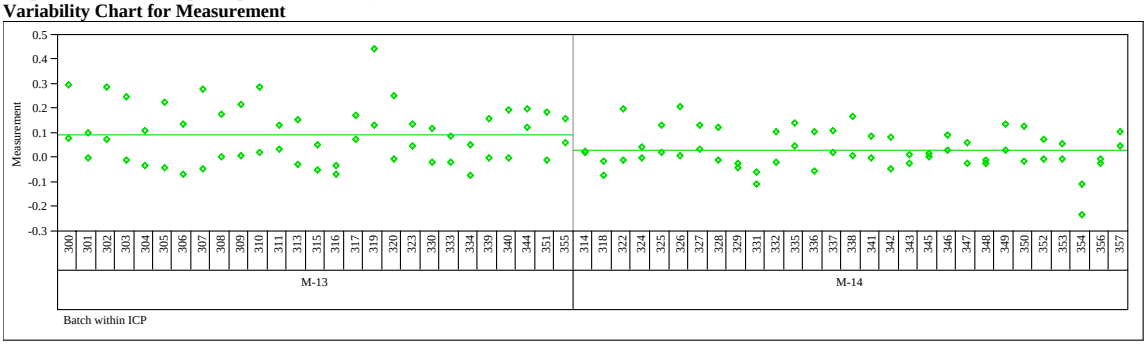
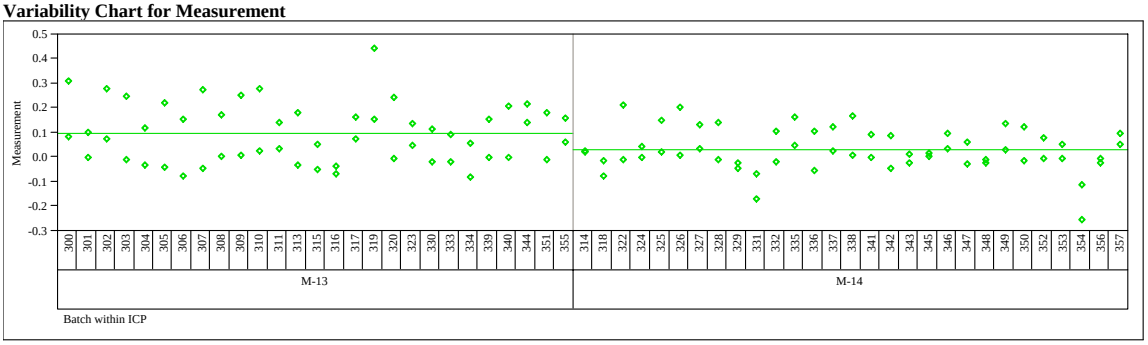


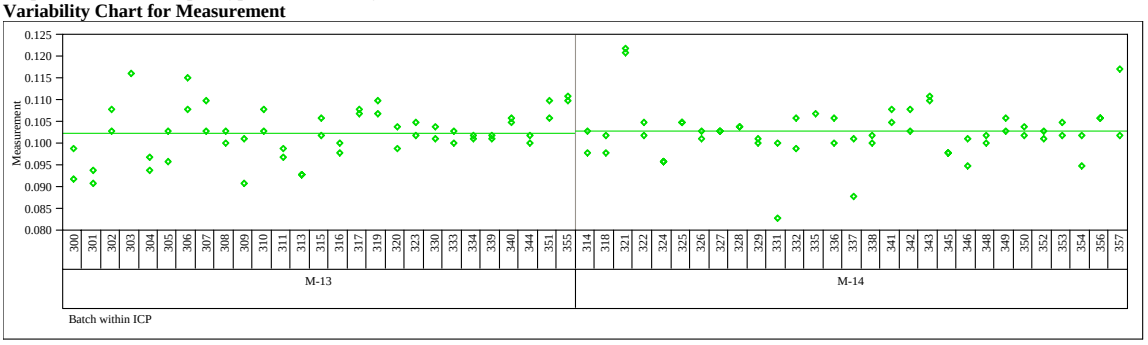
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

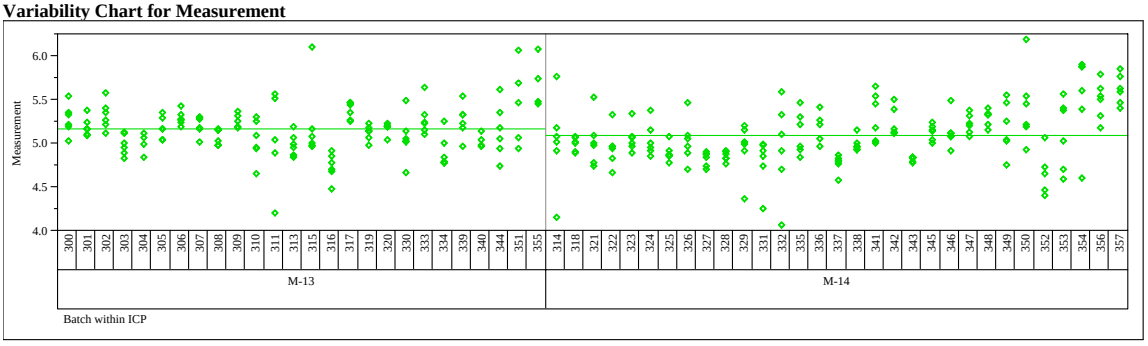
Prep=Cold Chem, Sample Type=ARG-1, Analyte=U/Ca
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=ARG-1, Analyte=Zr
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=SRAT, Analyte=Al
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=SRAT, Analyte=Al/Ca
Variability Chart for Measurement

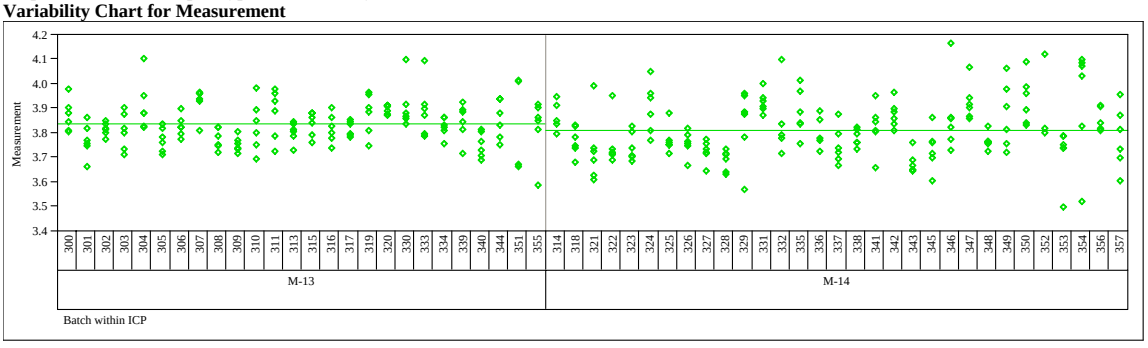
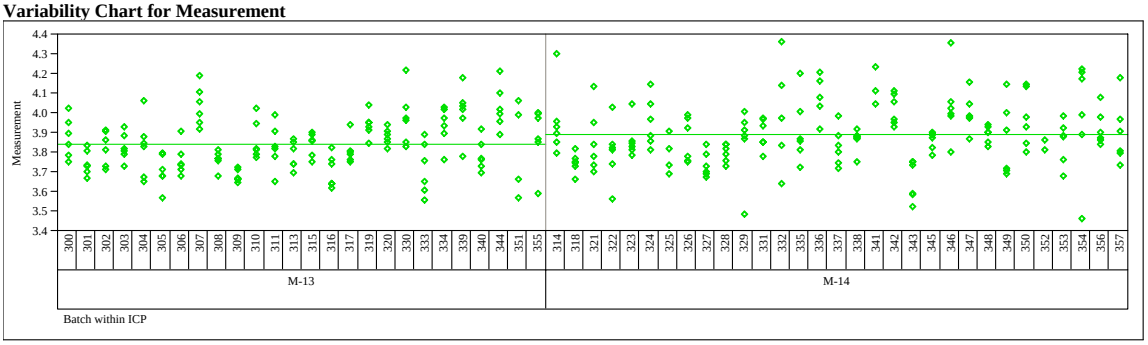


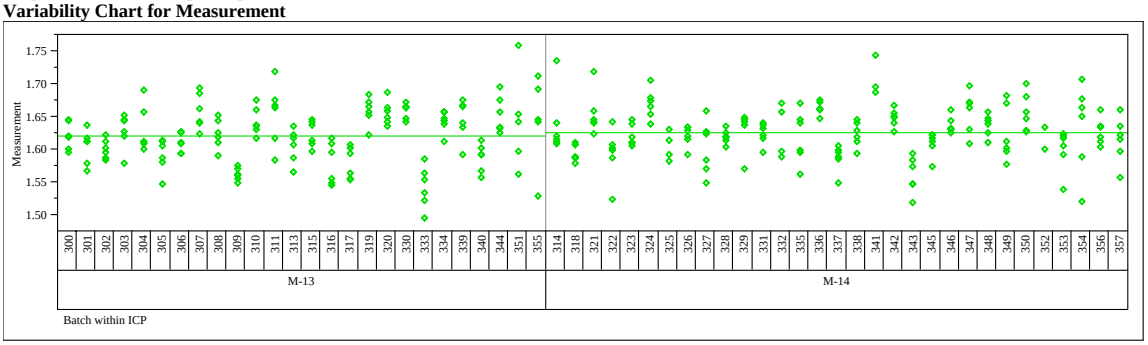
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

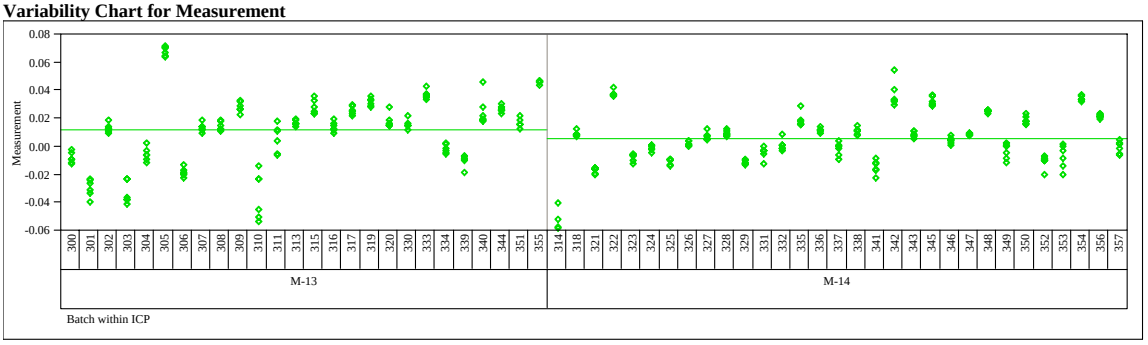
Prep=Cold Chem, Sample Type=SRAT, Analyte=Al/Mg
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=SRAT, Analyte=Al/Mn
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=SRAT, Analyte=B
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=SRAT, Analyte=B/Li
Variability Chart for Measurement

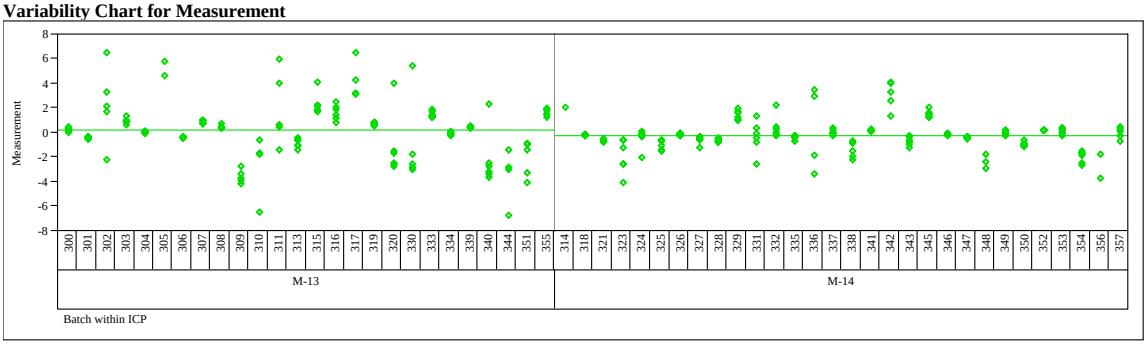
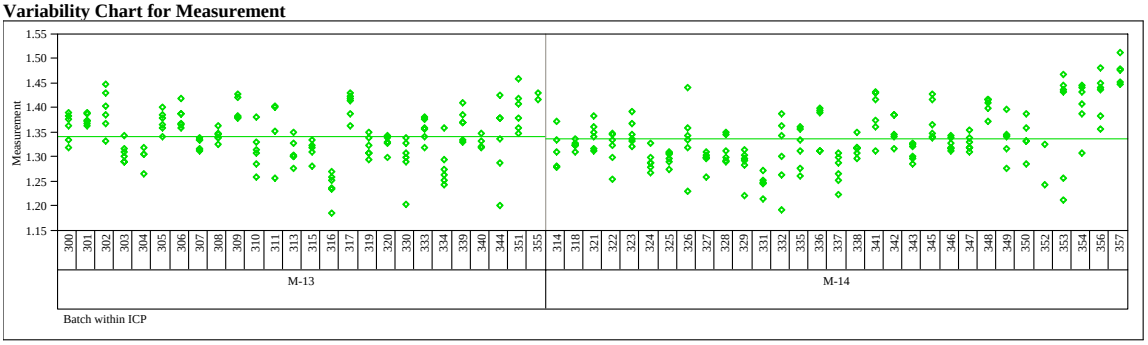


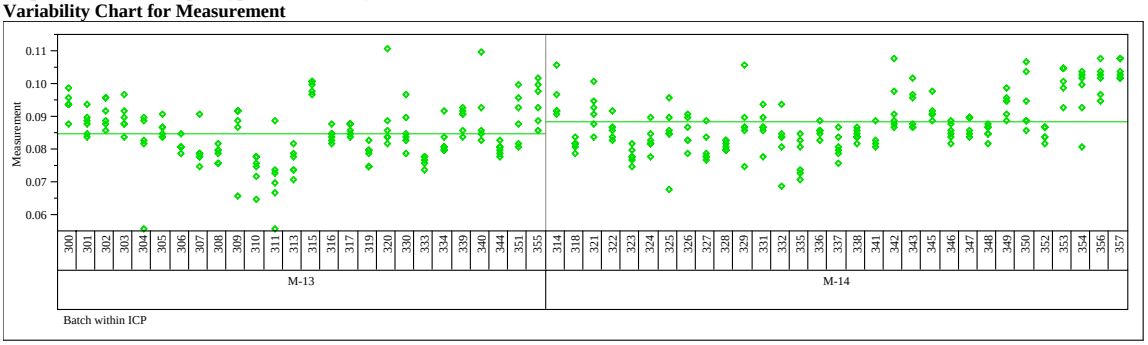
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

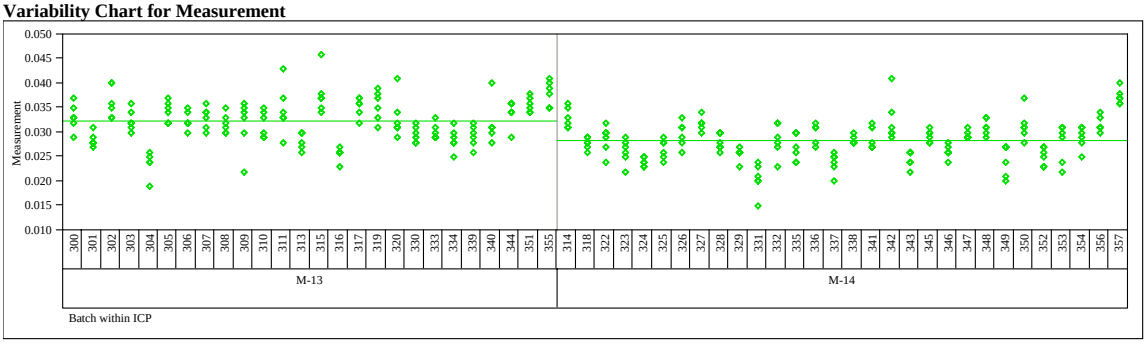
Prep=Cold Chem, Sample Type=SRAT, Analyte=Ca
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=SRAT, Analyte=Cr
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=SRAT, Analyte=Cu
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=SRAT, Analyte=Fe
Variability Chart for Measurement

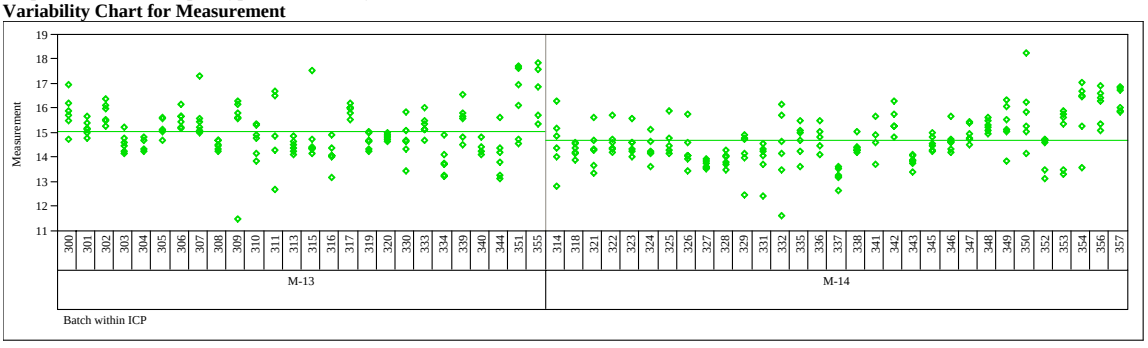
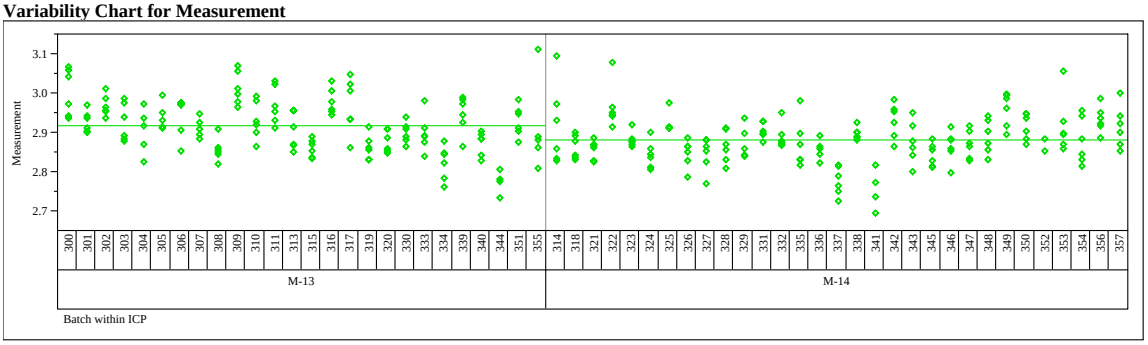


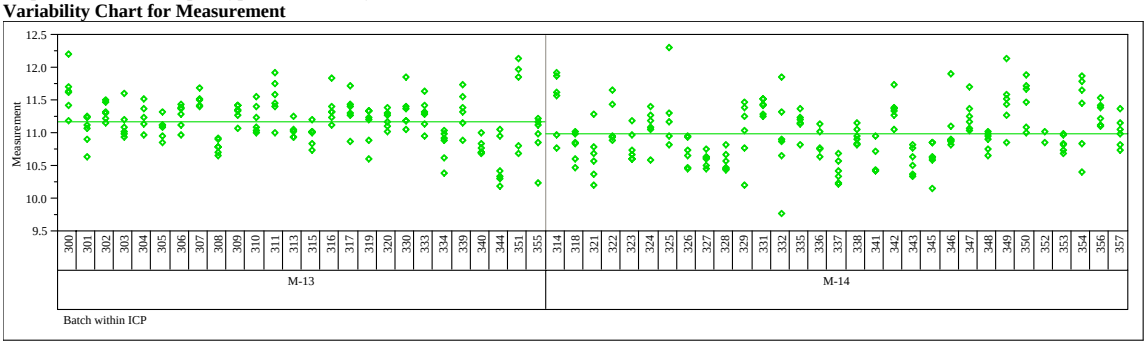
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

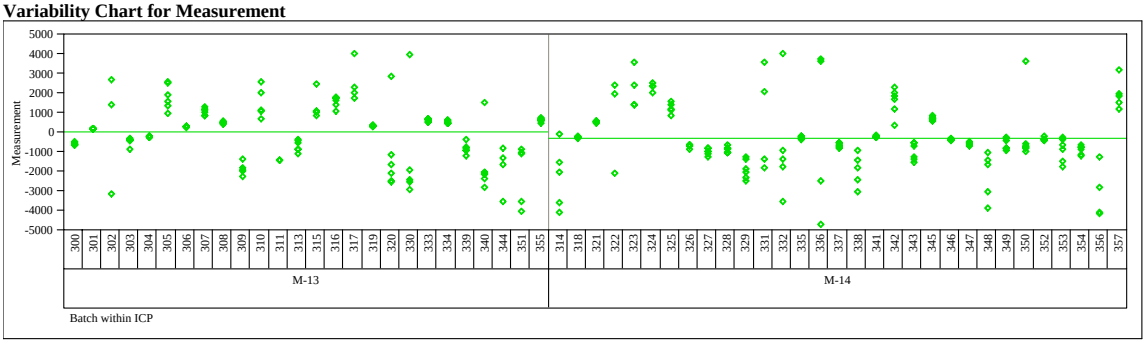
Prep=Cold Chem, Sample Type=SRAT, Analyte=Fe/Al
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=SRAT, Analyte=Fe/Ca
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=SRAT, Analyte=Fe/Li
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=SRAT, Analyte=Fe/Mg
Variability Chart for Measurement

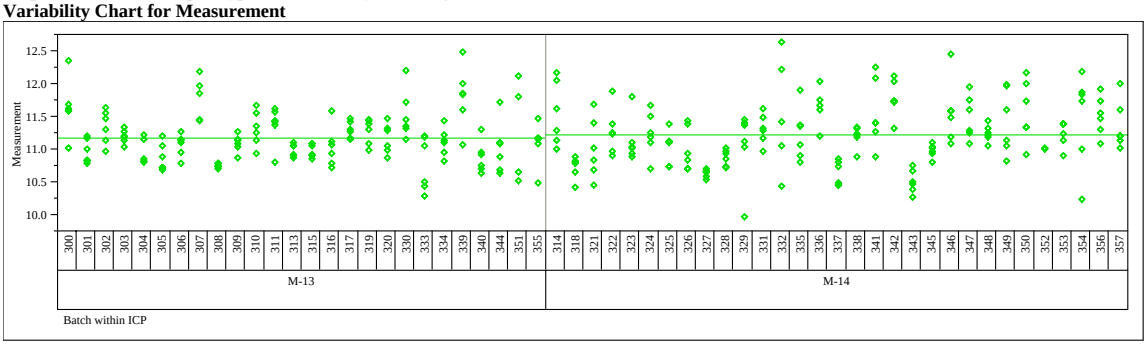
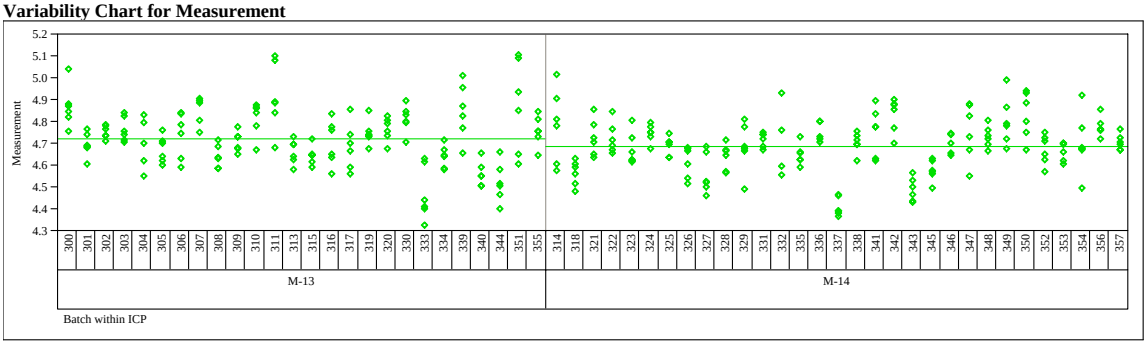


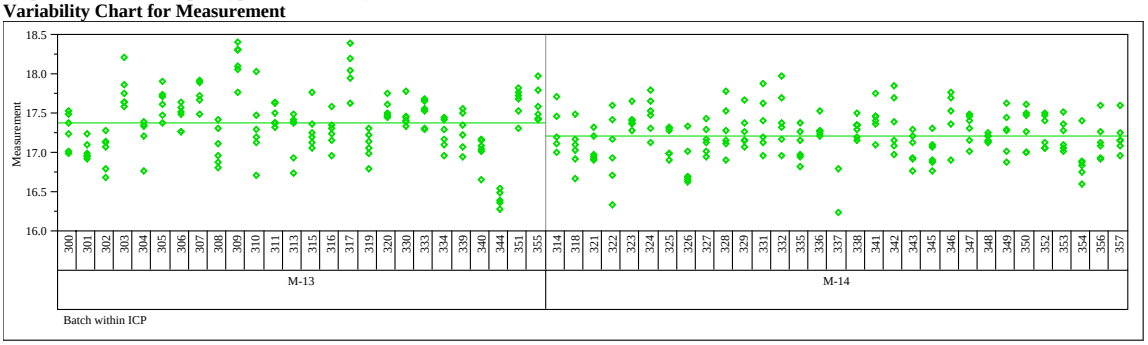
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

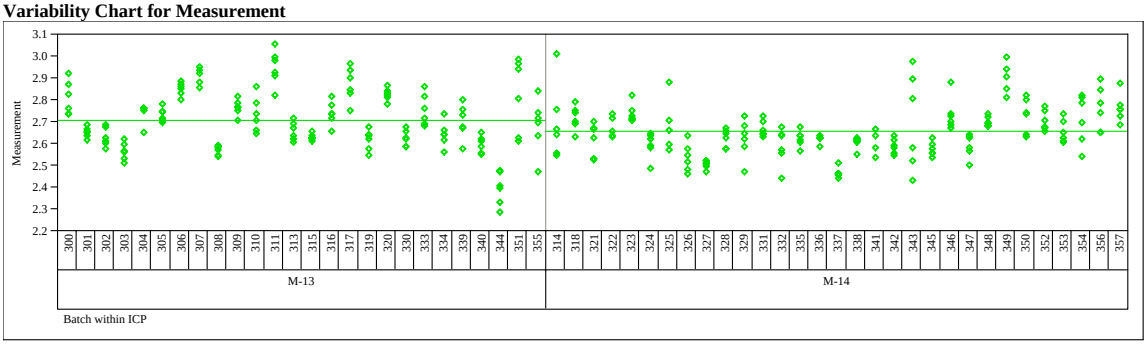
Prep=Cold Chem, Sample Type=SRAT, Analyte=Fe/Mn
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=SRAT, Analyte=Fe/Ni
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=SRAT, Analyte=Fe/U
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=SRAT, Analyte=K
Variability Chart for Measurement

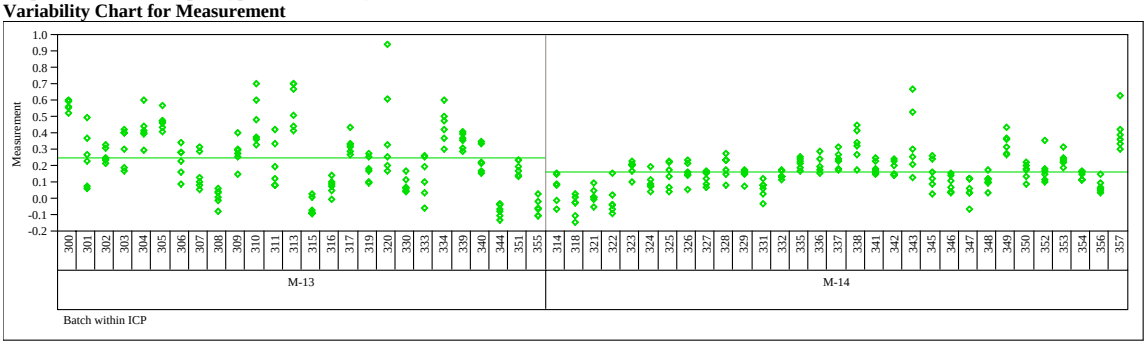
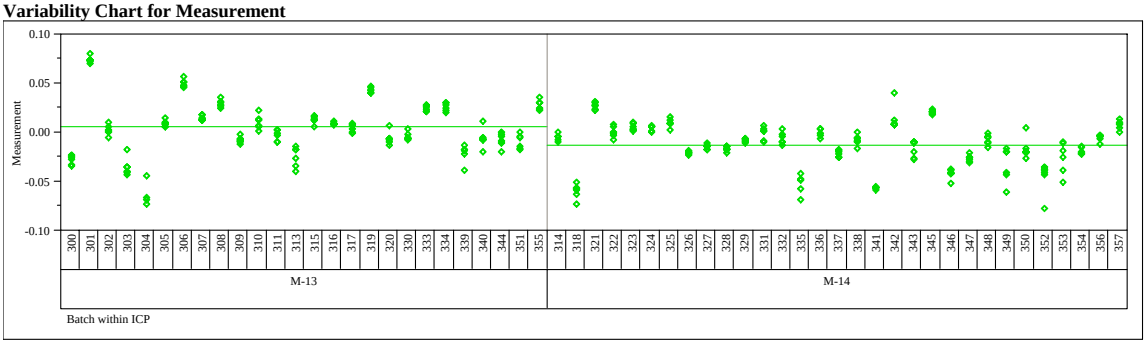


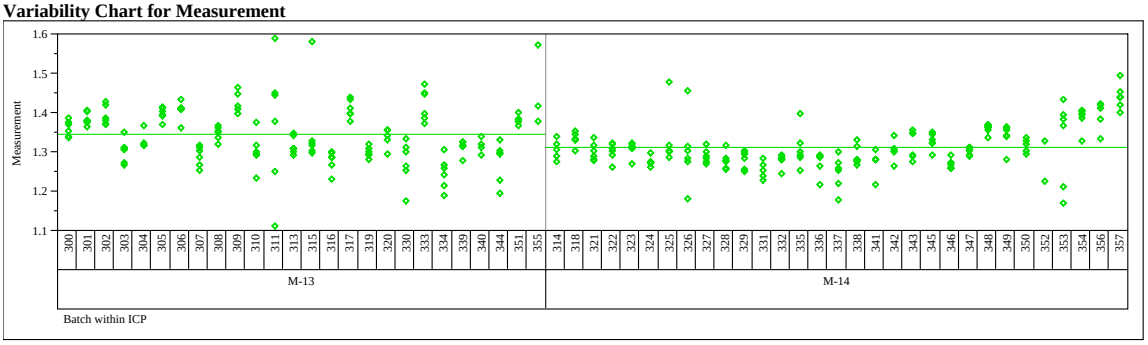
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

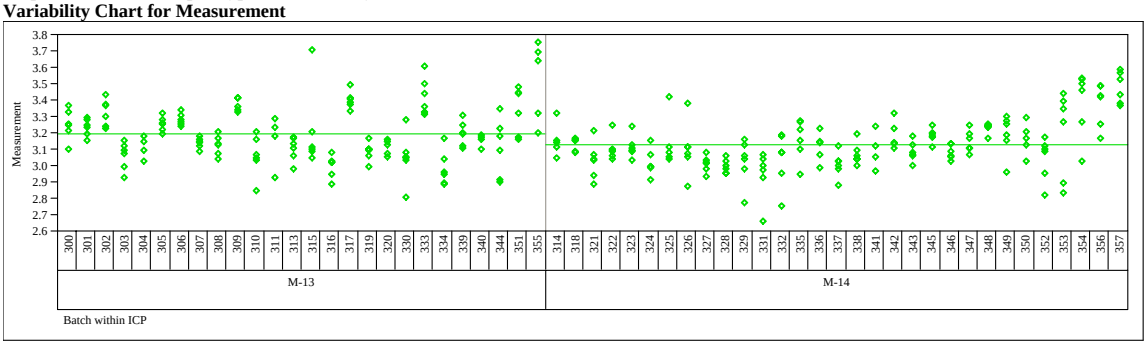
Prep=Cold Chem, Sample Type=SRAT, Analyte=Li
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=SRAT, Analyte=Mg
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=SRAT, Analyte=Mn
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=SRAT, Analyte=Mn/Mg
Variability Chart for Measurement

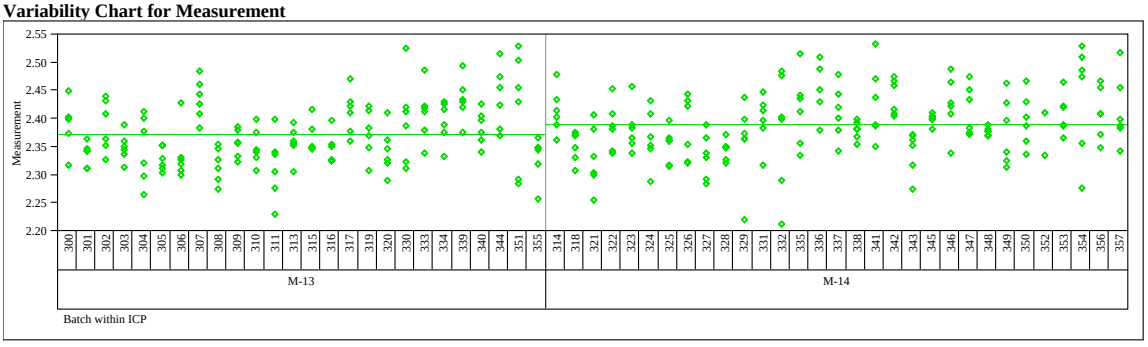
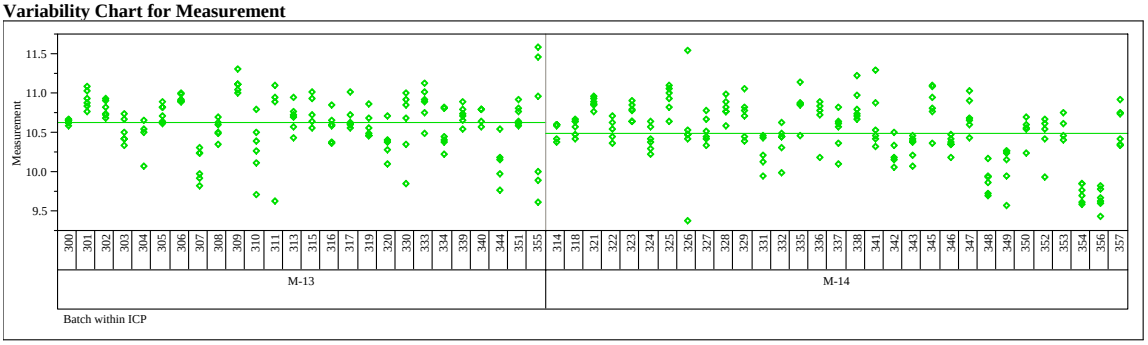


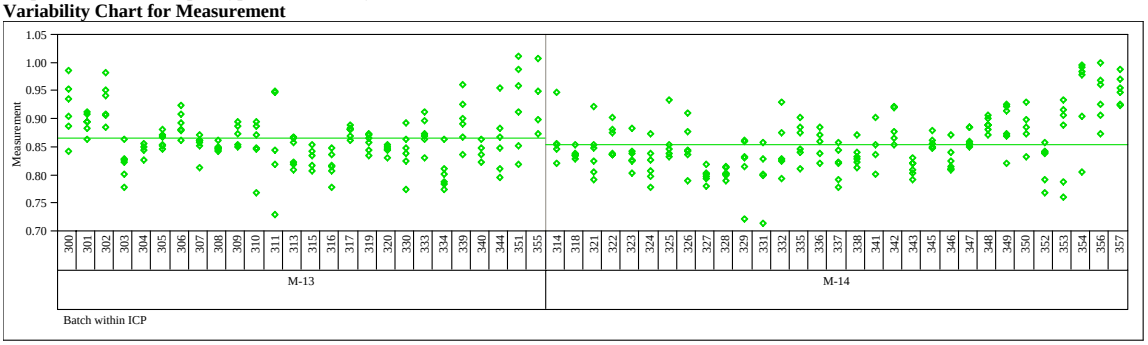
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

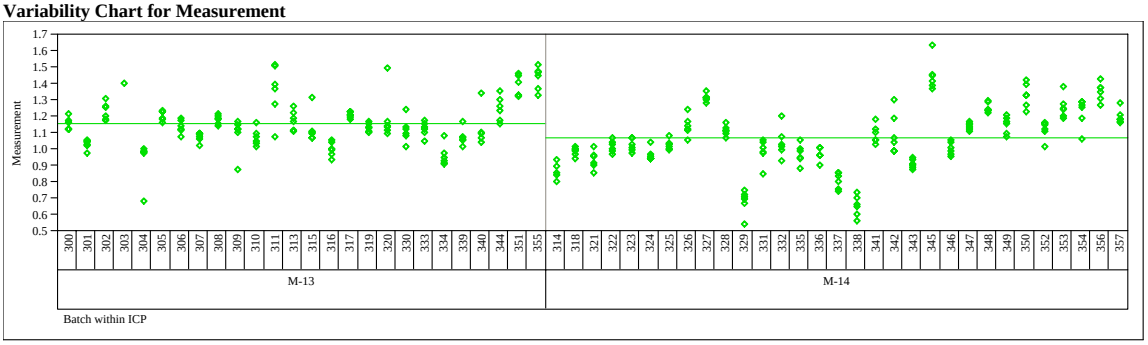
Prep=Cold Chem, Sample Type=SRAT, Analyte=Na
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=SRAT, Analyte=Ni
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=SRAT, Analyte=Si
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=SRAT, Analyte=Sum of Oxides
Variability Chart for Measurement

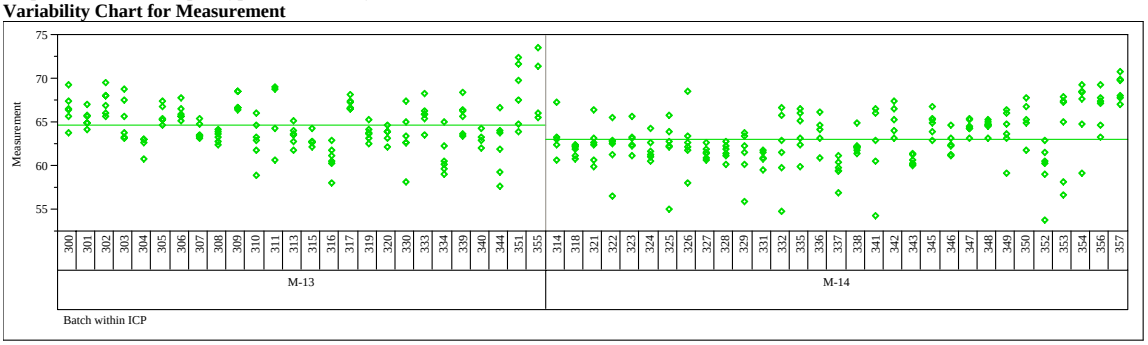
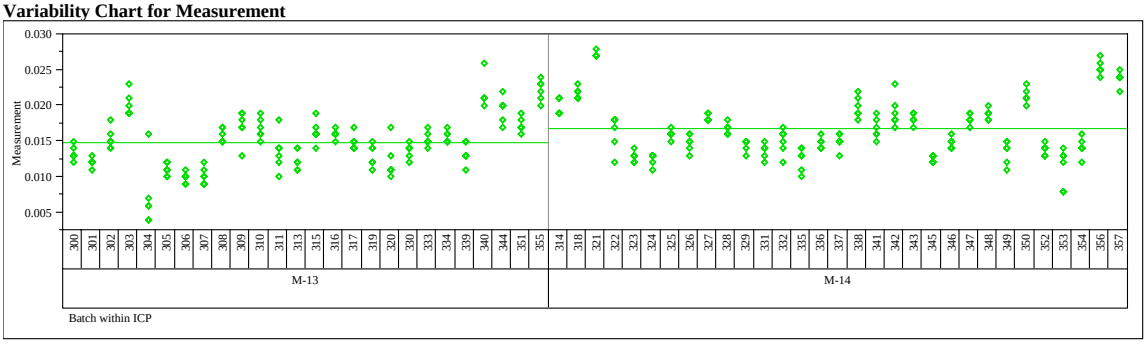


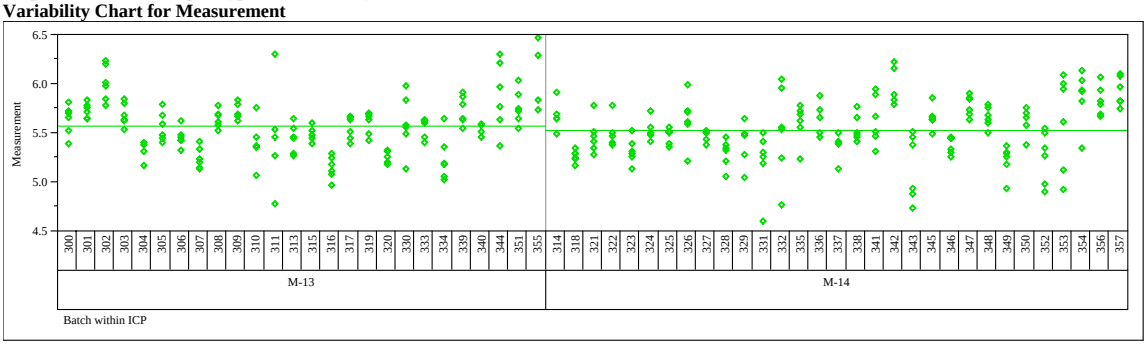
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

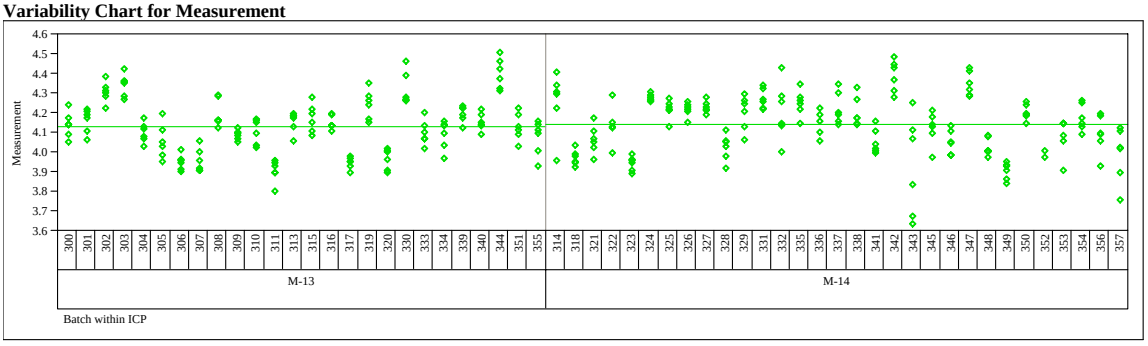
Prep=Cold Chem, Sample Type=SRAT, Analyte=Ti
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=SRAT, Analyte=U
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=SRAT, Analyte=U/Ca
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=SRAT, Analyte=Zr
Variability Chart for Measurement

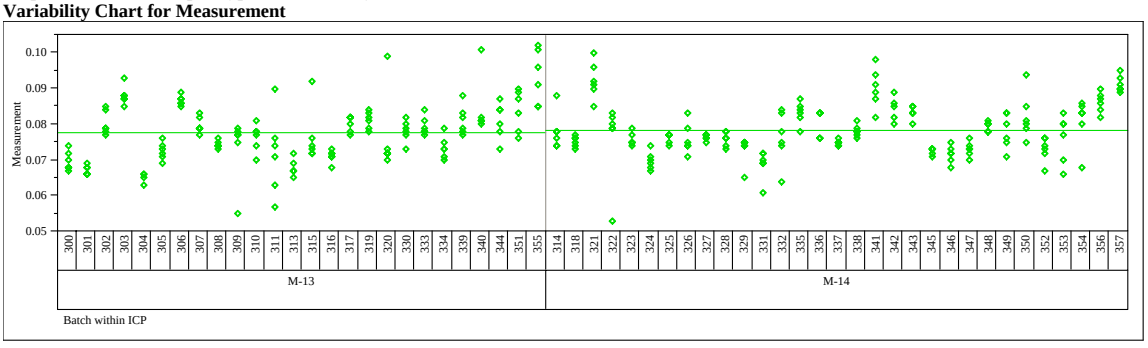
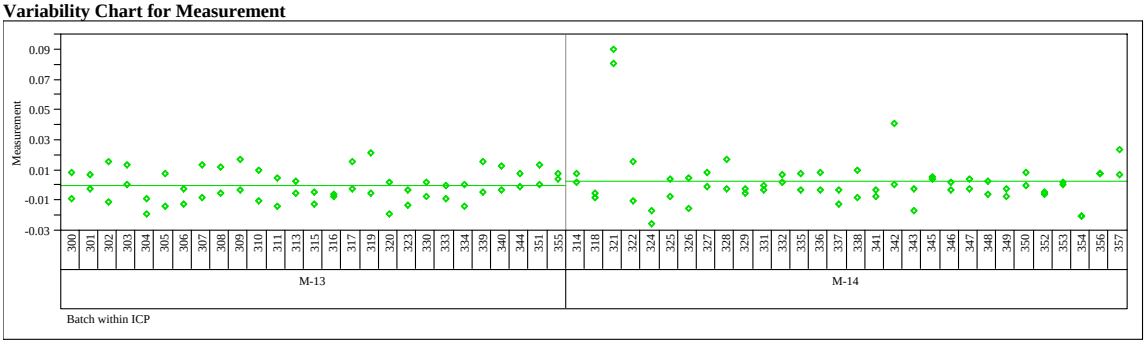


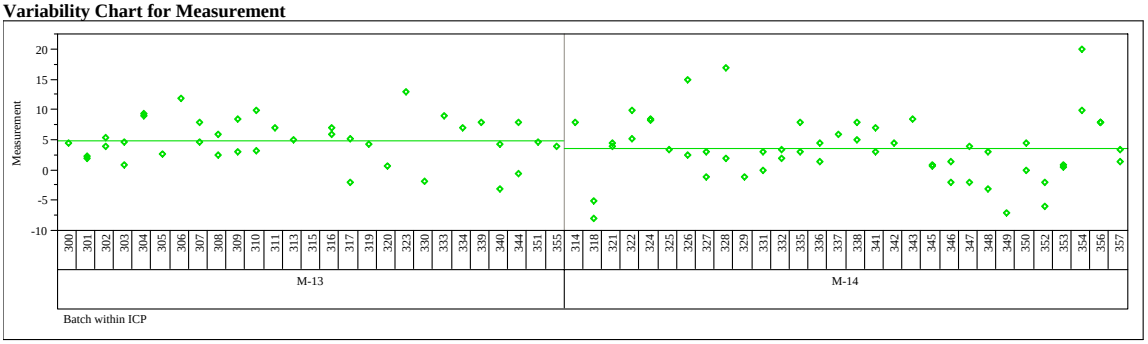
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

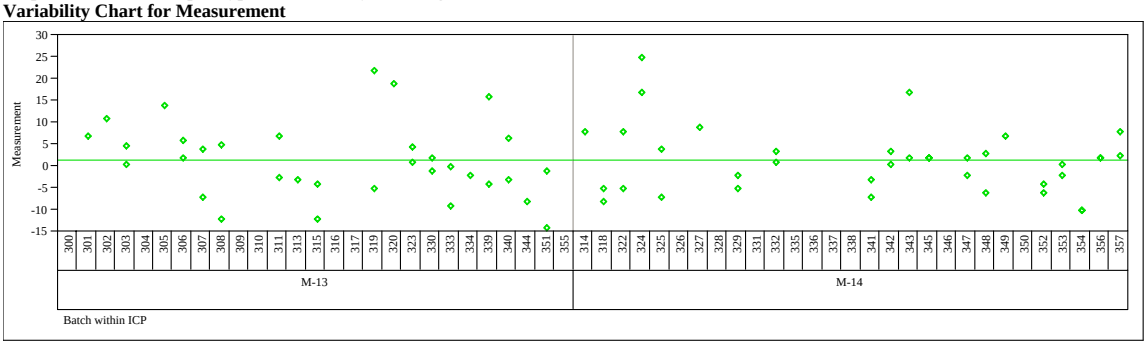
Prep=Cold Chem, Sample Type=blank, Analyte=Al
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=blank, Analyte=Al/Ca
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=blank, Analyte=Al/Mg
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=blank, Analyte=Al/Mn
Variability Chart for Measurement

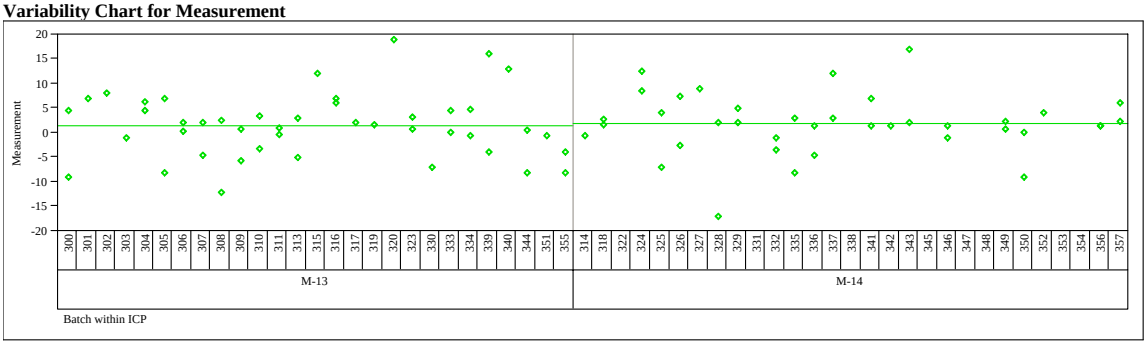
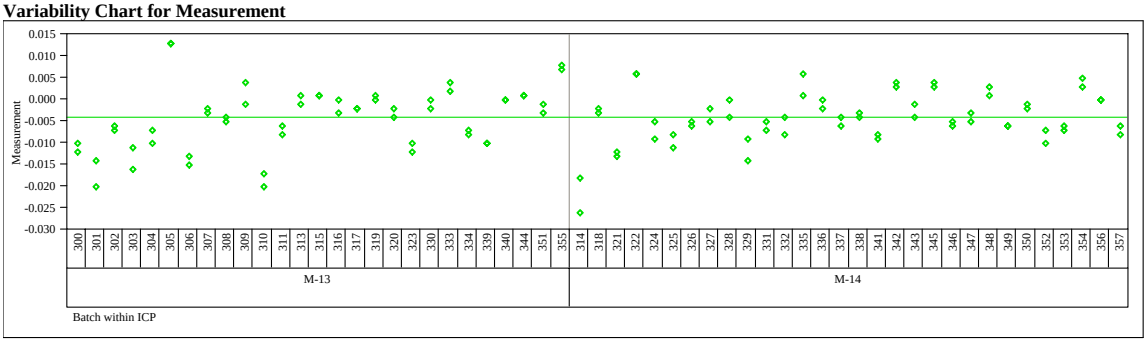


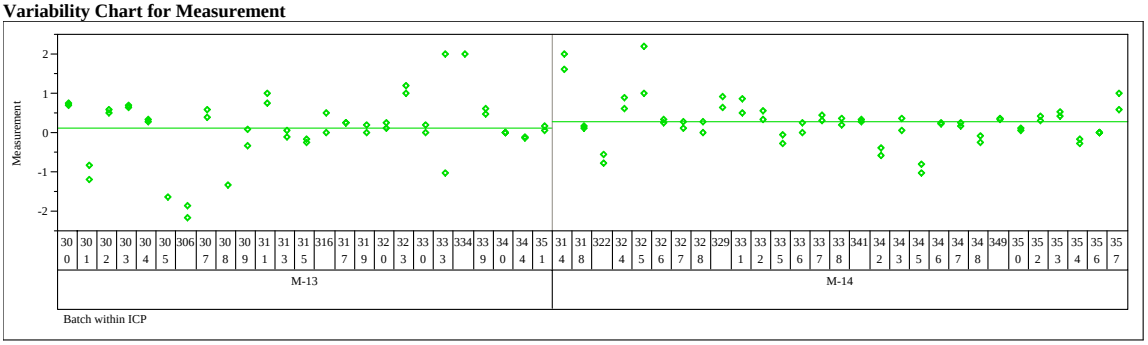
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

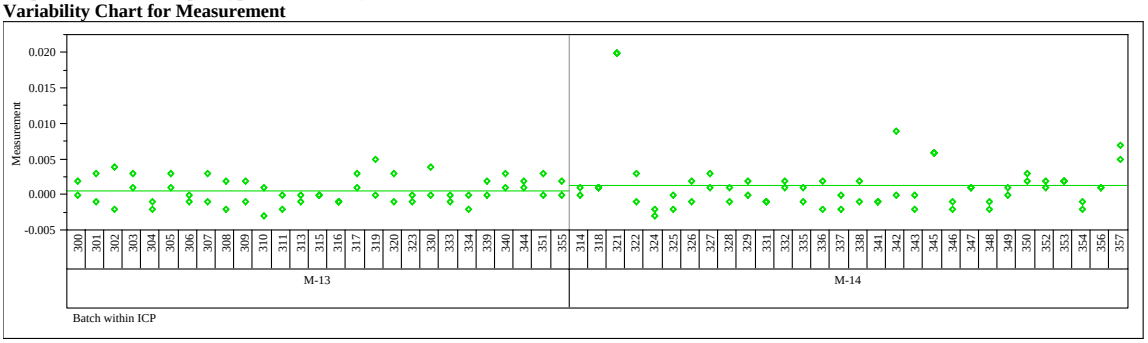
Prep=Cold Chem, Sample Type=blank, Analyte=B
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=blank, Analyte=B/Li
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=blank, Analyte=Ca
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=blank, Analyte=Cr
Variability Chart for Measurement

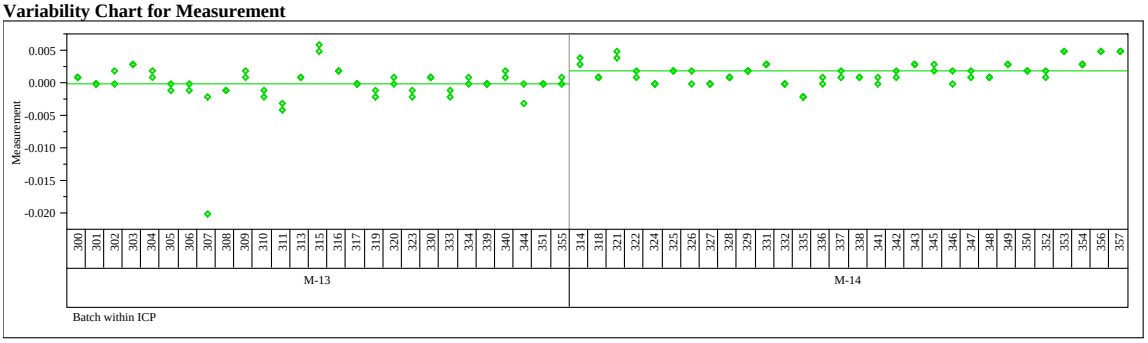
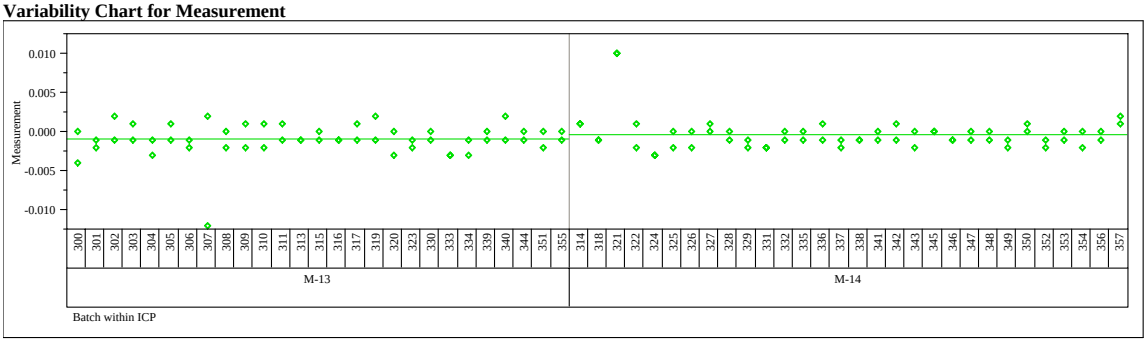


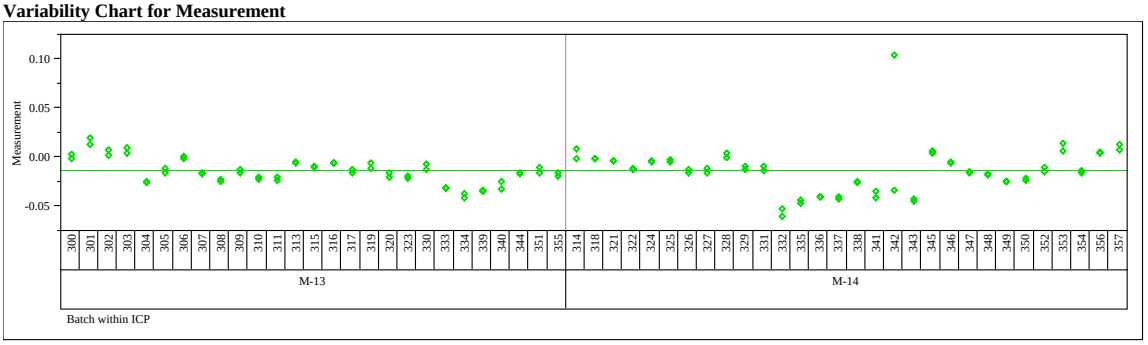
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

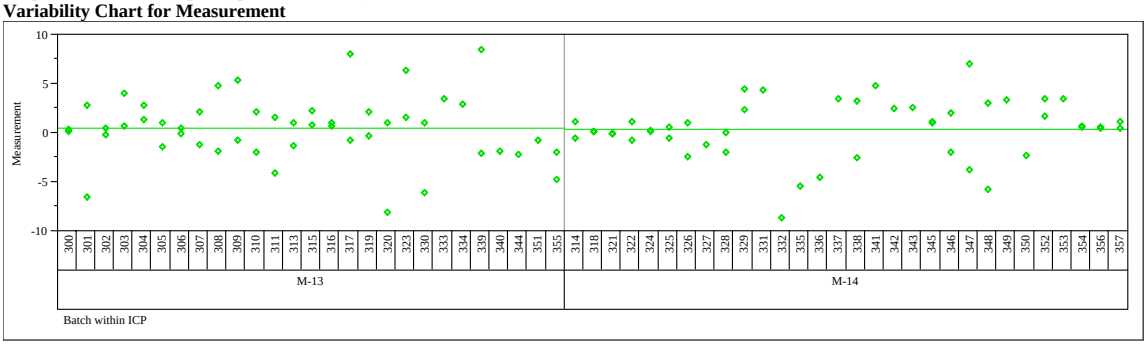
Prep=Cold Chem, Sample Type=blank, Analyte=Cu
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=blank, Analyte=Fe
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=blank, Analyte=Fe/Al
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=blank, Analyte=Fe/Ca
Variability Chart for Measurement

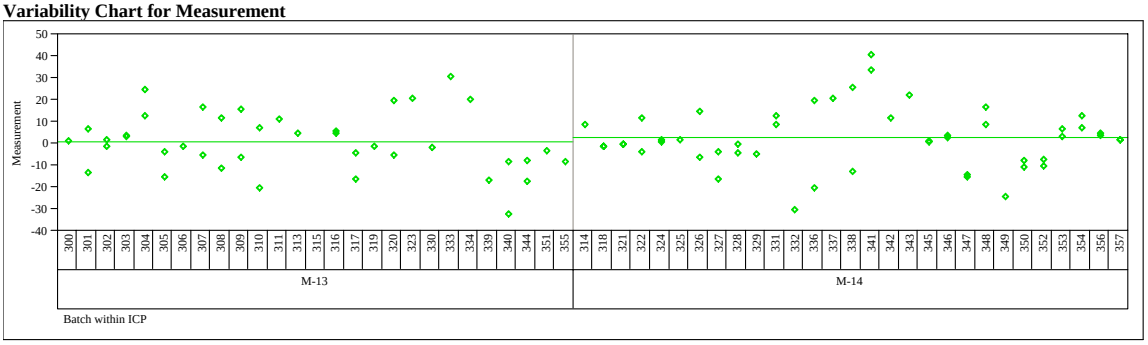
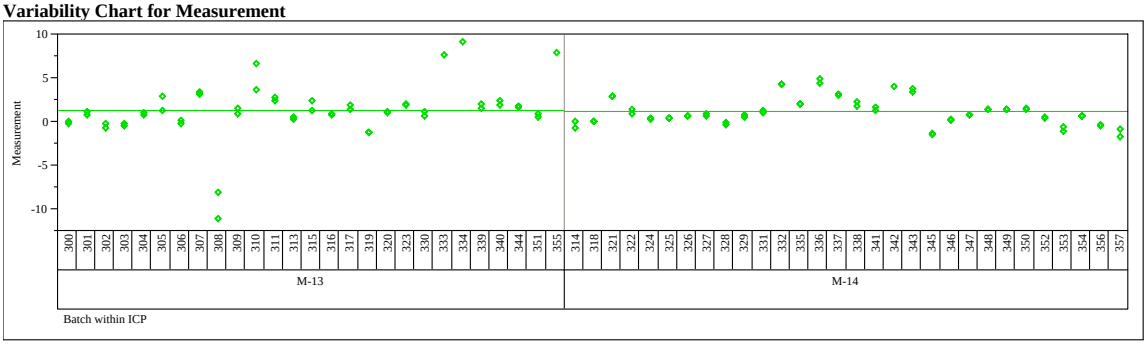


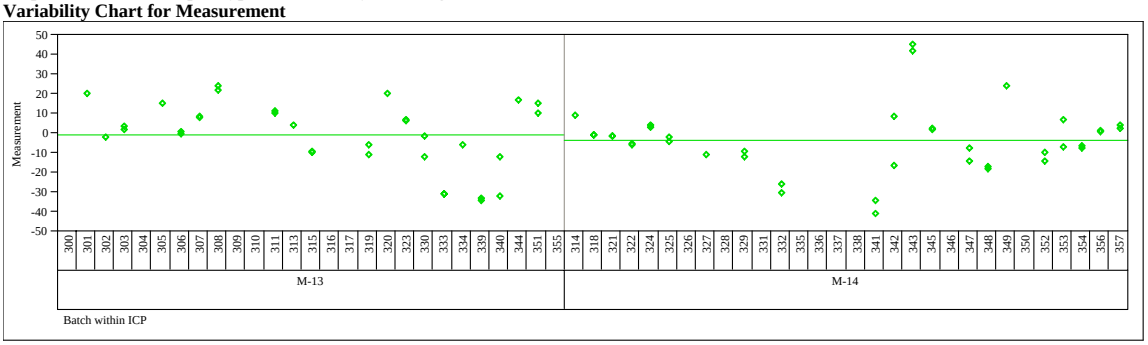
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

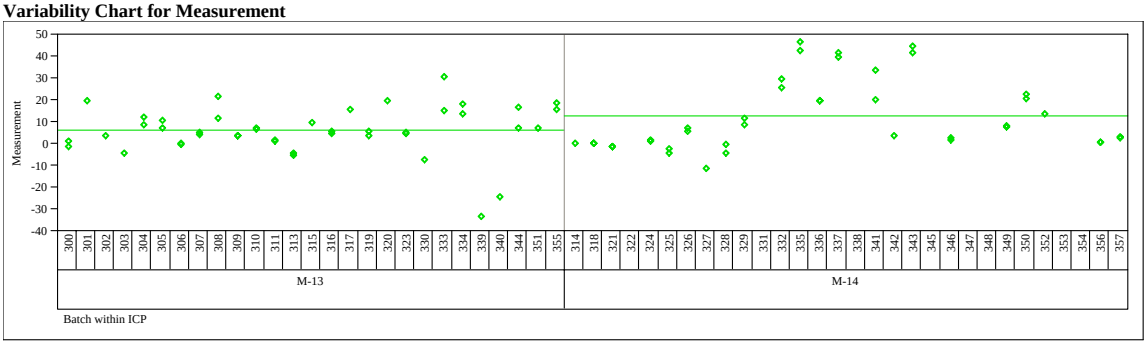
Prep=Cold Chem, Sample Type=blank, Analyte=Fe/Li
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=blank, Analyte=Fe/Mg
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=blank, Analyte=Fe/Mn
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=blank, Analyte=Fe/Ni
Variability Chart for Measurement

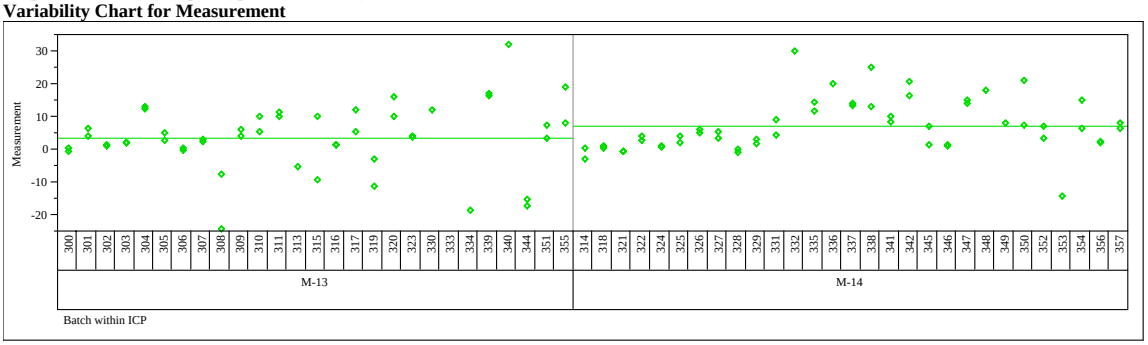
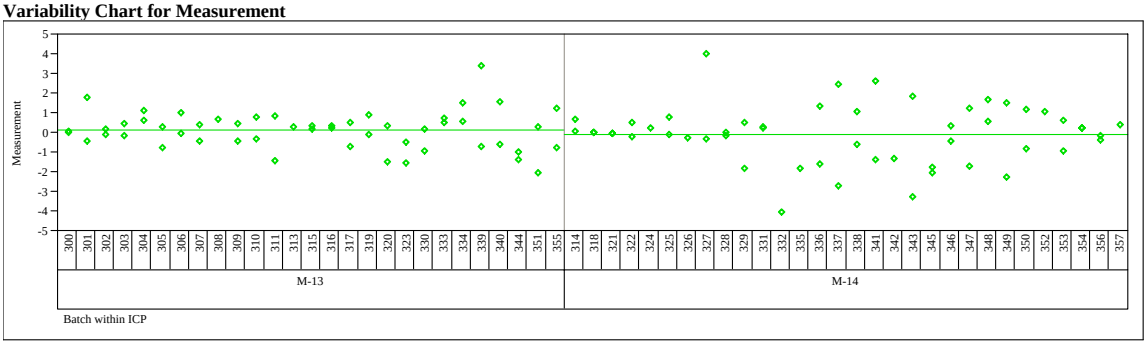


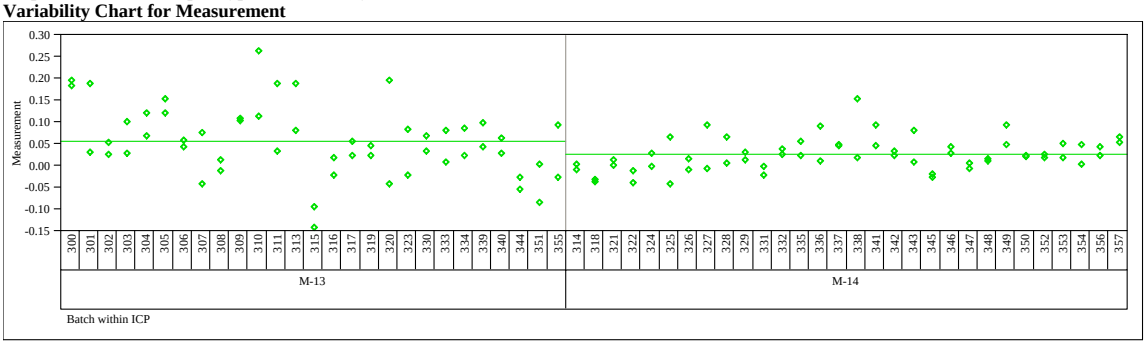
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

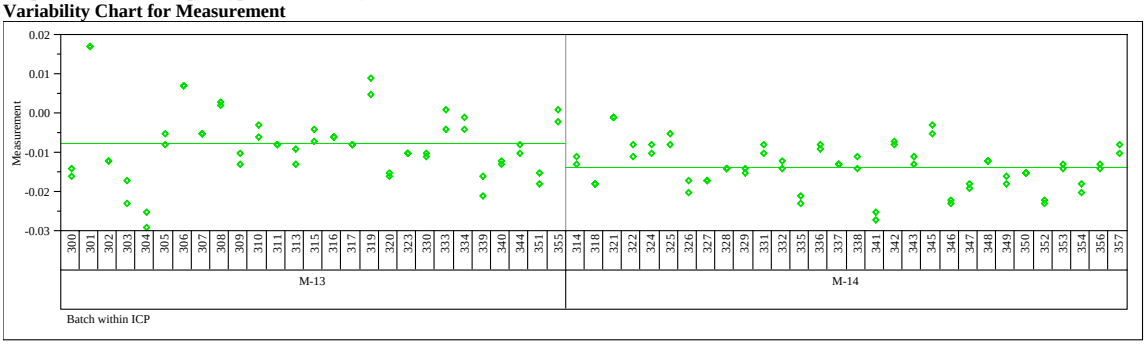
Prep=Cold Chem, Sample Type=blank, Analyte=Fe/U
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=blank, Analyte=K
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=blank, Analyte=Li
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=blank, Analyte=Mg
Variability Chart for Measurement

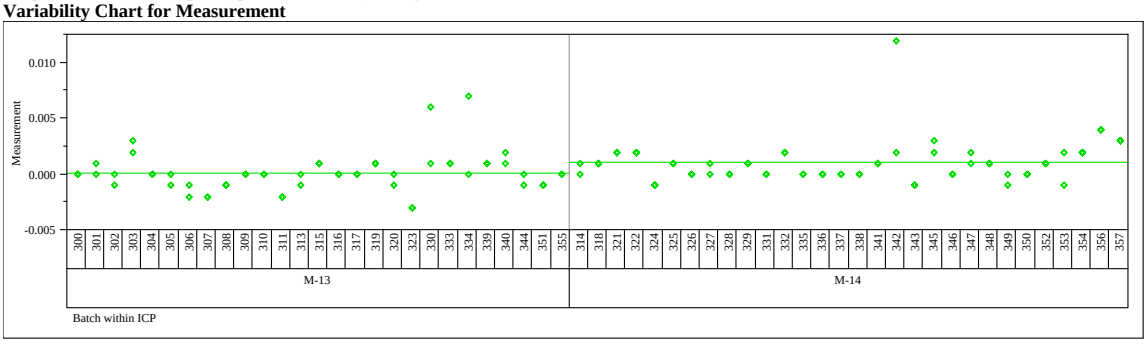
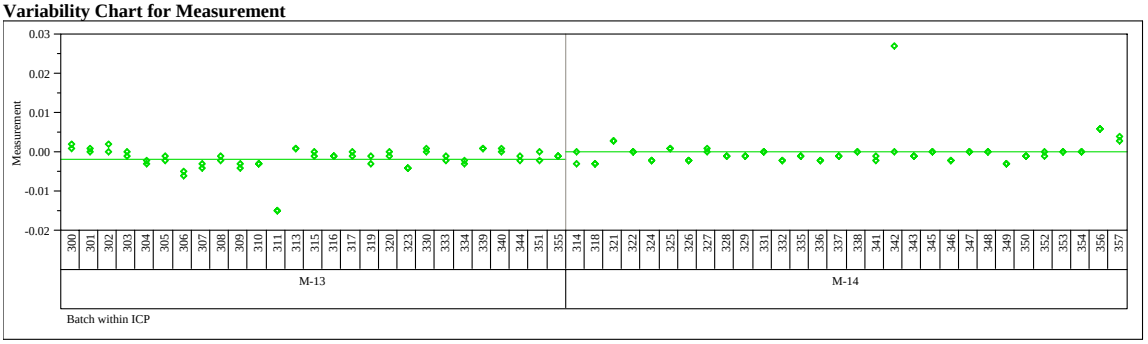


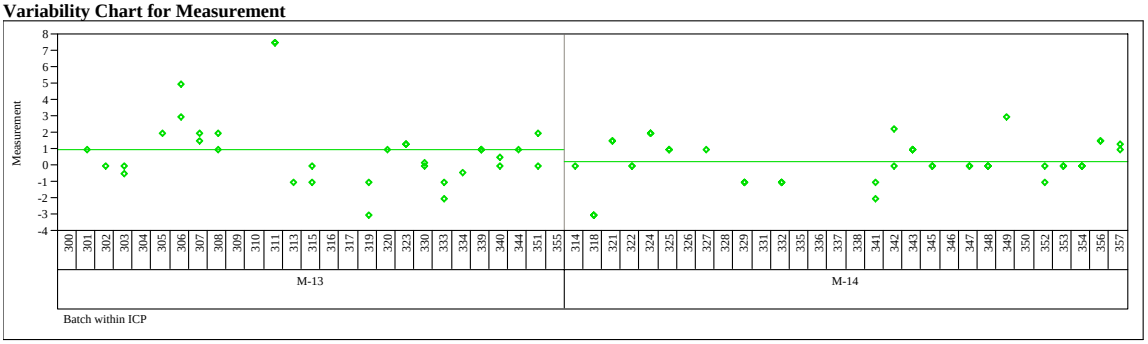
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

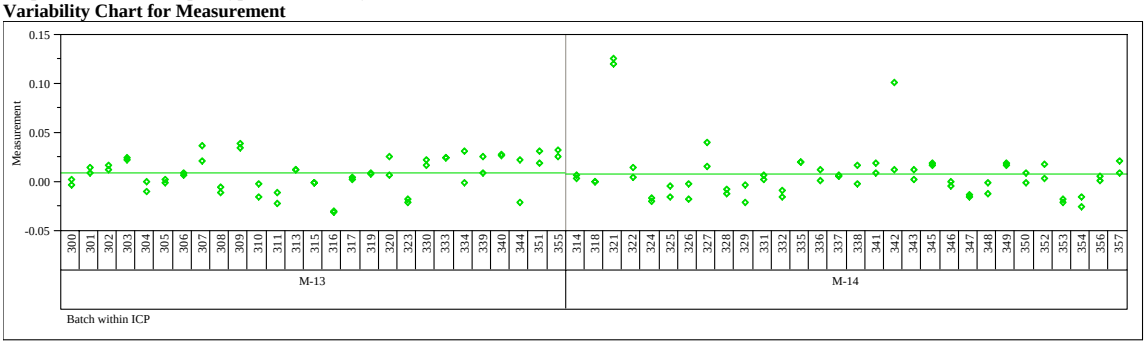
Prep=Cold Chem, Sample Type=blank, Analyte=Mn
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=blank, Analyte=Mn/Mg
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=blank, Analyte=Na
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=blank, Analyte=Ni
Variability Chart for Measurement

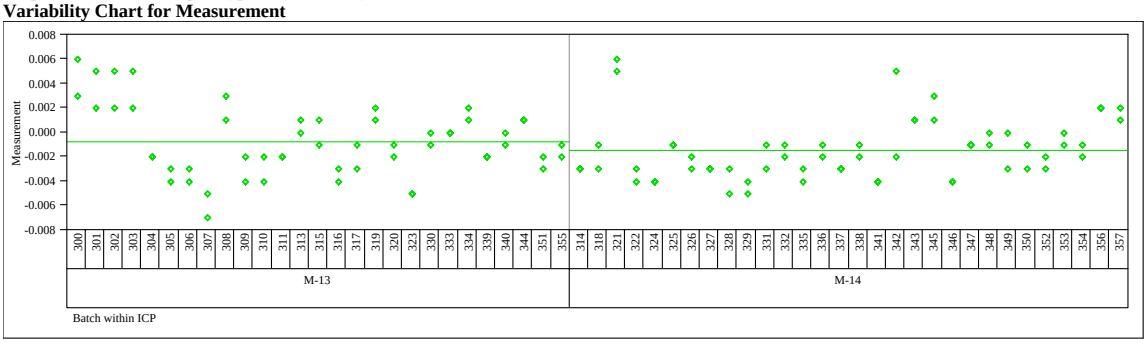
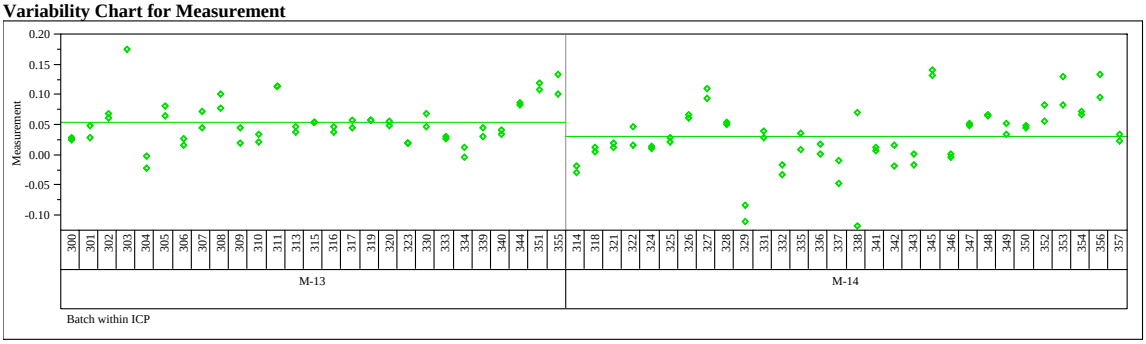


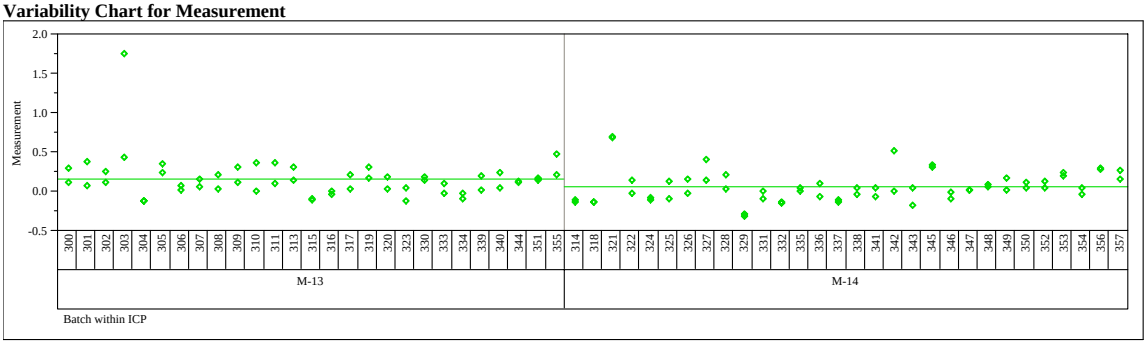
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

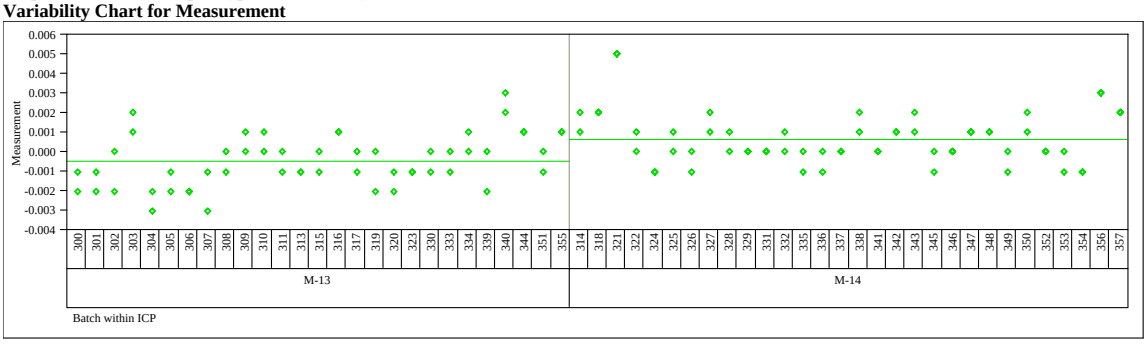
Prep=Cold Chem, Sample Type=blank, Analyte=Si
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=blank, Analyte=Sum of Oxides
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=blank, Analyte=Ti
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=blank, Analyte=U
Variability Chart for Measurement

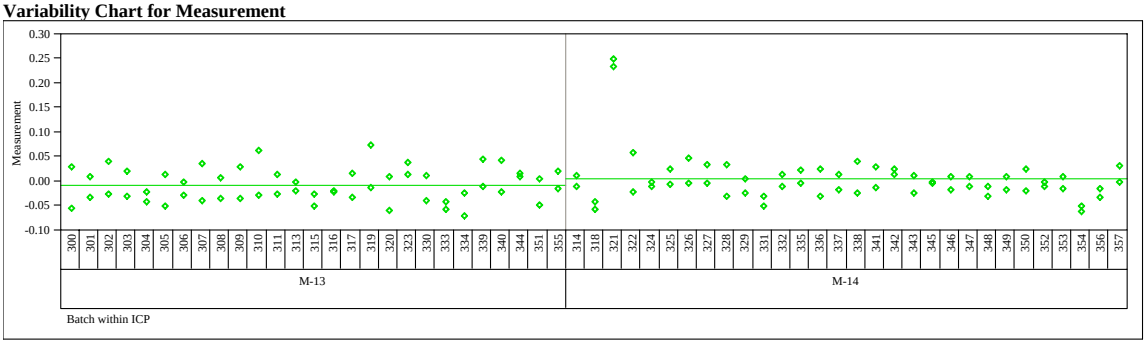
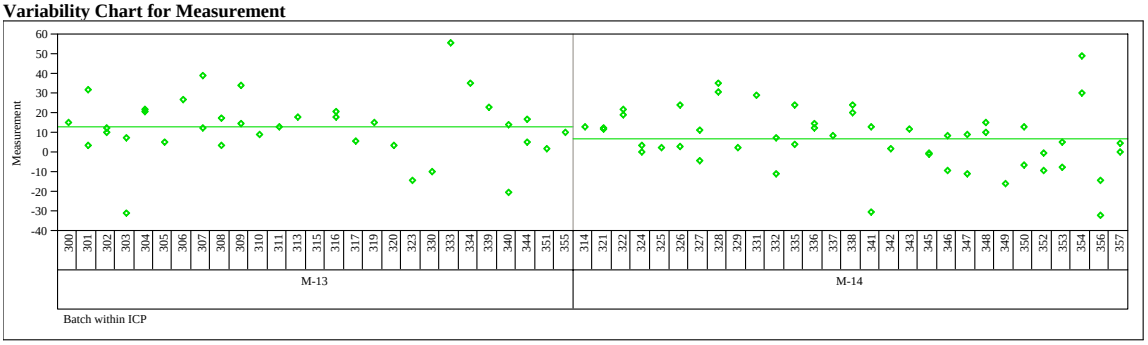


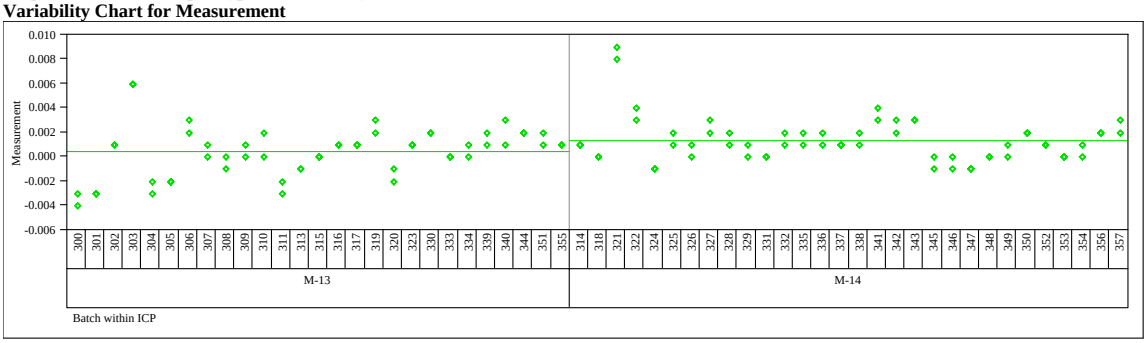
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

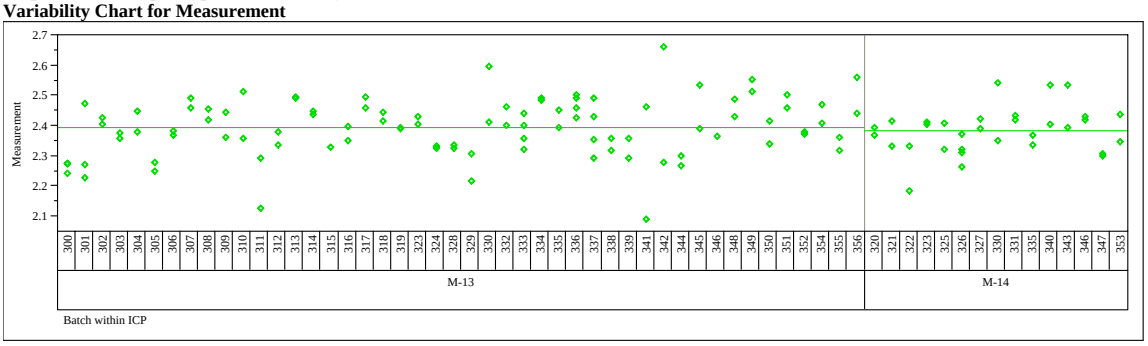
Prep=Cold Chem, Sample Type=blank, Analyte=U/Ca
Variability Chart for Measurement



Prep=Cold Chem, Sample Type=blank, Analyte=Zr
Variability Chart for Measurement



Prep=Fusion, Sample Type=ARG-1, Analyte=Al
Variability Chart for Measurement



Prep=Fusion, Sample Type=ARG-1, Analyte=Al/Ca
Variability Chart for Measurement

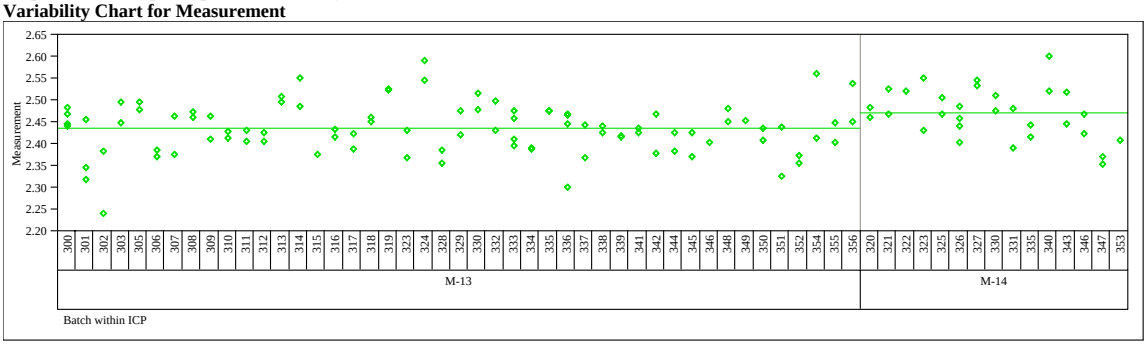
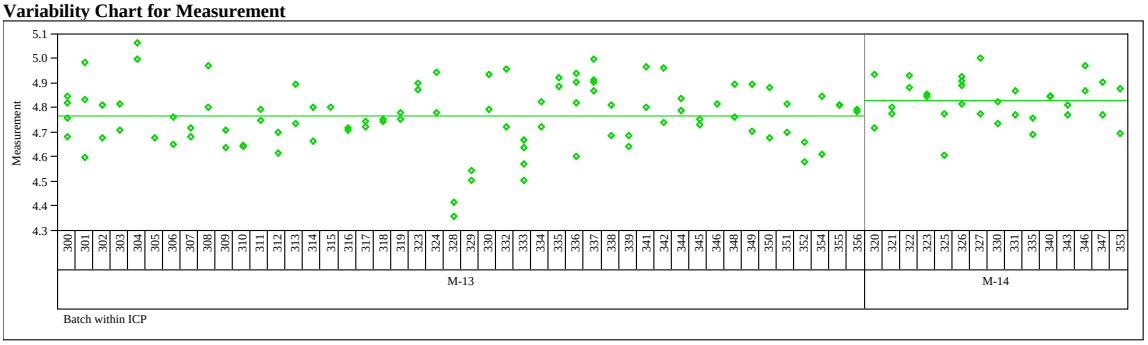


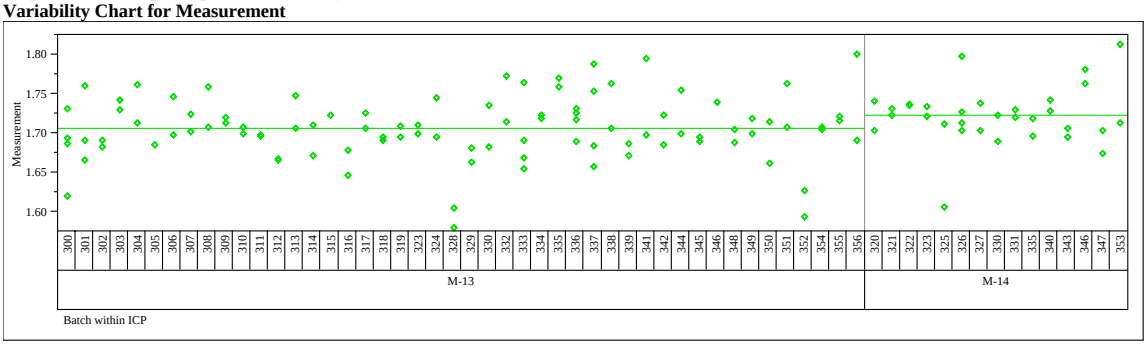
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

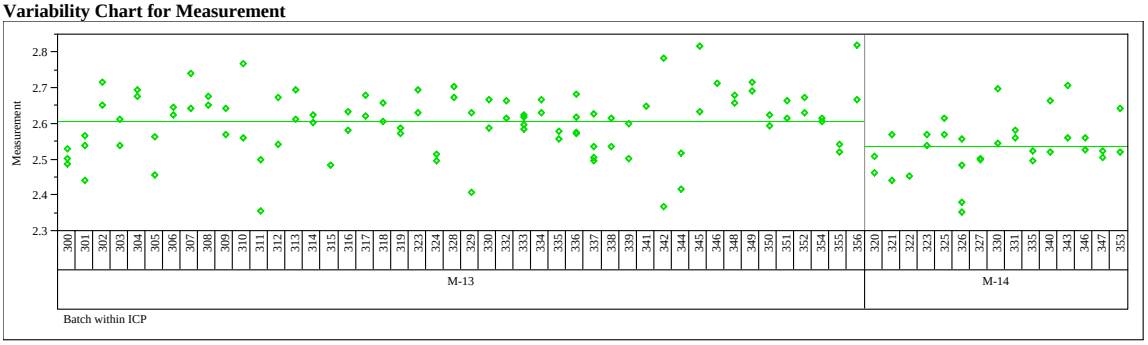
Prep=Fusion, Sample Type=ARG-1, Analyte=Al/Mg
Variability Chart for Measurement



Prep=Fusion, Sample Type=ARG-1, Analyte=Al/Mn
Variability Chart for Measurement



Prep=Fusion, Sample Type=ARG-1, Analyte=B
Variability Chart for Measurement



Prep=Fusion, Sample Type=ARG-1, Analyte=B/Li
Variability Chart for Measurement

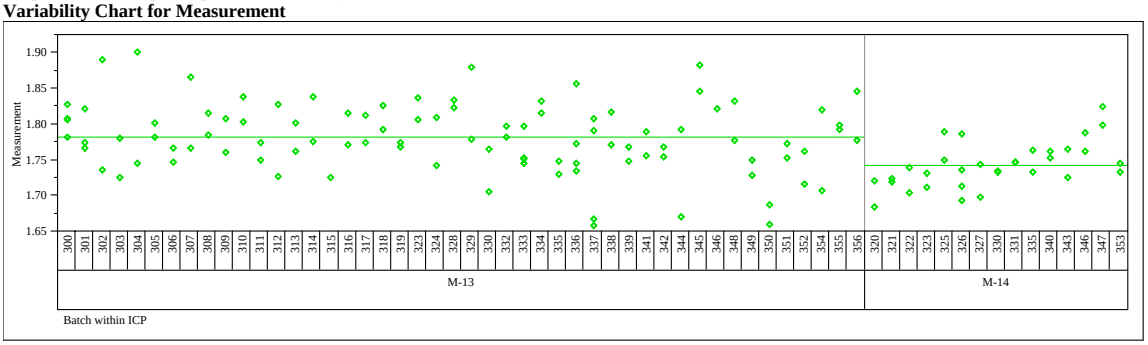
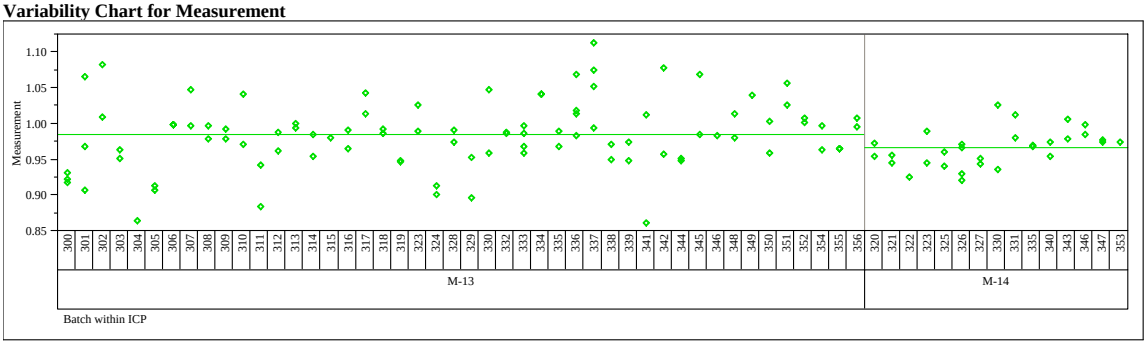


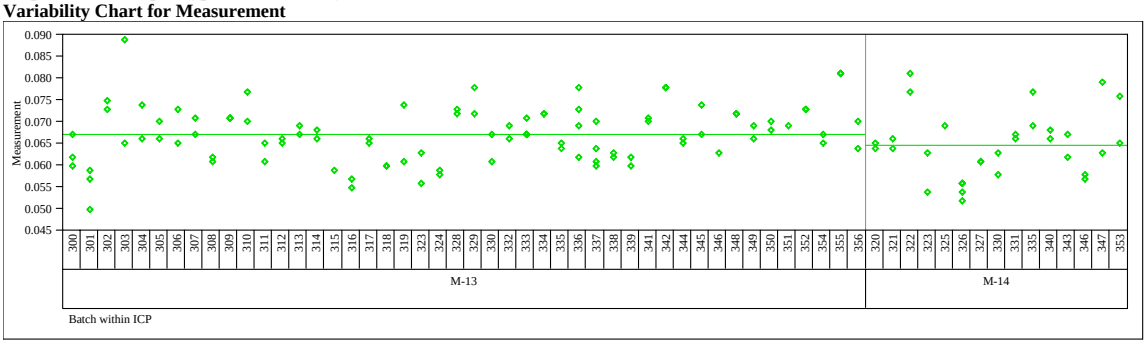
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

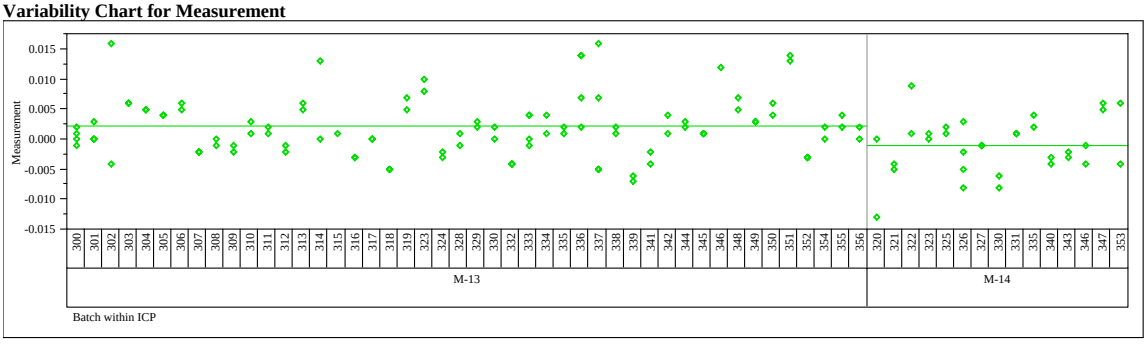
Prep=Fusion, Sample Type=ARG-1, Analyte=Ca
Variability Chart for Measurement



Prep=Fusion, Sample Type=ARG-1, Analyte=Cr
Variability Chart for Measurement



Prep=Fusion, Sample Type=ARG-1, Analyte=Cu
Variability Chart for Measurement



Prep=Fusion, Sample Type=ARG-1, Analyte=Fe
Variability Chart for Measurement

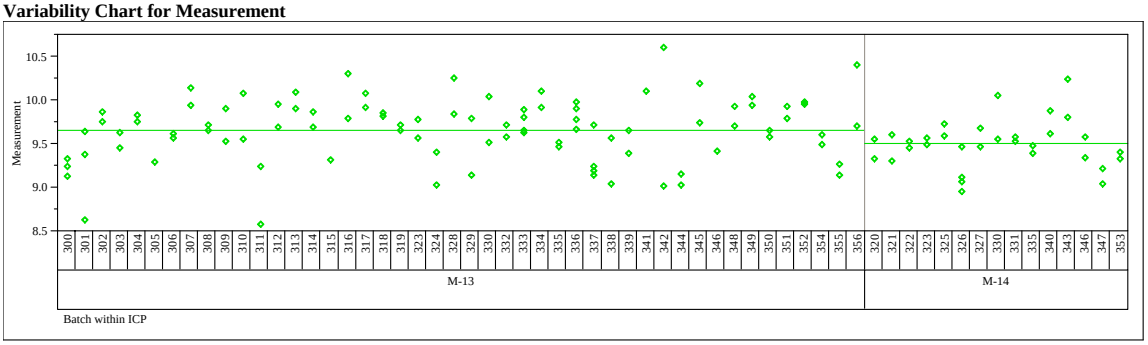
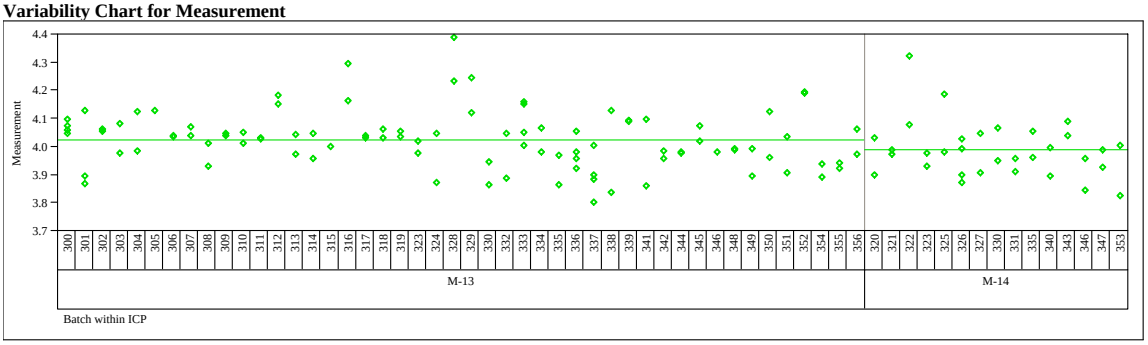


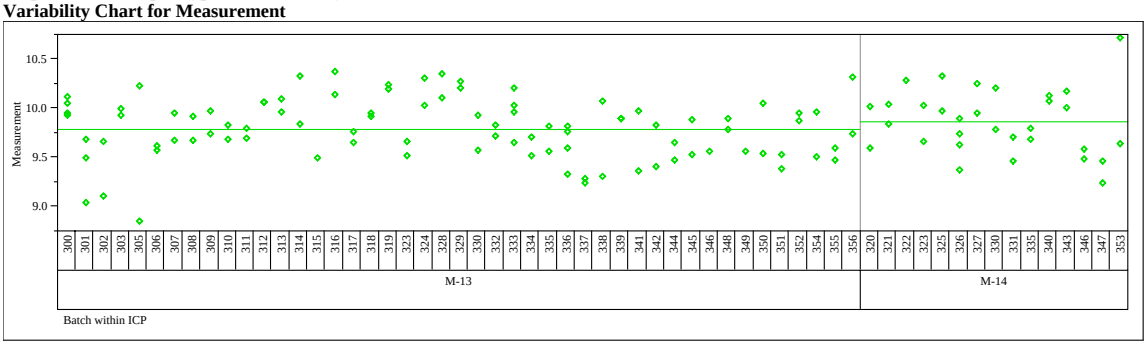
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

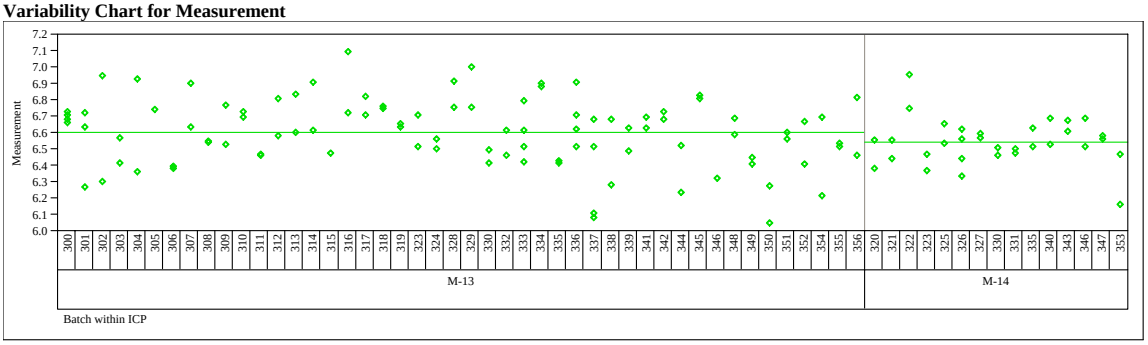
Prep=Fusion, Sample Type=ARG-1, Analyte=Fe/Al
Variability Chart for Measurement



Prep=Fusion, Sample Type=ARG-1, Analyte=Fe/Ca
Variability Chart for Measurement



Prep=Fusion, Sample Type=ARG-1, Analyte=Fe/Li
Variability Chart for Measurement



Prep=Fusion, Sample Type=ARG-1, Analyte=Fe/Mg
Variability Chart for Measurement

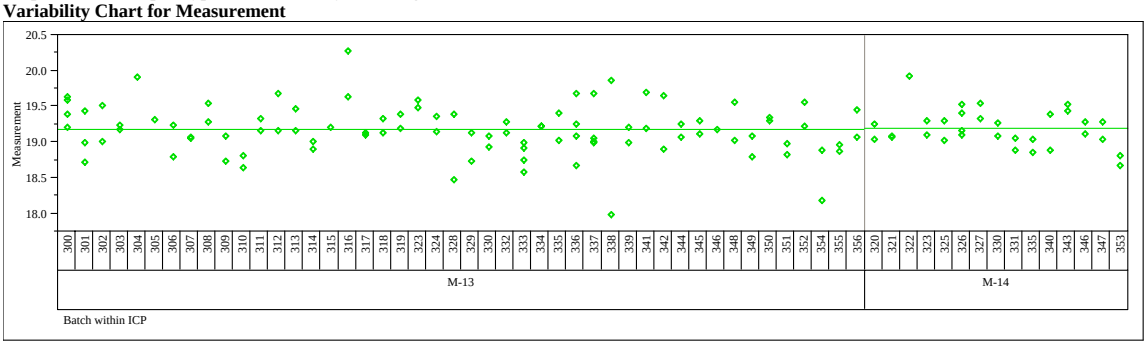
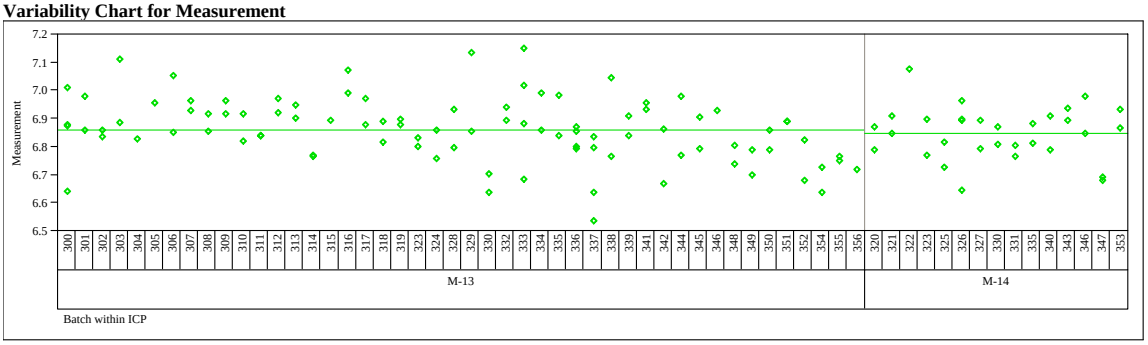


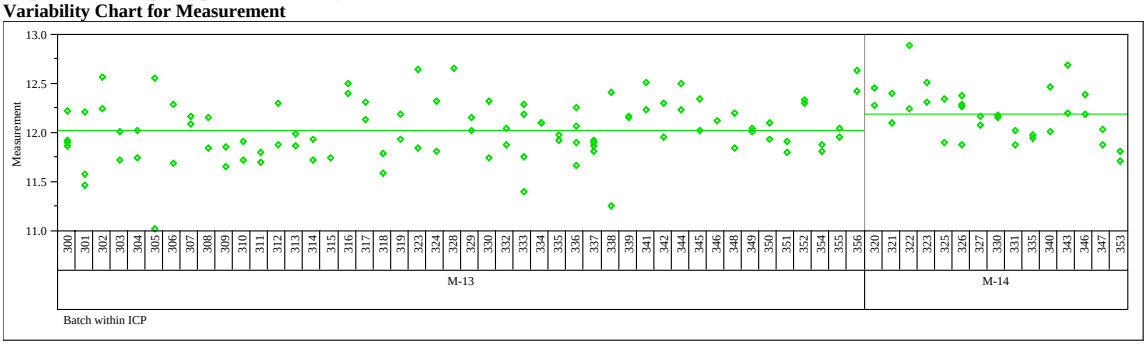
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

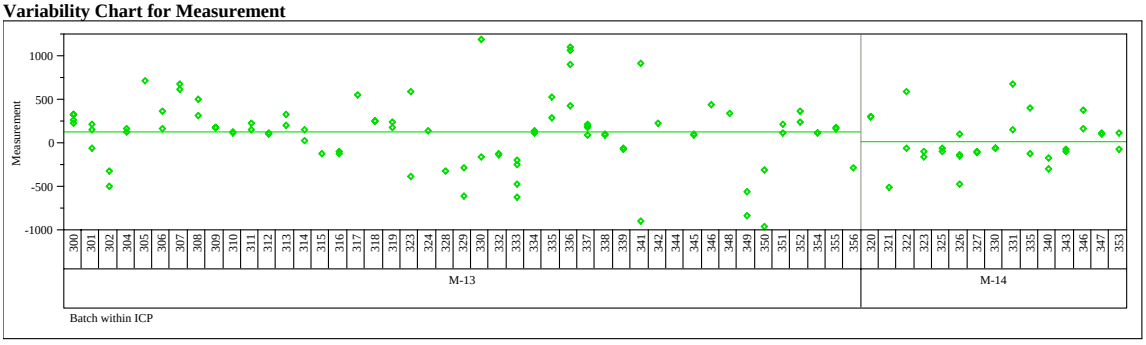
Prep=Fusion, Sample Type=ARG-1, Analyte=Fe/Mn
Variability Chart for Measurement



Prep=Fusion, Sample Type=ARG-1, Analyte=Fe/Ni
Variability Chart for Measurement



Prep=Fusion, Sample Type=ARG-1, Analyte=Fe/U
Variability Chart for Measurement



Prep=Fusion, Sample Type=ARG-1, Analyte=K
Variability Chart for Measurement

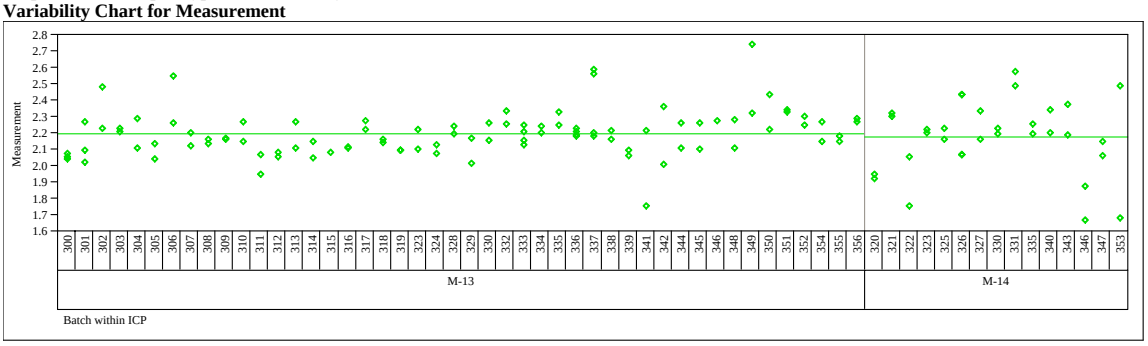
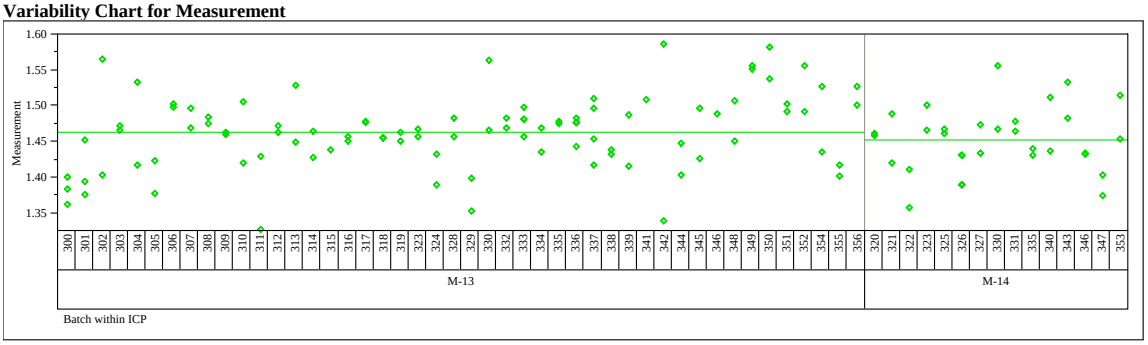


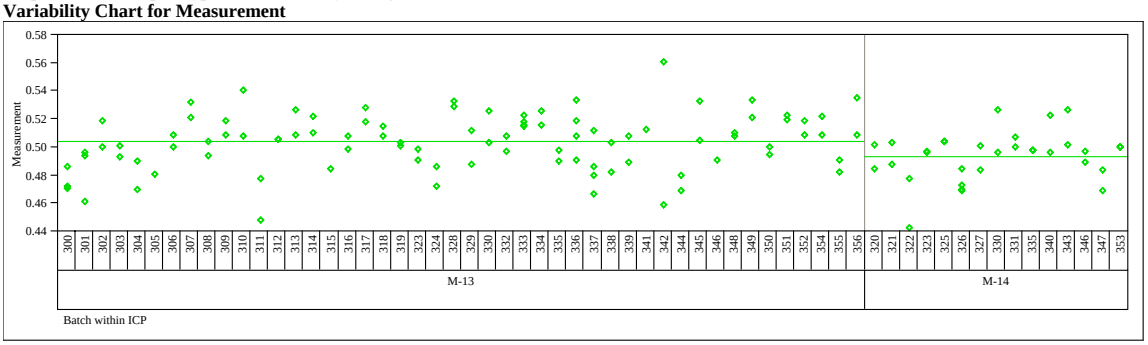
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

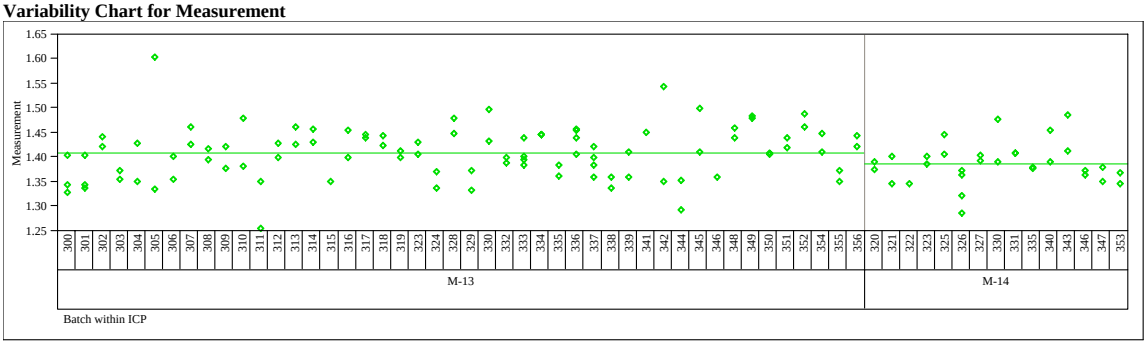
Prep=Fusion, Sample Type=ARG-1, Analyte=Li
Variability Chart for Measurement



Prep=Fusion, Sample Type=ARG-1, Analyte=Mg
Variability Chart for Measurement



Prep=Fusion, Sample Type=ARG-1, Analyte=Mn
Variability Chart for Measurement



Prep=Fusion, Sample Type=ARG-1, Analyte=Mn/Mg
Variability Chart for Measurement

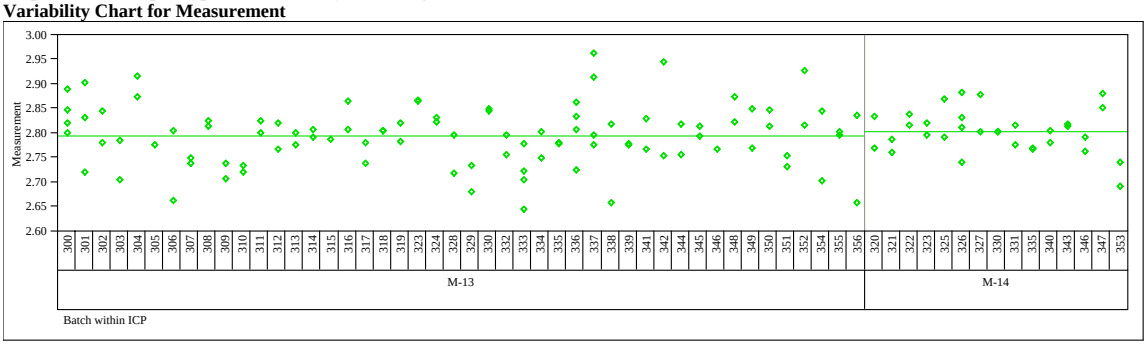
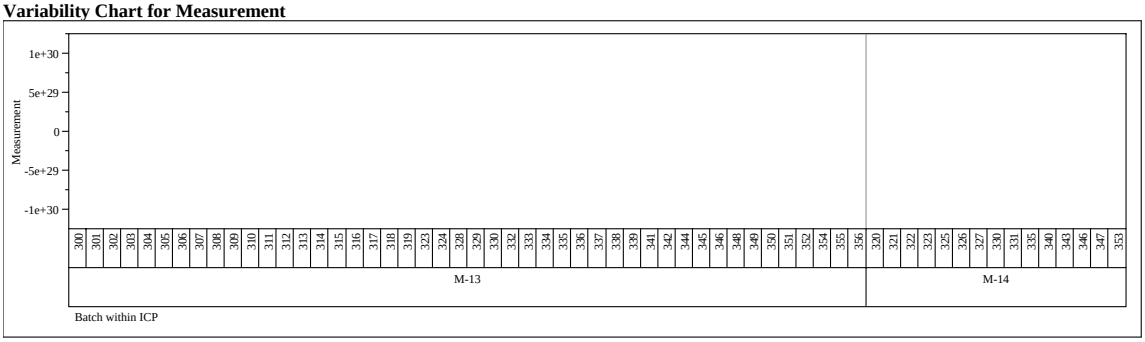
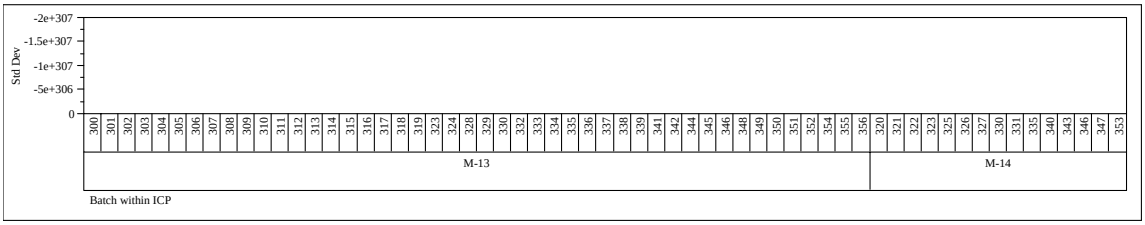


Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

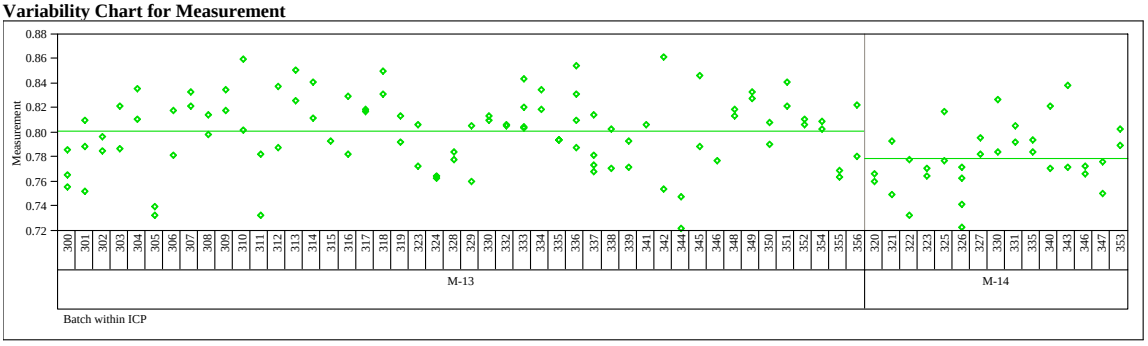
(continued)

Prep=Fusion, Sample Type=ARG-1, Analyte=Na
Variability Chart for Measurement





Prep=Fusion, Sample Type=ARG-1, Analyte=Ni
Variability Chart for Measurement



Prep=Fusion, Sample Type=ARG-1, Analyte=Si
Variability Chart for Measurement

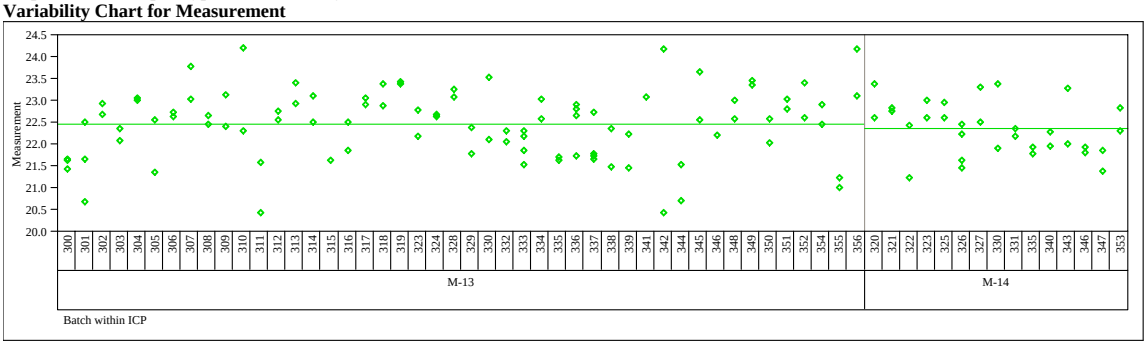
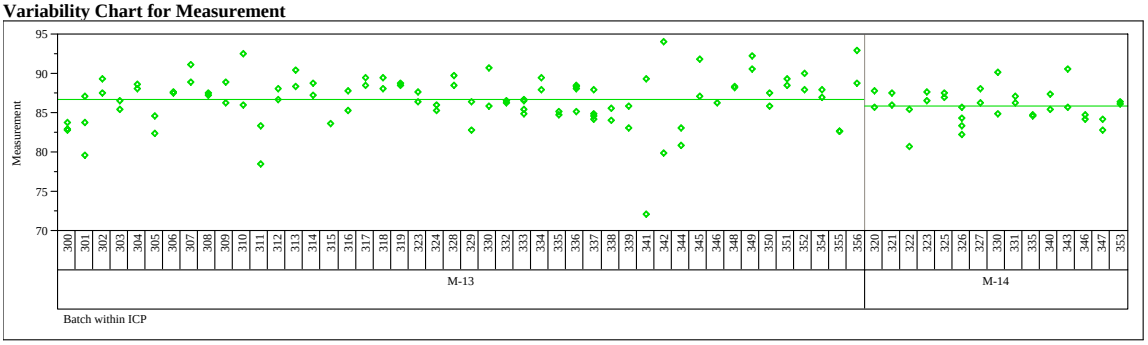


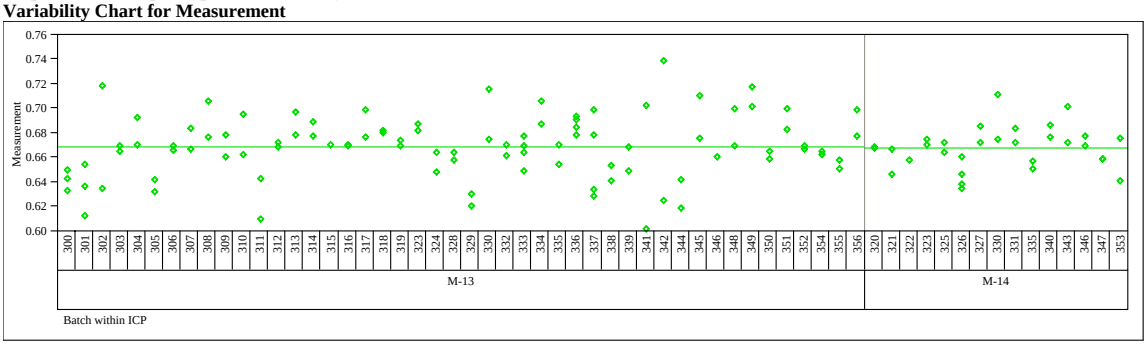
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

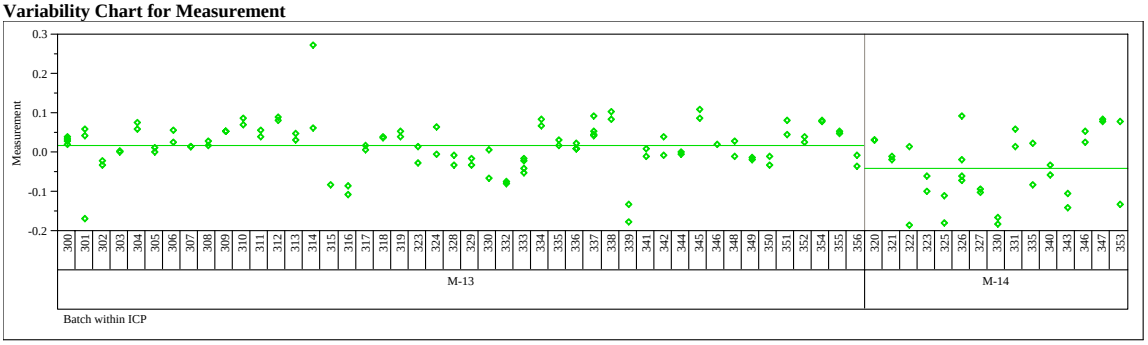
Prep=Fusion, Sample Type=ARG-1, Analyte=Sum of Oxides
Variability Chart for Measurement



Prep=Fusion, Sample Type=ARG-1, Analyte=Ti
Variability Chart for Measurement



Prep=Fusion, Sample Type=ARG-1, Analyte=U
Variability Chart for Measurement



Prep=Fusion, Sample Type=ARG-1, Analyte=U/Ca
Variability Chart for Measurement

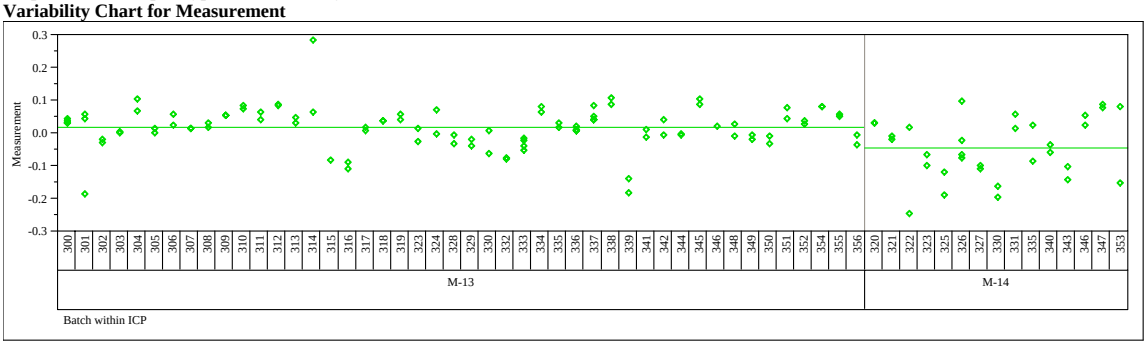
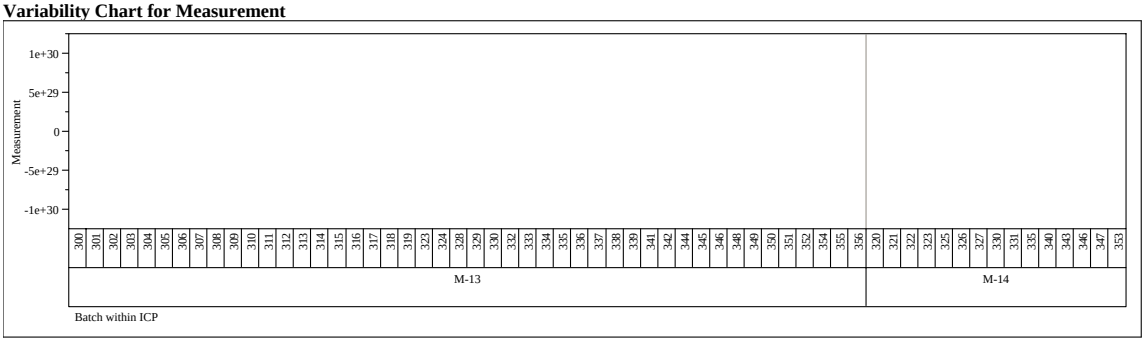
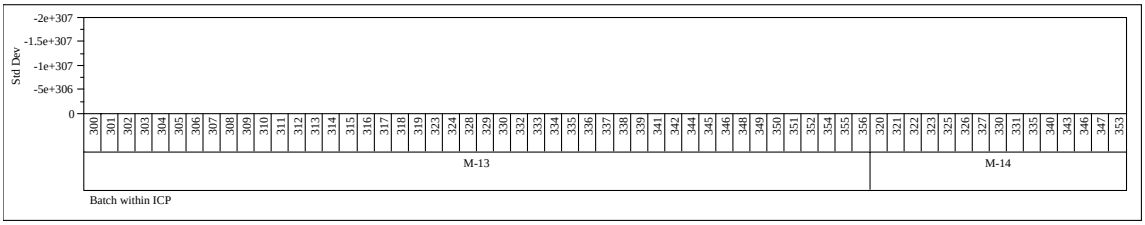


Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

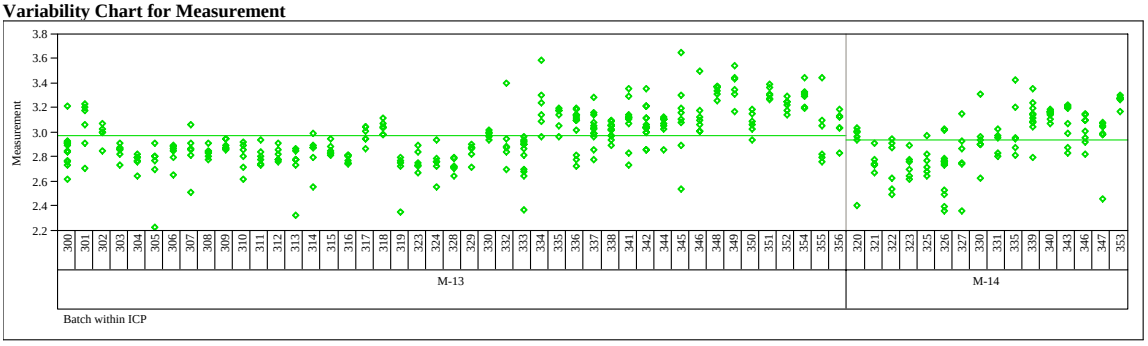
(continued)

Prep=Fusion, Sample Type=ARG-1, Analyte=Zr
Variability Chart for Measurement





Prep=Fusion, Sample Type=SME, Analyte=Al
Variability Chart for Measurement



Prep=Fusion, Sample Type=SME, Analyte=Al/Ca
Variability Chart for Measurement

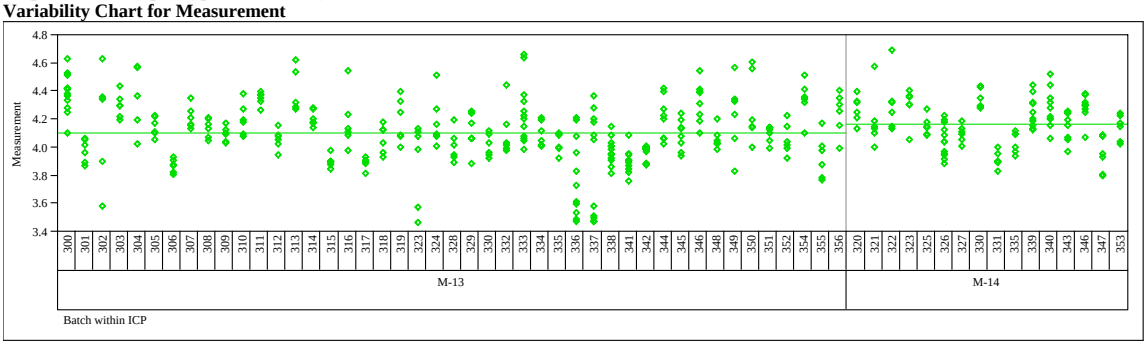
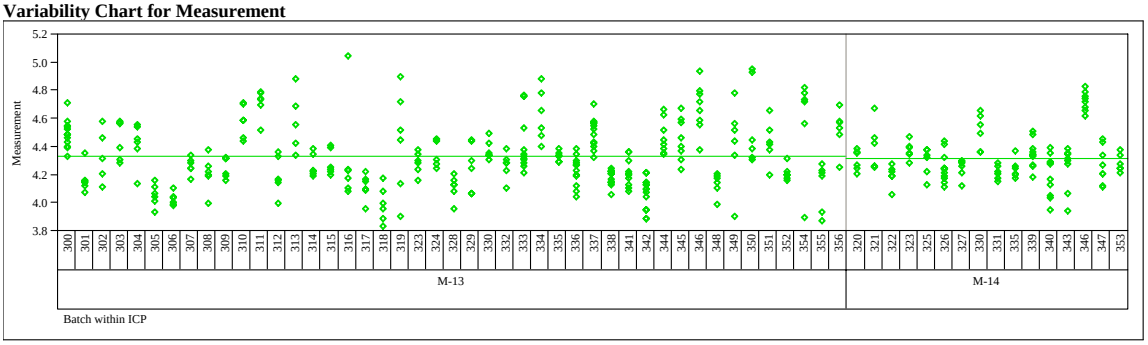


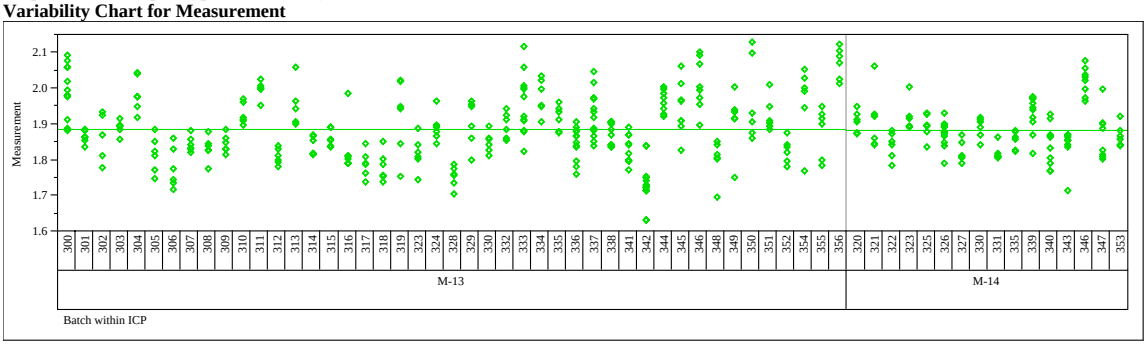
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

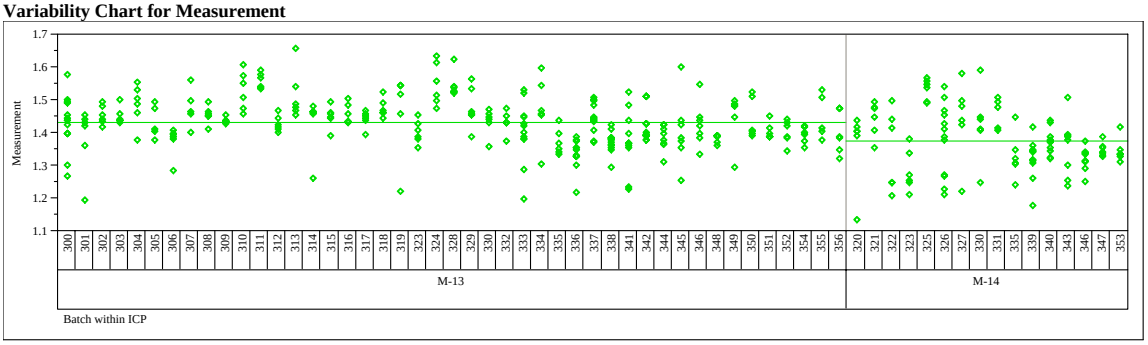
Prep=Fusion, Sample Type=SME, Analyte=Al/Mg
Variability Chart for Measurement



Prep=Fusion, Sample Type=SME, Analyte=Al/Mn
Variability Chart for Measurement



Prep=Fusion, Sample Type=SME, Analyte=B
Variability Chart for Measurement



Prep=Fusion, Sample Type=SME, Analyte=B/Li
Variability Chart for Measurement

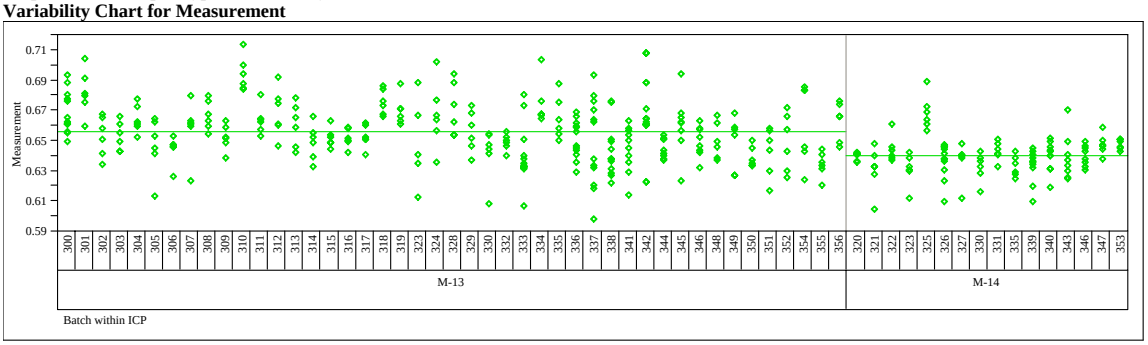
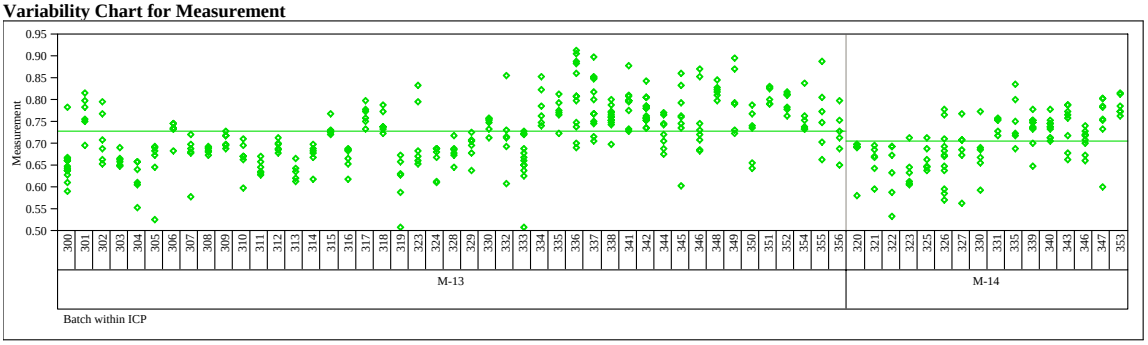


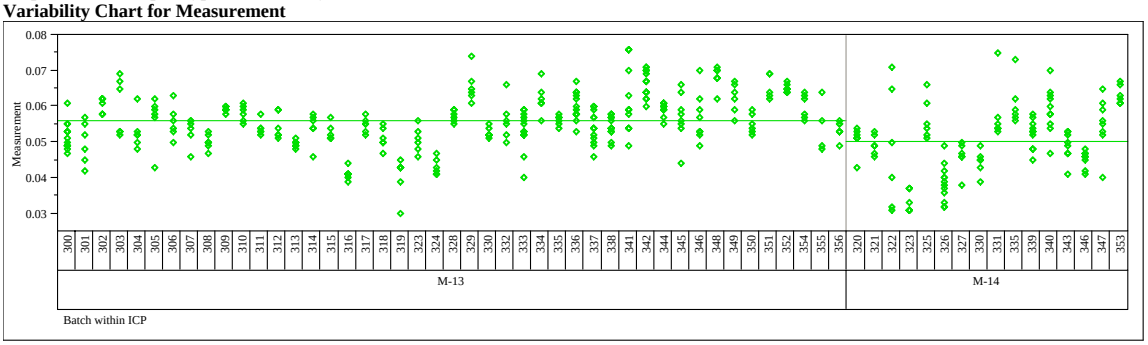
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

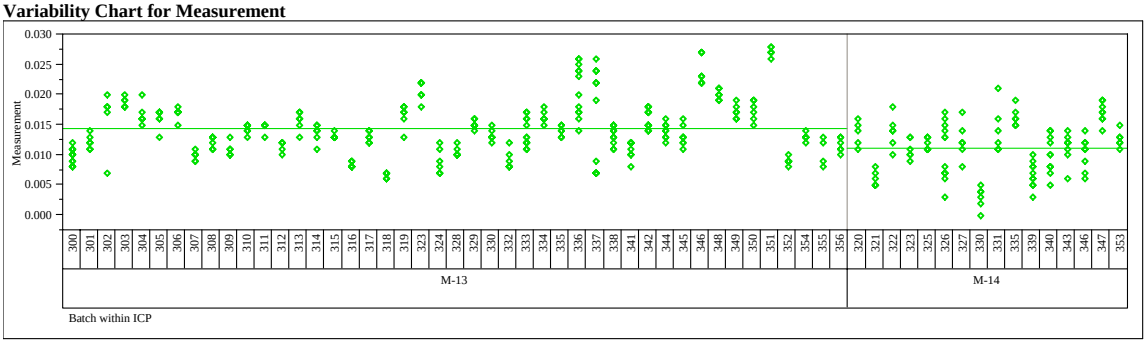
Prep=Fusion, Sample Type=SME, Analyte=Ca
Variability Chart for Measurement



Prep=Fusion, Sample Type=SME, Analyte=Cr
Variability Chart for Measurement



Prep=Fusion, Sample Type=SME, Analyte=Cu
Variability Chart for Measurement



Prep=Fusion, Sample Type=SME, Analyte=Fe
Variability Chart for Measurement

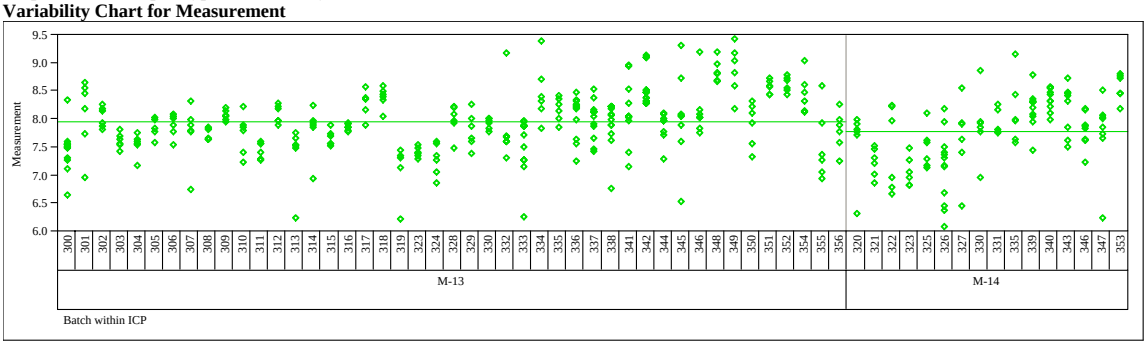
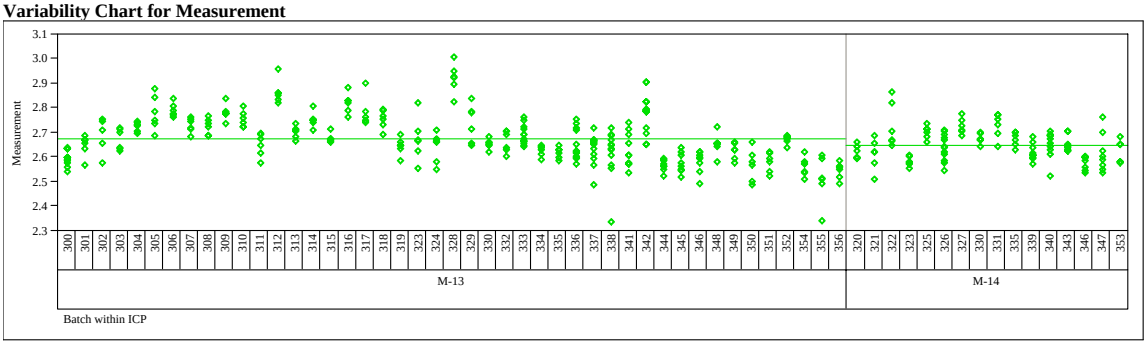


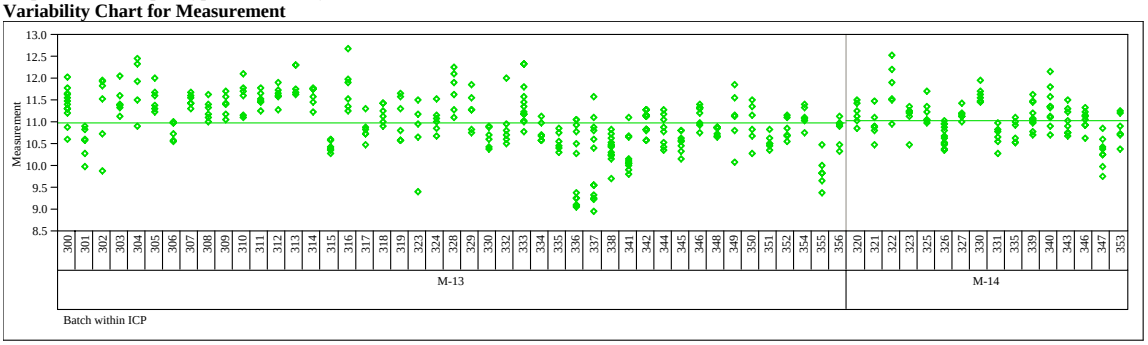
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

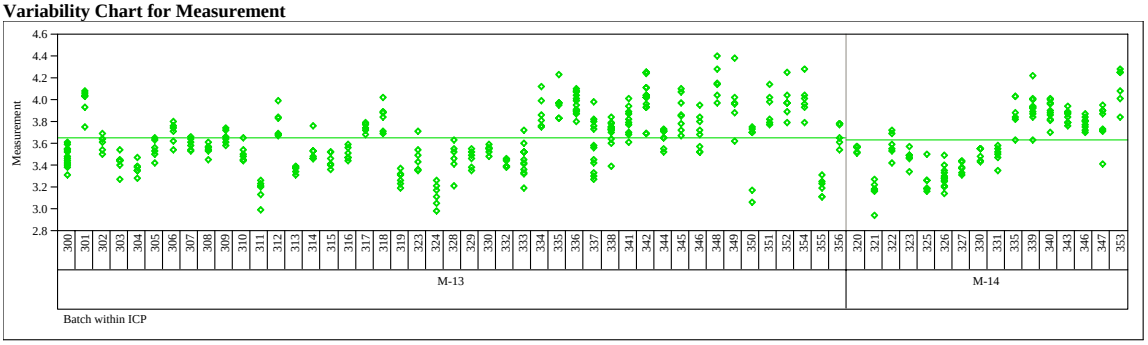
Prep=Fusion, Sample Type=SME, Analyte=Fe/Al
Variability Chart for Measurement



Prep=Fusion, Sample Type=SME, Analyte=Fe/Ca
Variability Chart for Measurement



Prep=Fusion, Sample Type=SME, Analyte=Fe/Li
Variability Chart for Measurement



Prep=Fusion, Sample Type=SME, Analyte=Fe/Mg
Variability Chart for Measurement

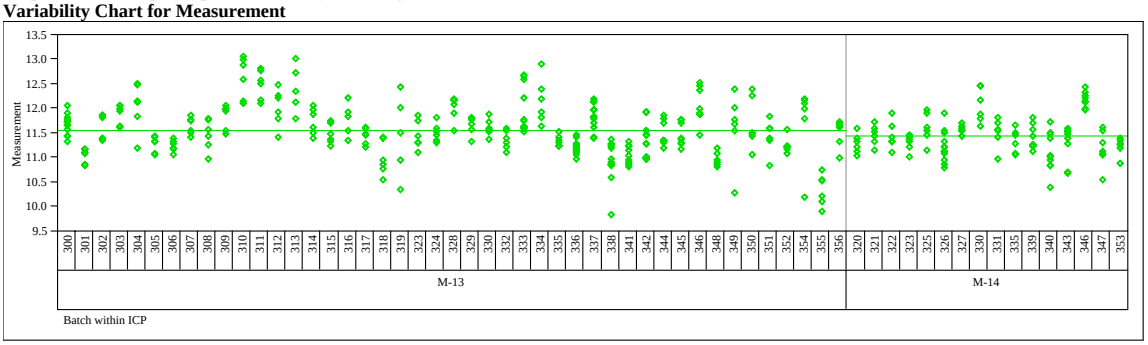
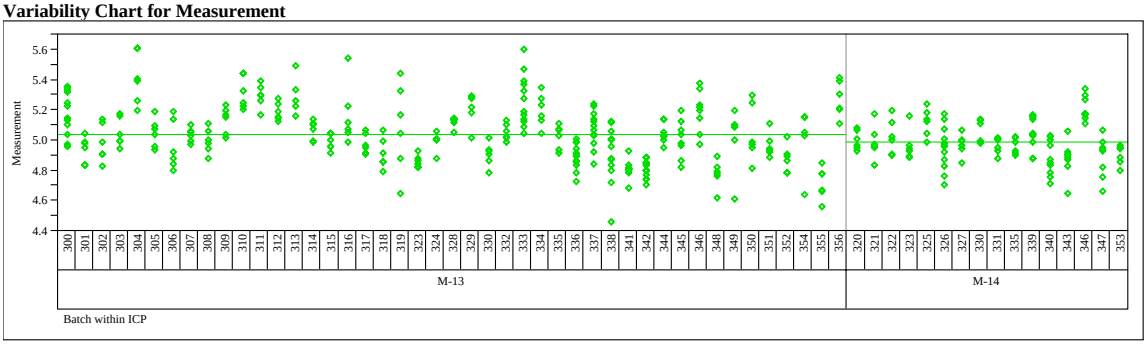


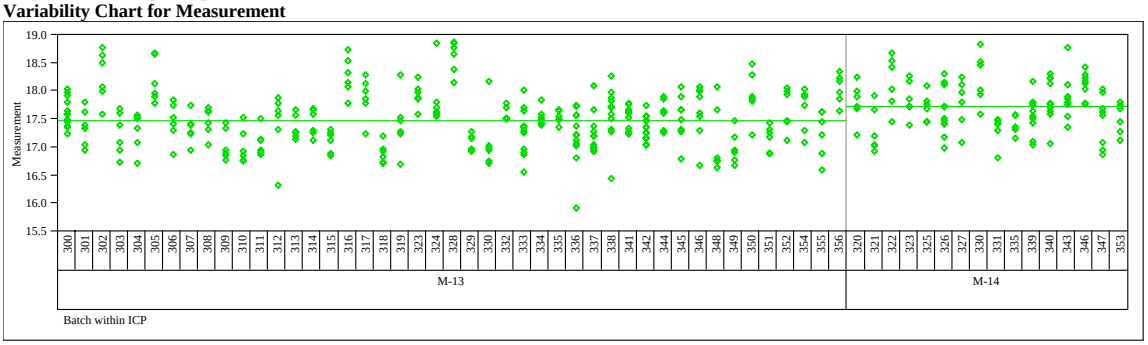
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

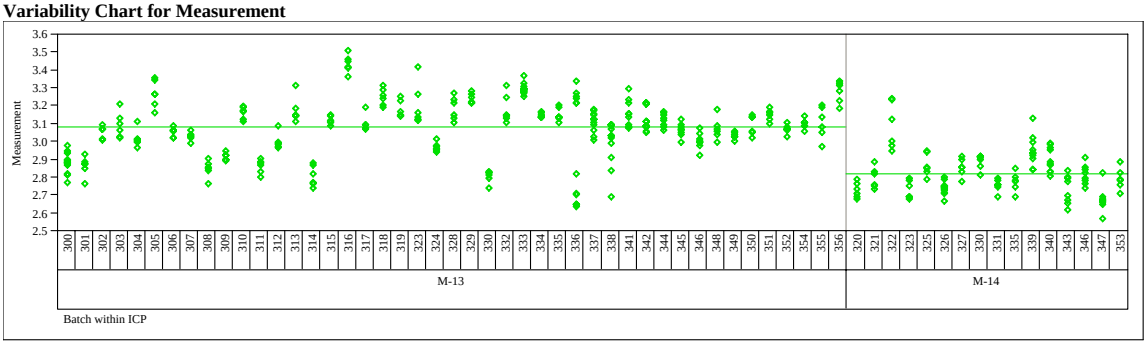
Prep=Fusion, Sample Type=SME, Analyte=Fe/Mn
Variability Chart for Measurement



Prep=Fusion, Sample Type=SME, Analyte=Fe/Ni
Variability Chart for Measurement



Prep=Fusion, Sample Type=SME, Analyte=Fe/U
Variability Chart for Measurement



Prep=Fusion, Sample Type=SME, Analyte=K
Variability Chart for Measurement

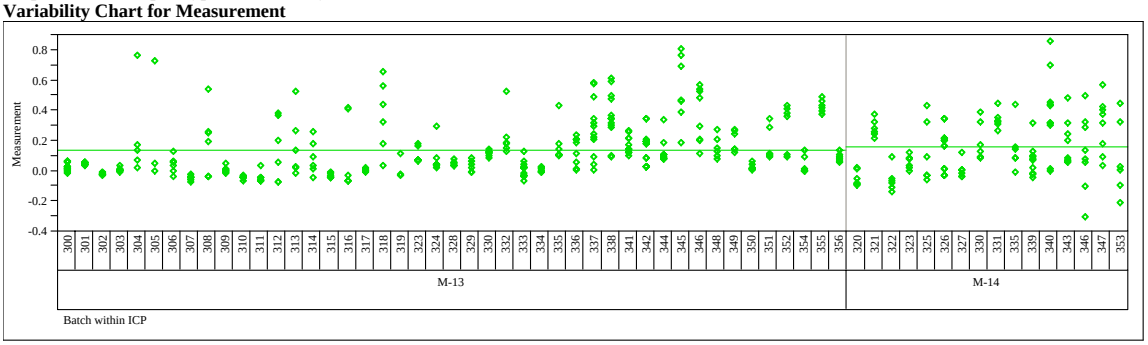
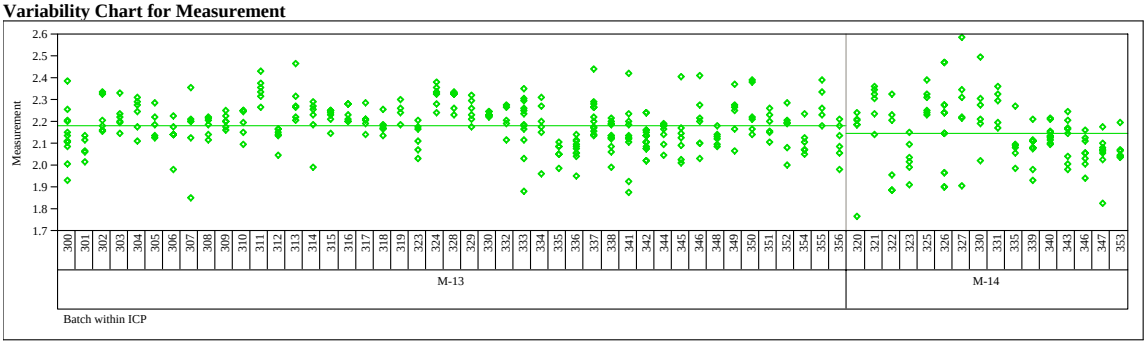


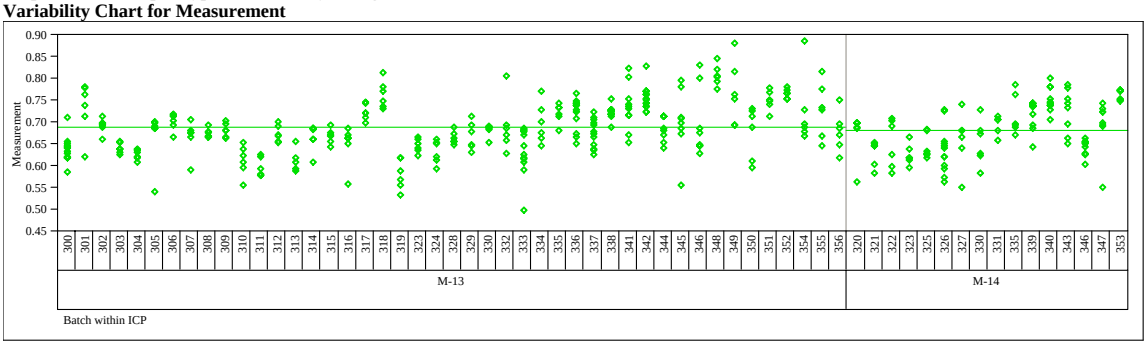
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

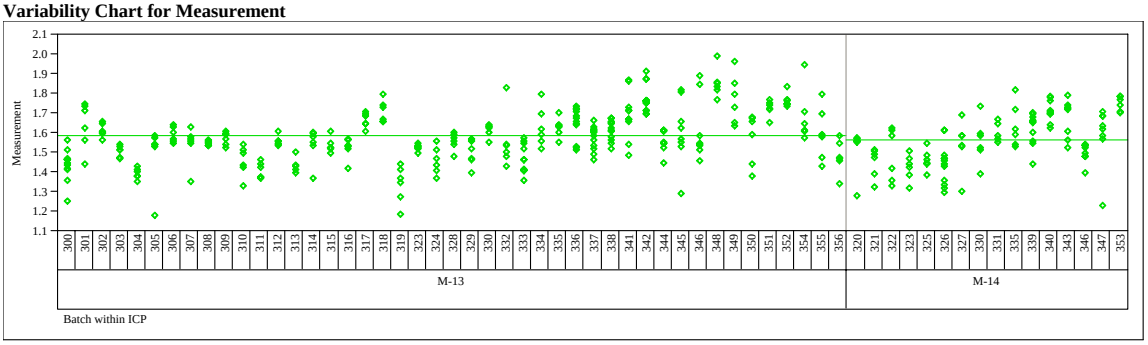
Prep=Fusion, Sample Type=SME, Analyte=Li
Variability Chart for Measurement



Prep=Fusion, Sample Type=SME, Analyte=Mg
Variability Chart for Measurement



Prep=Fusion, Sample Type=SME, Analyte=Mn
Variability Chart for Measurement



Prep=Fusion, Sample Type=SME, Analyte=Mn/Mg
Variability Chart for Measurement

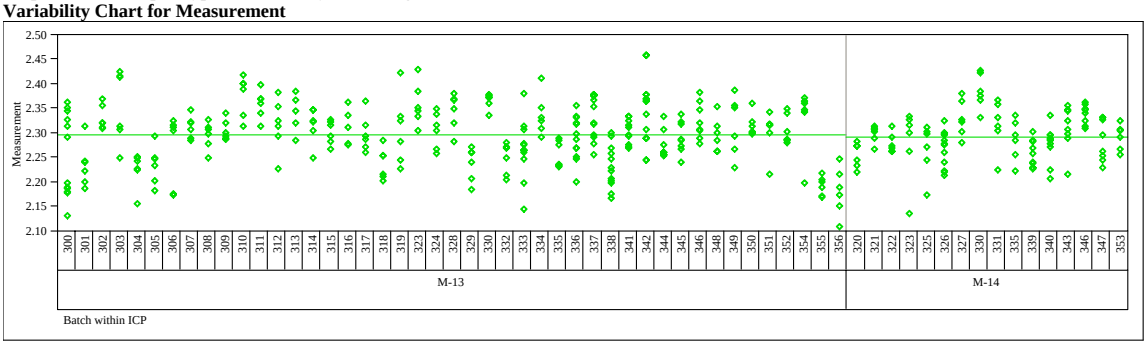
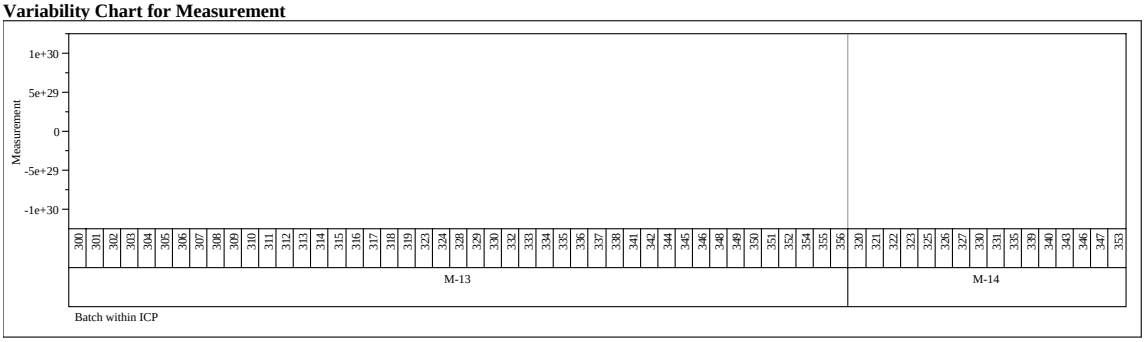
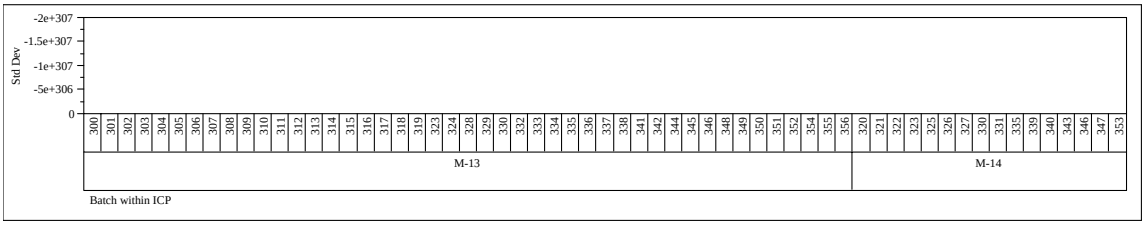


Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

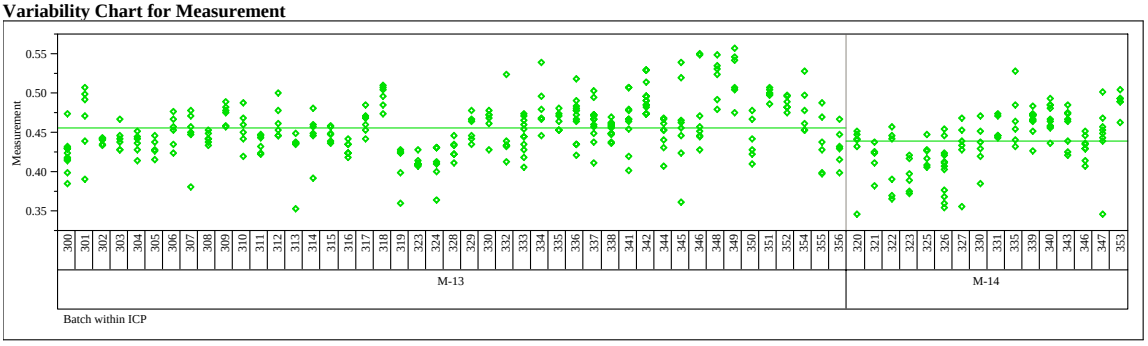
(continued)

Prep=Fusion, Sample Type=SME, Analyte=Na
Variability Chart for Measurement





Prep=Fusion, Sample Type=SME, Analyte=Ni
Variability Chart for Measurement



Prep=Fusion, Sample Type=SME, Analyte=Si
Variability Chart for Measurement

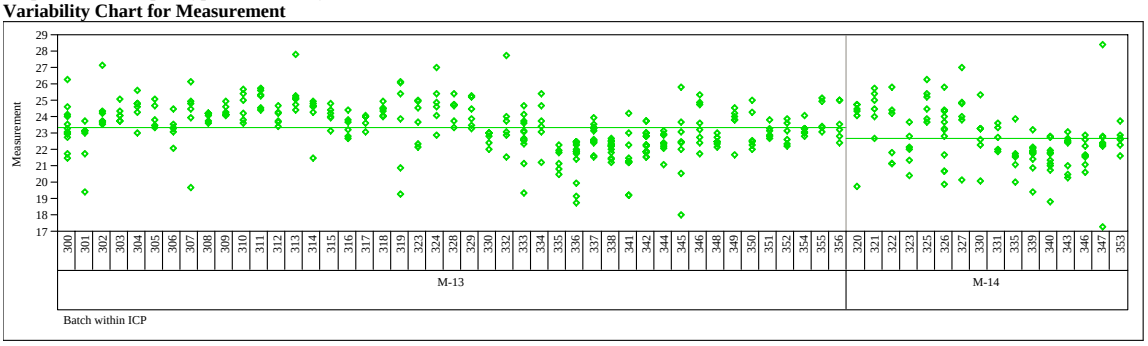
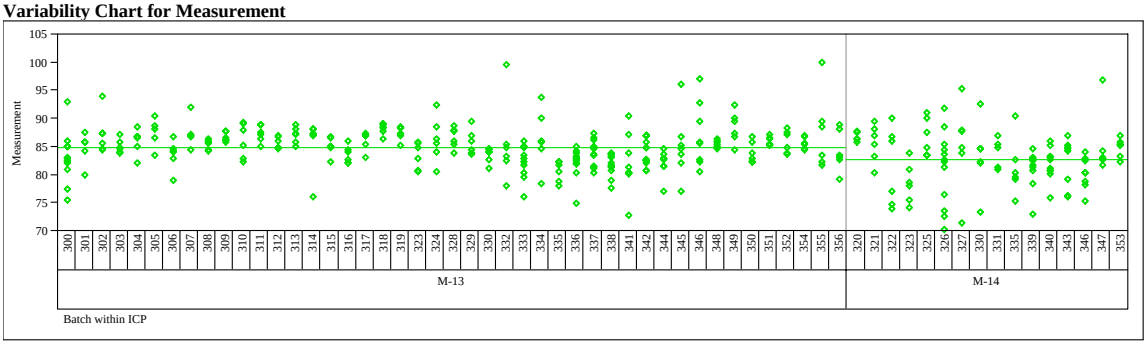


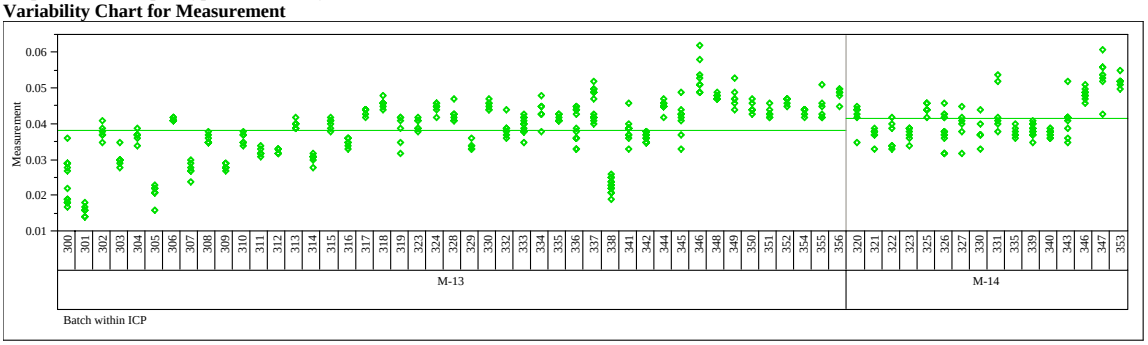
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

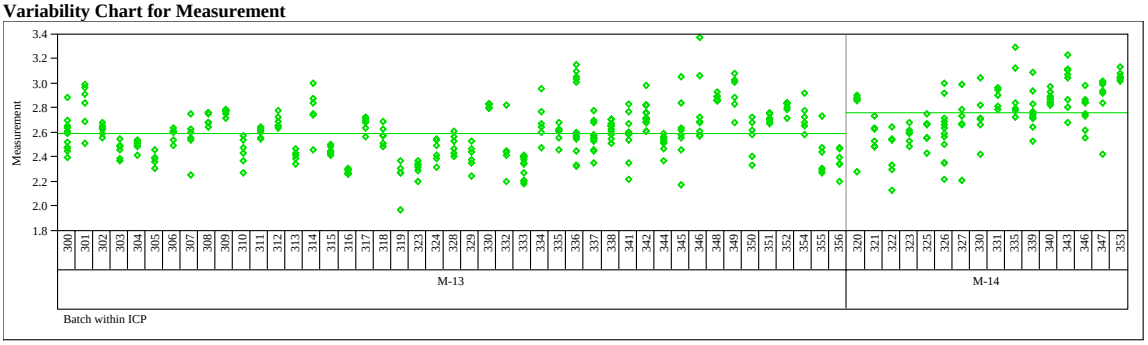
Prep=Fusion, Sample Type=SME, Analyte=Sum of Oxides
Variability Chart for Measurement



Prep=Fusion, Sample Type=SME, Analyte=Ti
Variability Chart for Measurement



Prep=Fusion, Sample Type=SME, Analyte=U
Variability Chart for Measurement



Prep=Fusion, Sample Type=SME, Analyte=U/Ca
Variability Chart for Measurement

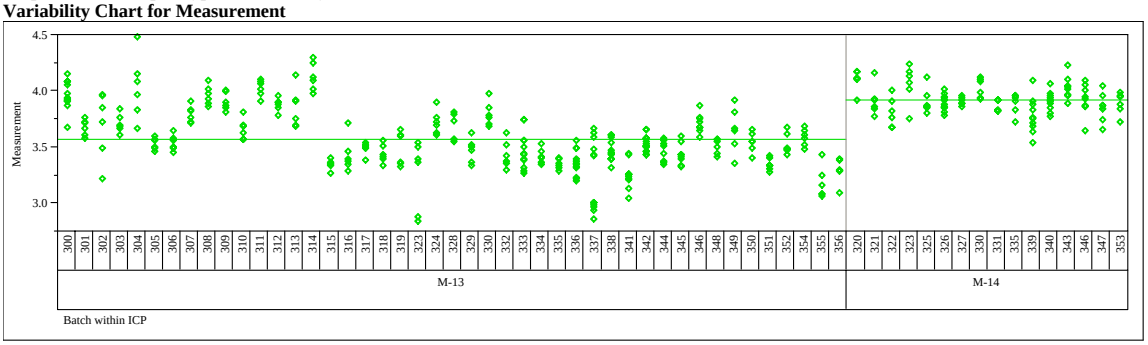
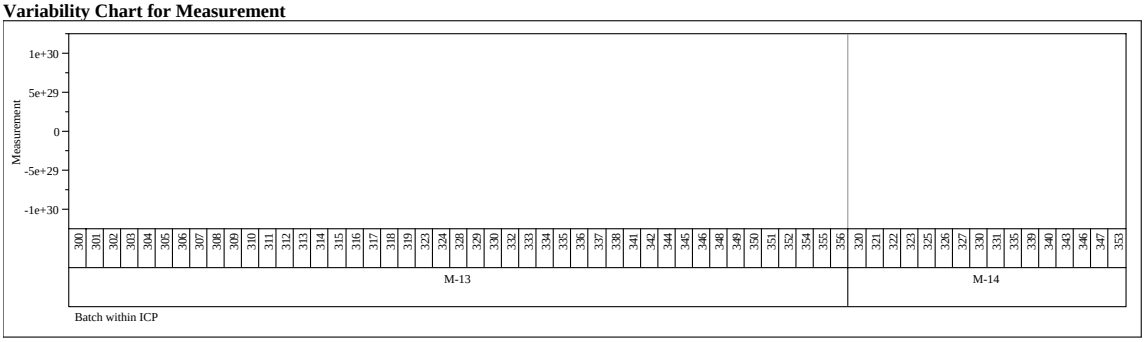
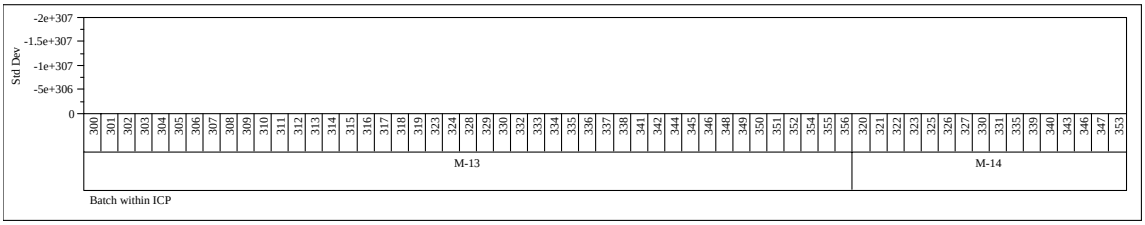


Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

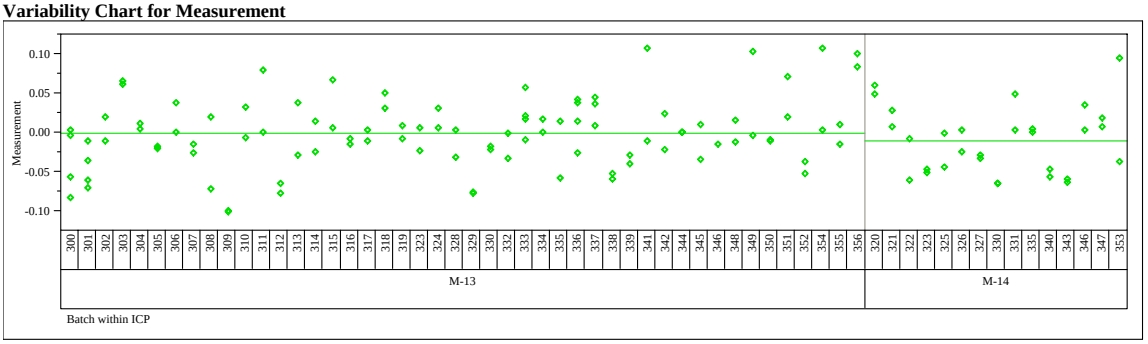
(continued)

Prep=Fusion, Sample Type=SME, Analyte=Zr
Variability Chart for Measurement





Prep=Fusion, Sample Type=blank, Analyte=Al
Variability Chart for Measurement



Prep=Fusion, Sample Type=blank, Analyte=Al/Ca
Variability Chart for Measurement

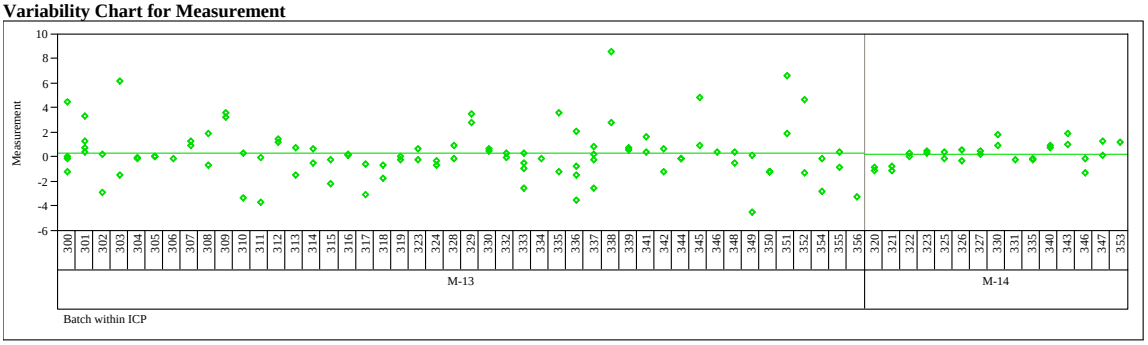
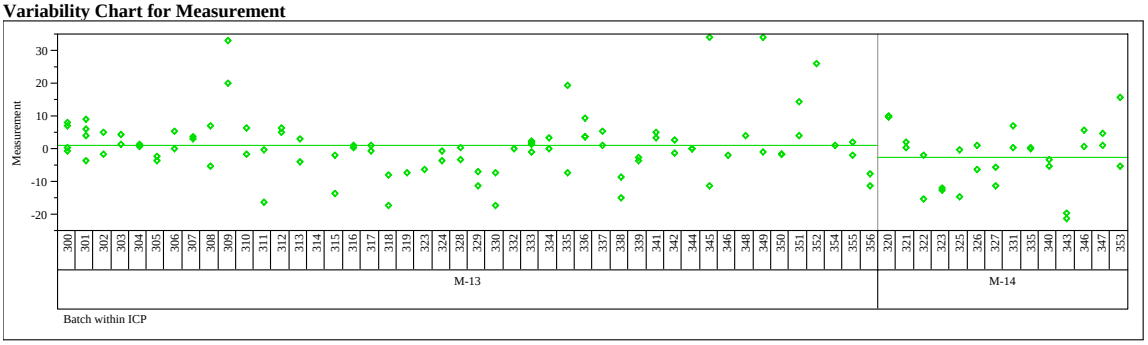


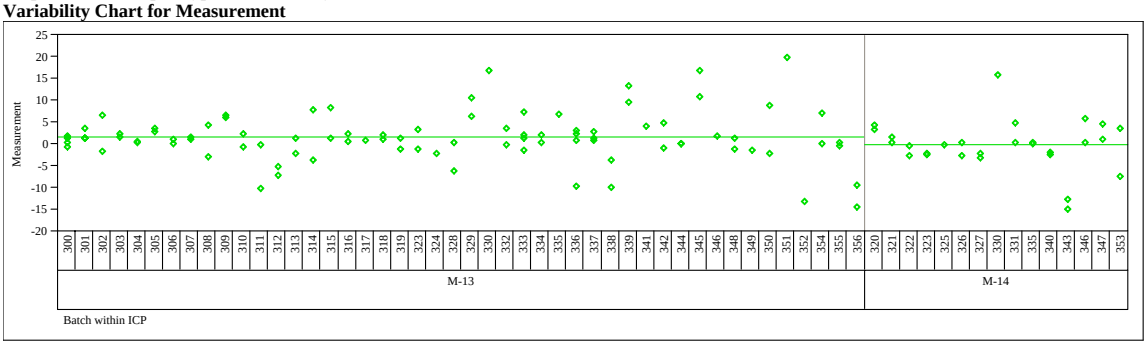
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

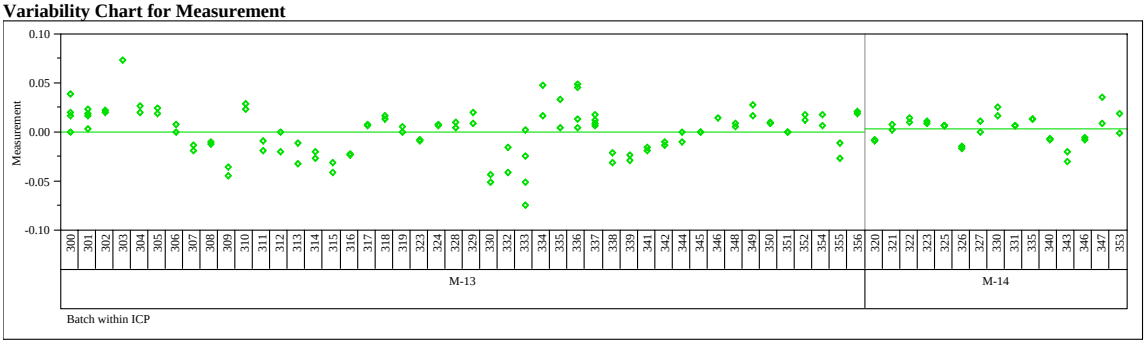
Prep=Fusion, Sample Type=blank, Analyte=Al/Mg
Variability Chart for Measurement



Prep=Fusion, Sample Type=blank, Analyte=Al/Mn
Variability Chart for Measurement



Prep=Fusion, Sample Type=blank, Analyte=B
Variability Chart for Measurement



Prep=Fusion, Sample Type=blank, Analyte=B/Li
Variability Chart for Measurement

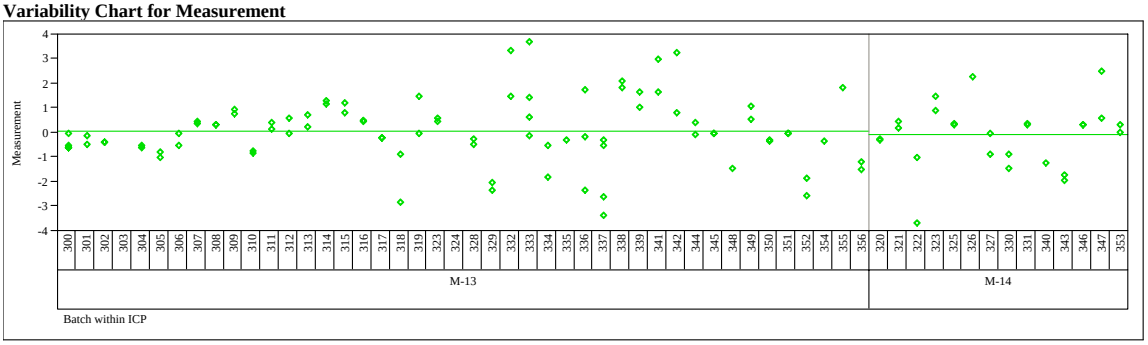
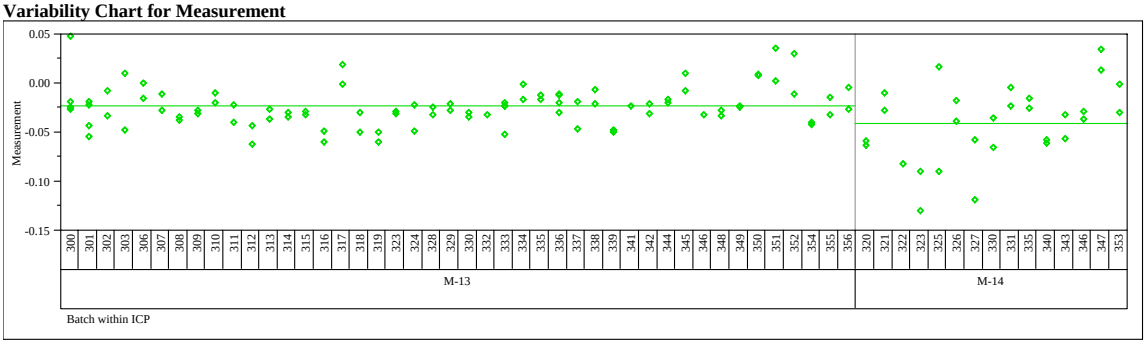


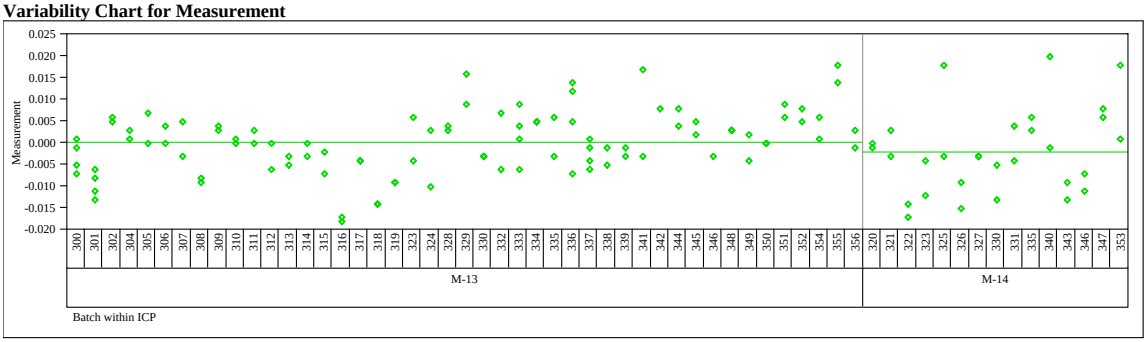
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

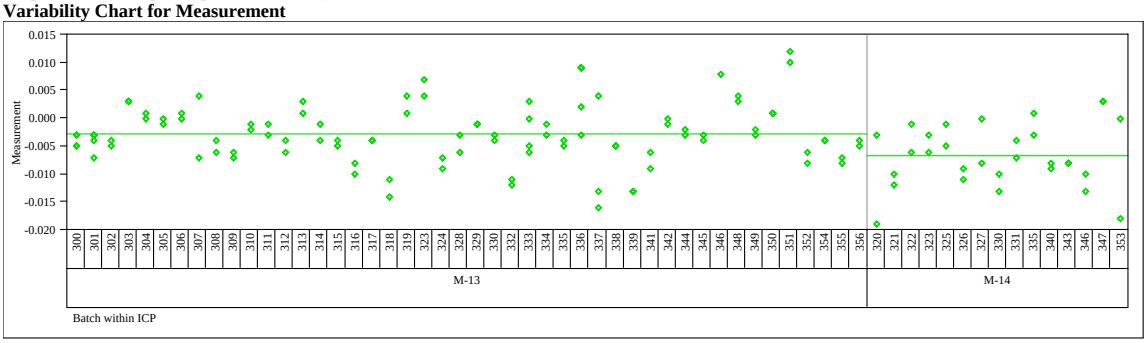
Prep=Fusion, Sample Type=blank, Analyte=Ca
Variability Chart for Measurement



Prep=Fusion, Sample Type=blank, Analyte=Cr
Variability Chart for Measurement



Prep=Fusion, Sample Type=blank, Analyte=Cu
Variability Chart for Measurement



Prep=Fusion, Sample Type=blank, Analyte=Fe
Variability Chart for Measurement

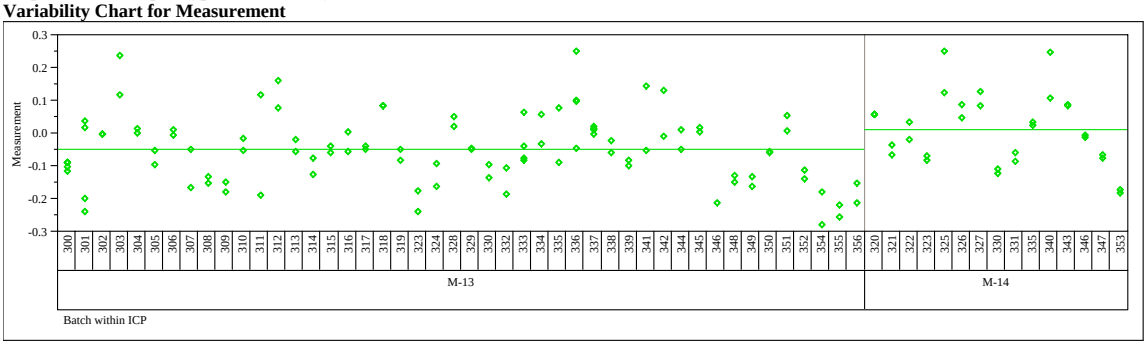
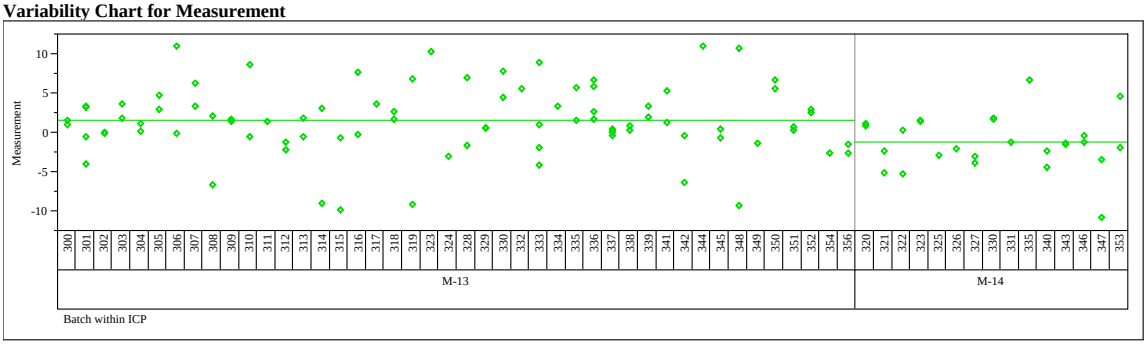


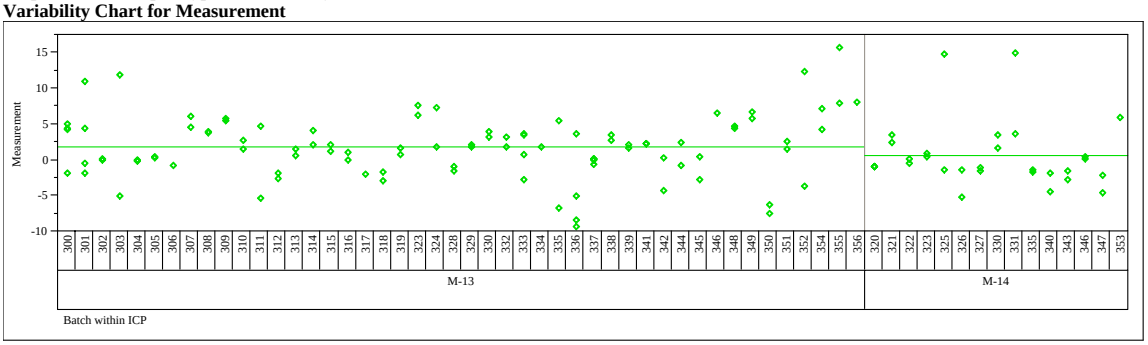
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

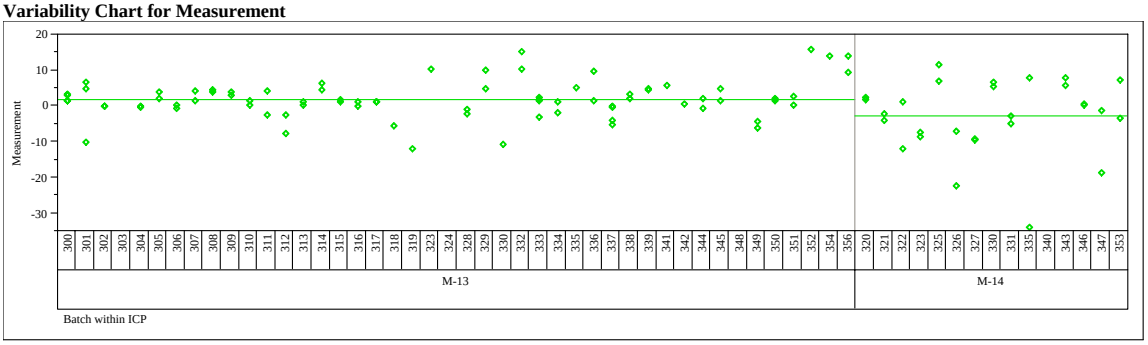
Prep=Fusion, Sample Type=blank, Analyte=Fe/Al
Variability Chart for Measurement



Prep=Fusion, Sample Type=blank, Analyte=Fe/Ca
Variability Chart for Measurement



Prep=Fusion, Sample Type=blank, Analyte=Fe/Li
Variability Chart for Measurement



Prep=Fusion, Sample Type=blank, Analyte=Fe/Mg
Variability Chart for Measurement

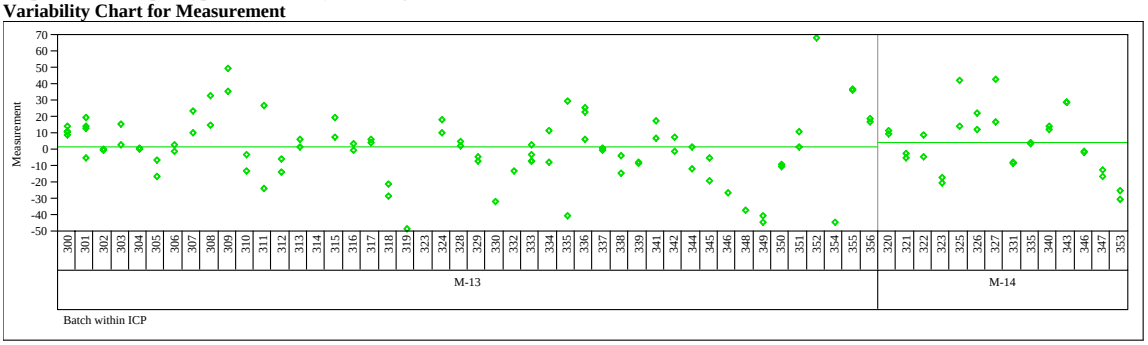
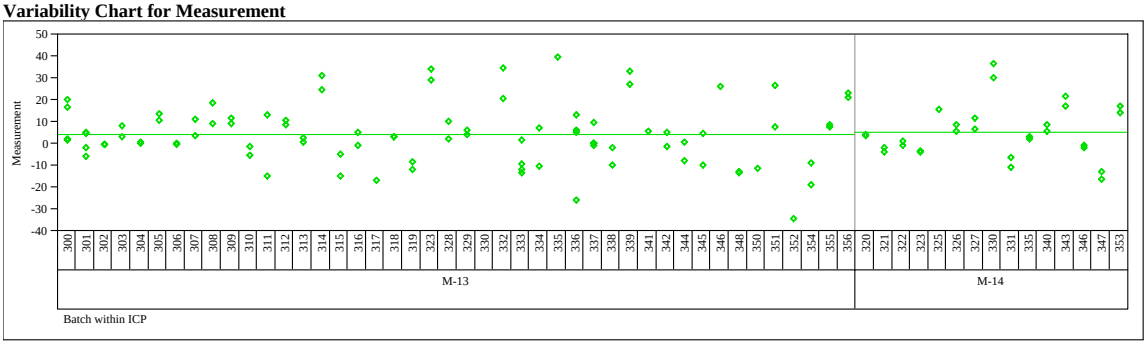


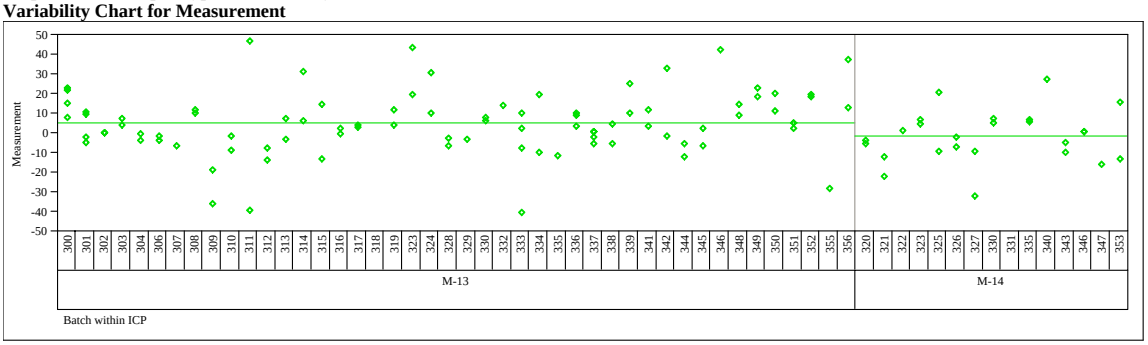
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

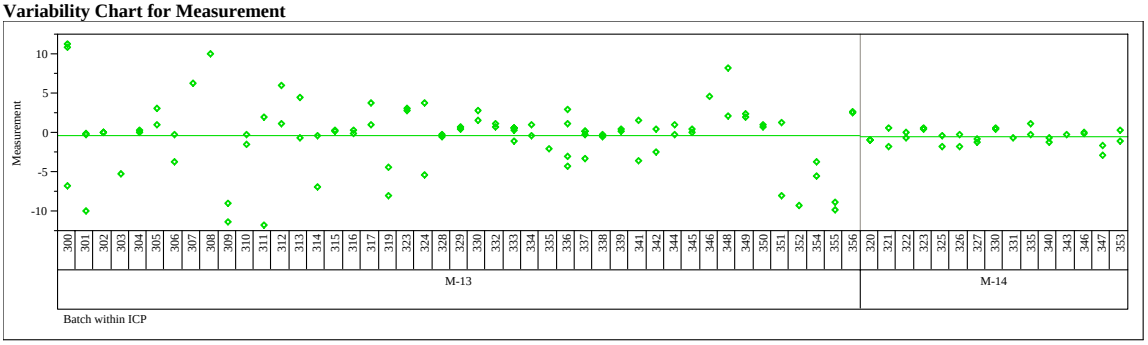
Prep=Fusion, Sample Type=blank, Analyte=Fe/Mn
Variability Chart for Measurement



Prep=Fusion, Sample Type=blank, Analyte=Fe/Ni
Variability Chart for Measurement



Prep=Fusion, Sample Type=blank, Analyte=Fe/U
Variability Chart for Measurement



Prep=Fusion, Sample Type=blank, Analyte=K
Variability Chart for Measurement

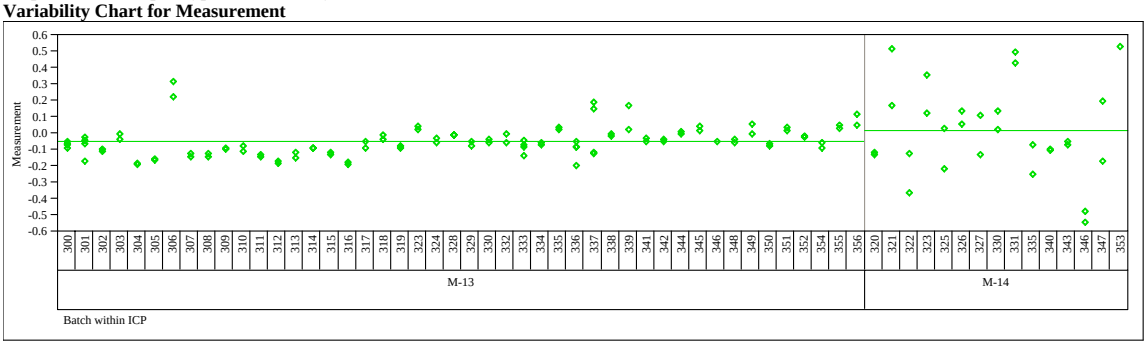
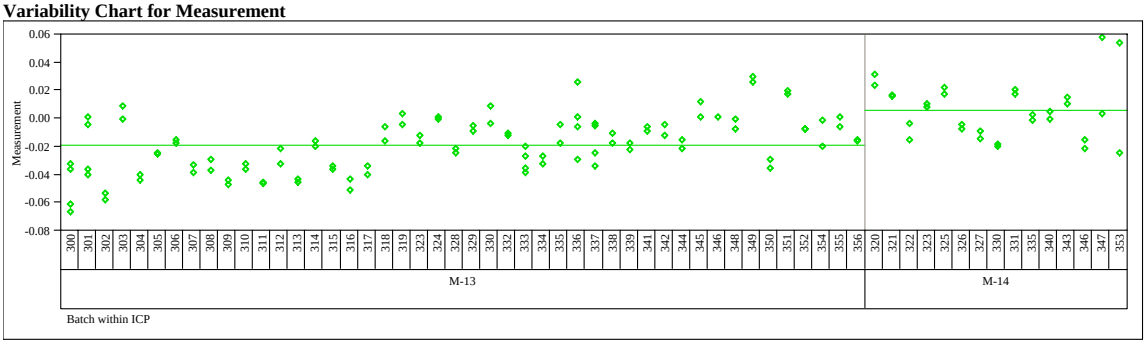


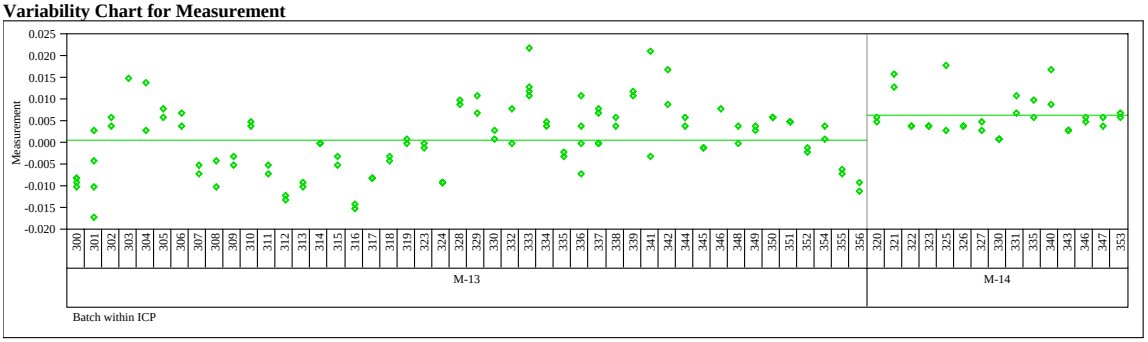
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

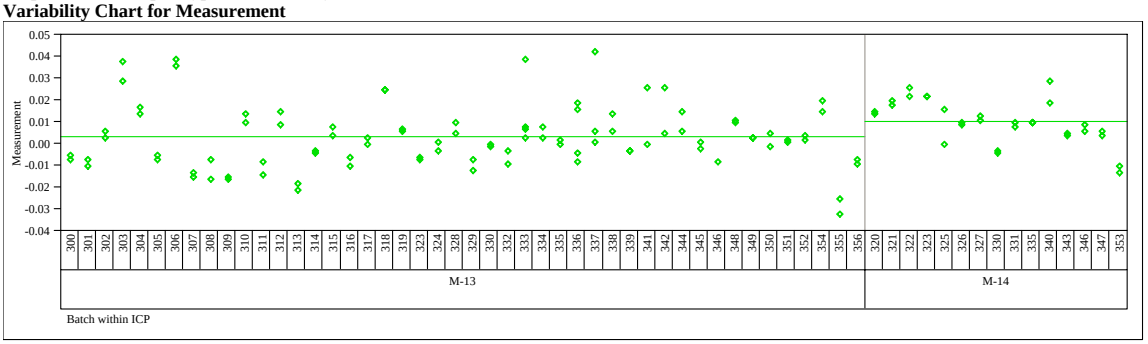
Prep=Fusion, Sample Type=blank, Analyte=Li
Variability Chart for Measurement



Prep=Fusion, Sample Type=blank, Analyte=Mg
Variability Chart for Measurement



Prep=Fusion, Sample Type=blank, Analyte=Mn
Variability Chart for Measurement



Prep=Fusion, Sample Type=blank, Analyte=Mn/Mg
Variability Chart for Measurement

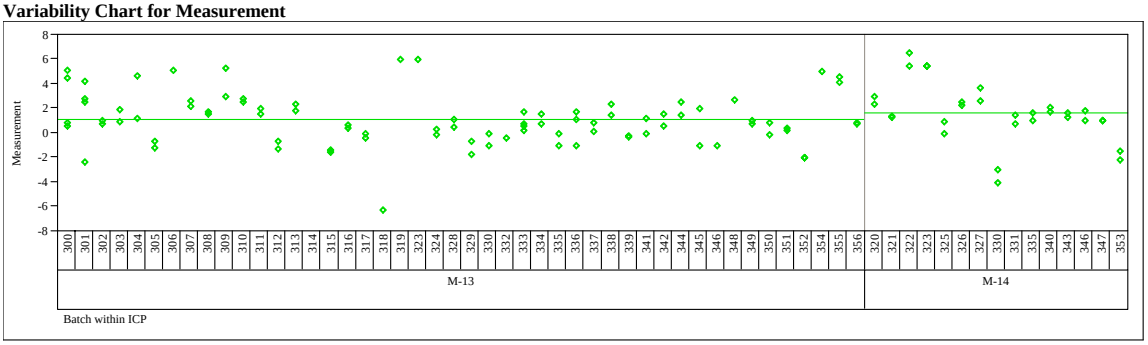
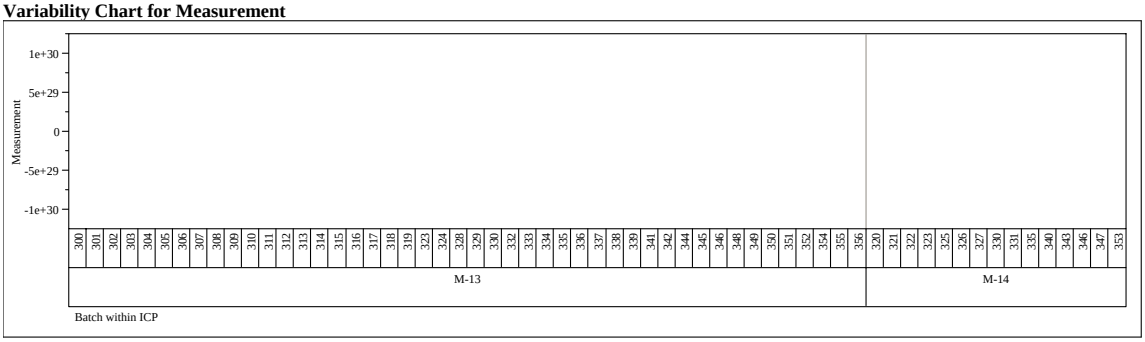
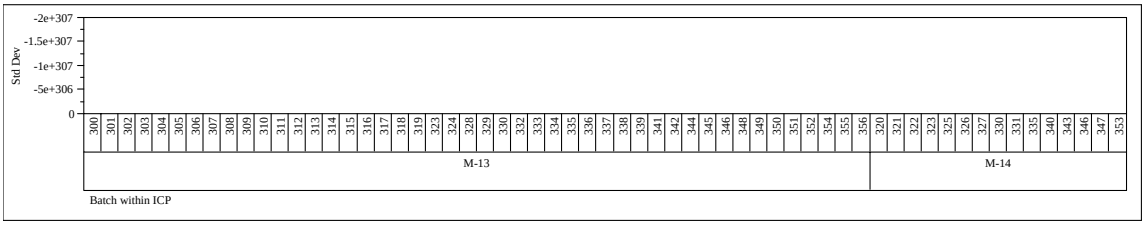


Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

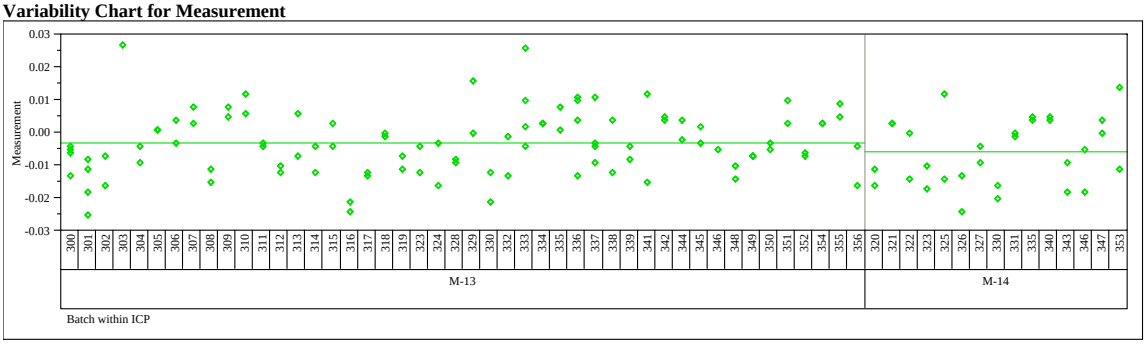
(continued)

Prep=Fusion, Sample Type=blank, Analyte=Na
Variability Chart for Measurement





Prep=Fusion, Sample Type=blank, Analyte=Ni
Variability Chart for Measurement



Prep=Fusion, Sample Type=blank, Analyte=Si
Variability Chart for Measurement

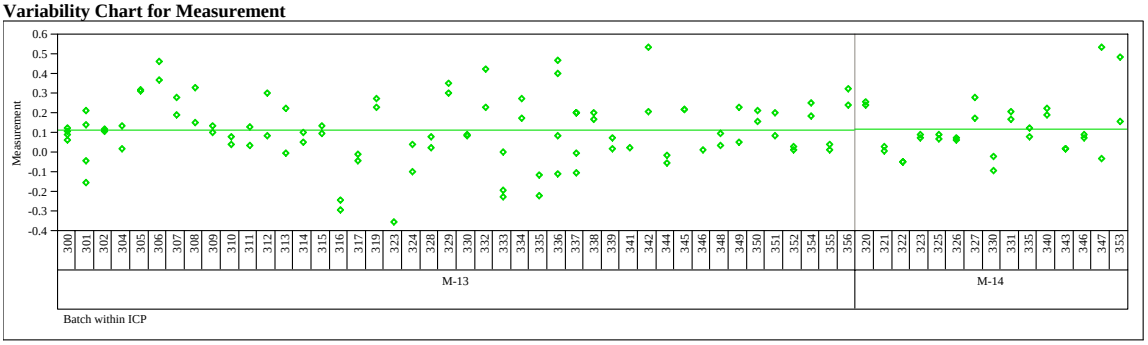
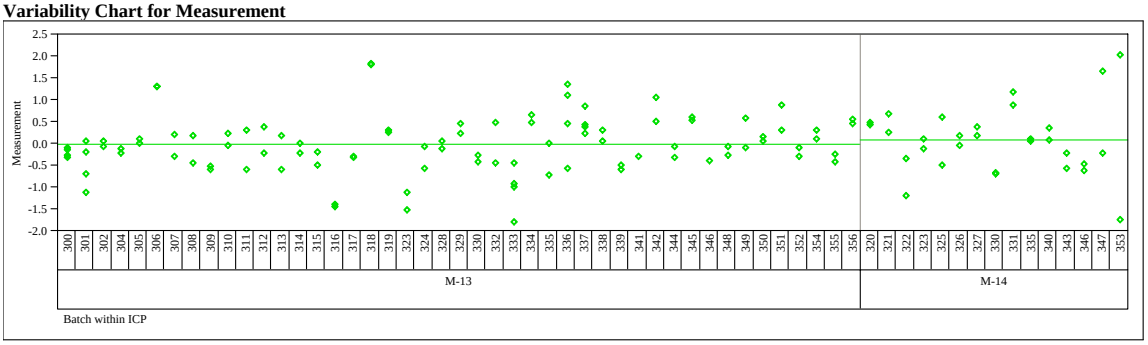


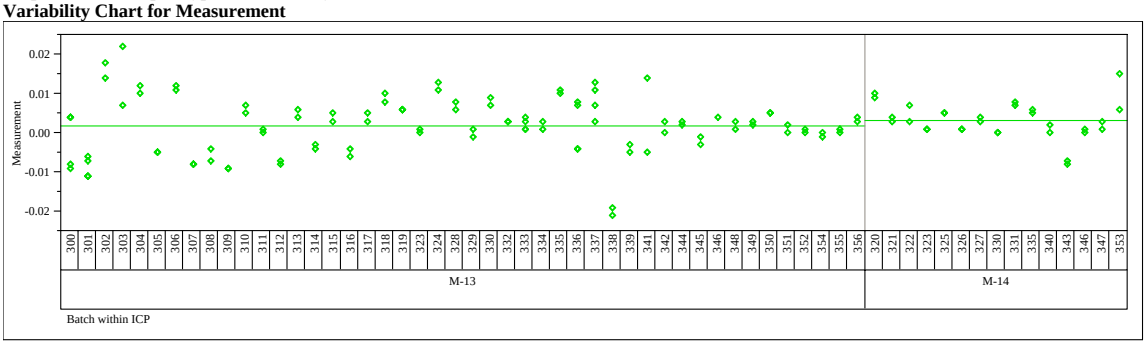
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

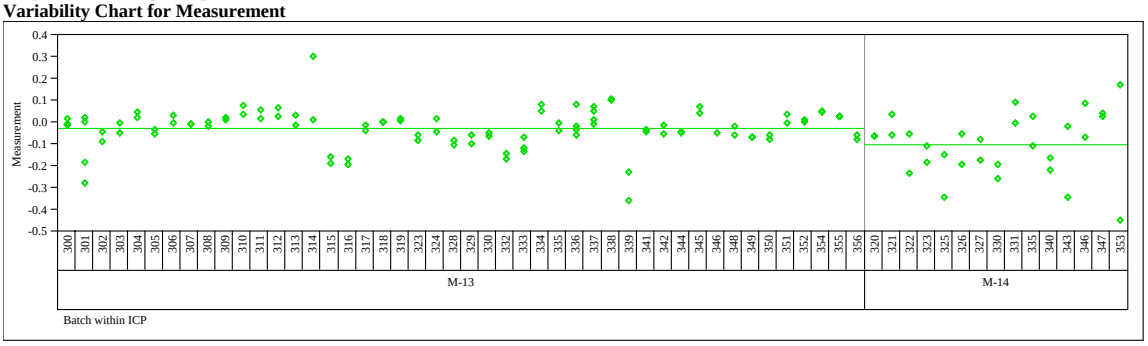
Prep=Fusion, Sample Type=blank, Analyte=Sum of Oxides
Variability Chart for Measurement



Prep=Fusion, Sample Type=blank, Analyte=Ti
Variability Chart for Measurement



Prep=Fusion, Sample Type=blank, Analyte=U
Variability Chart for Measurement



Prep=Fusion, Sample Type=blank, Analyte=U/Ca
Variability Chart for Measurement

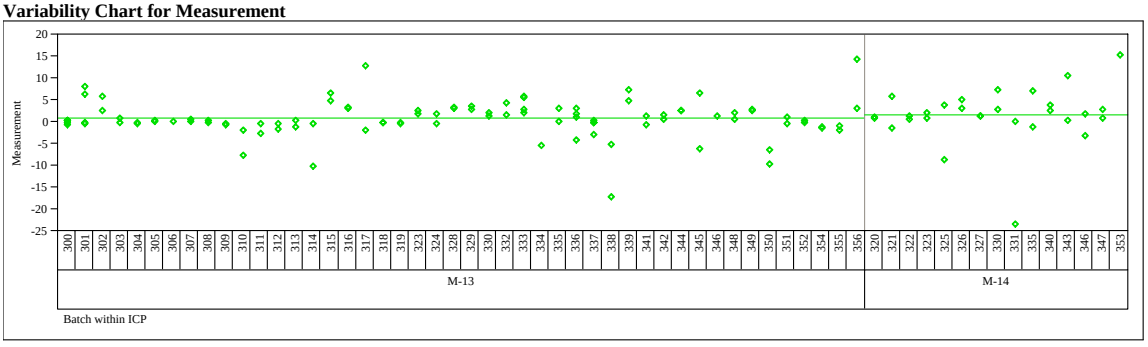
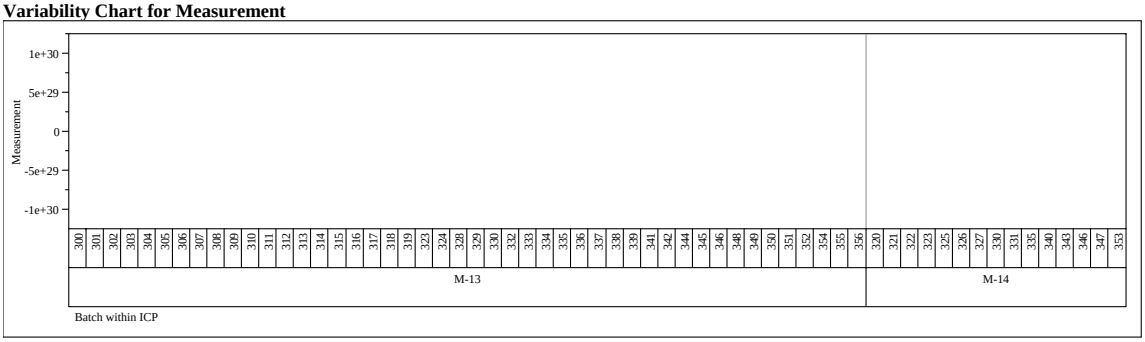
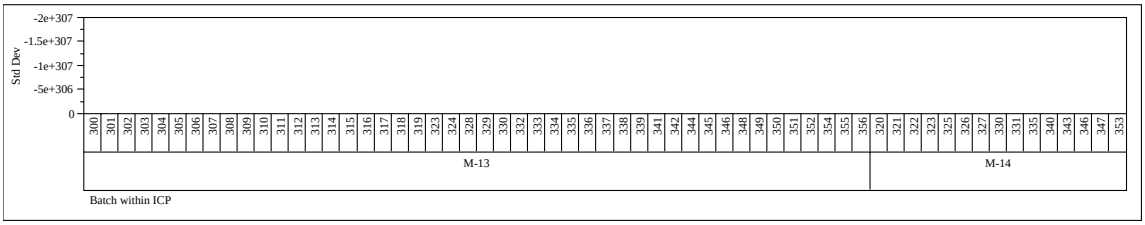


Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

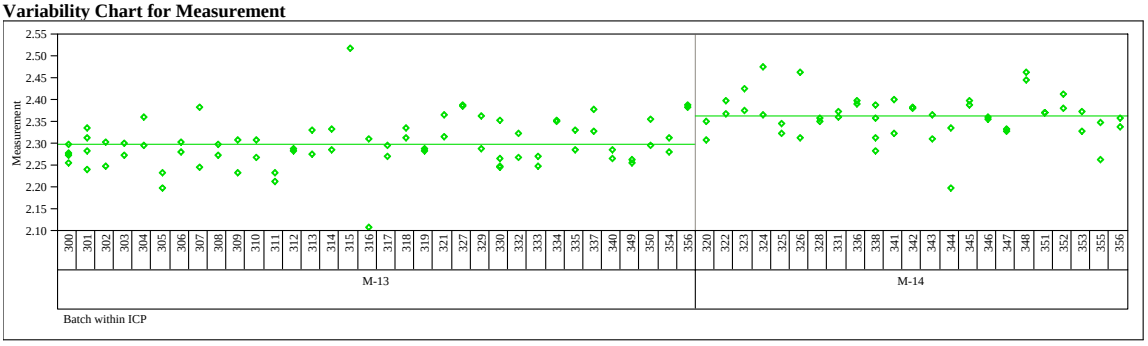
(continued)

Prep=Fusion, Sample Type=blank, Analyte=Zr
Variability Chart for Measurement





Prep=Mixed Acid, Sample Type=ARG-1, Analyte=Al
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=ARG-1, Analyte=Al/Ca
Variability Chart for Measurement

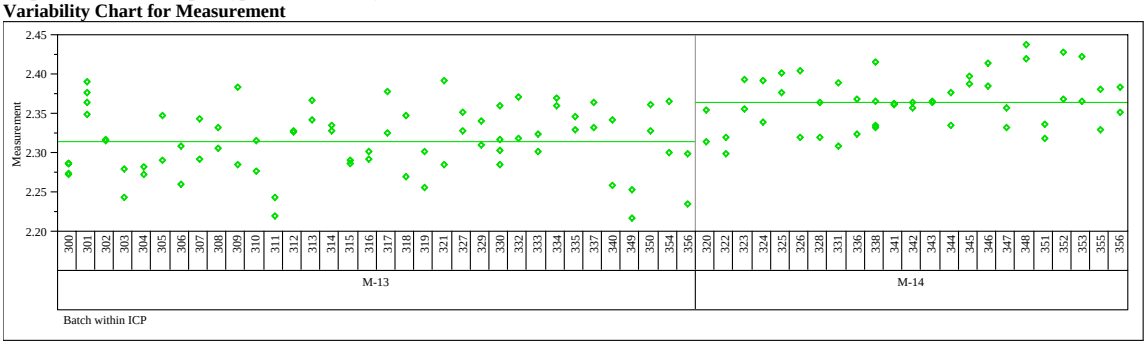
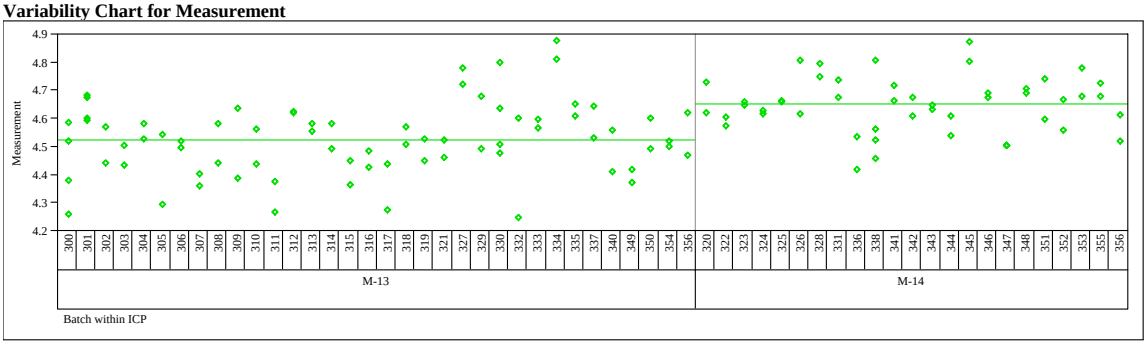


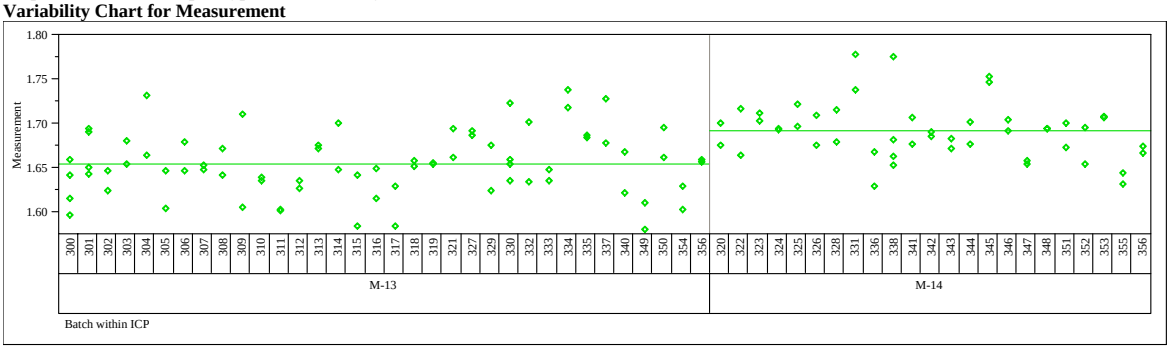
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

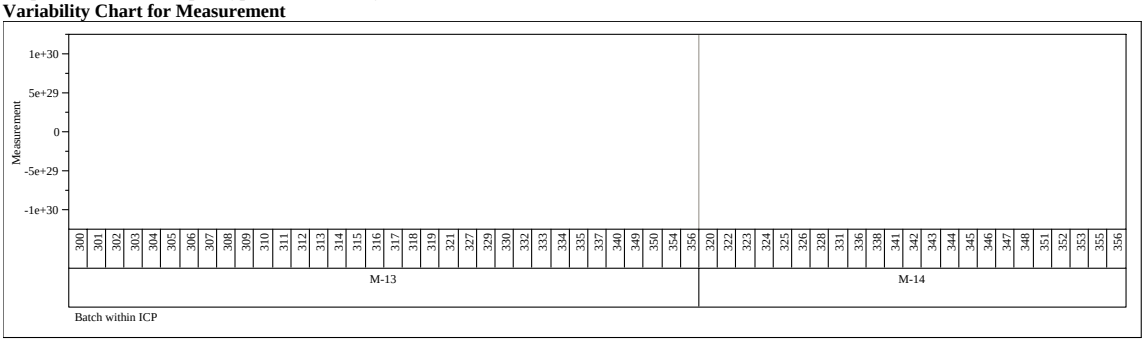
Prep=Mixed Acid, Sample Type=ARG-1, Analyte=Al/Mg
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=ARG-1, Analyte=Al/Mn
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=ARG-1, Analyte=B
Variability Chart for Measurement



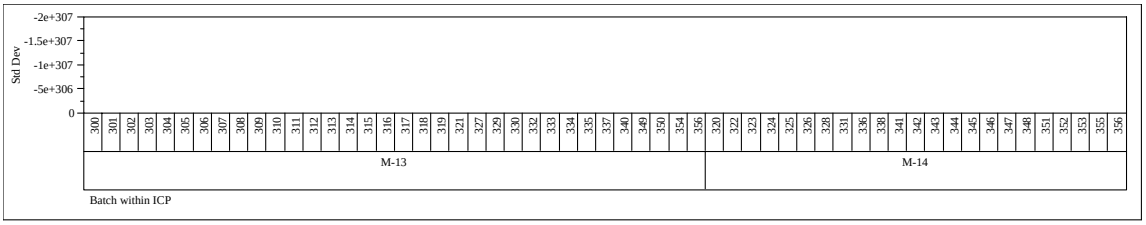
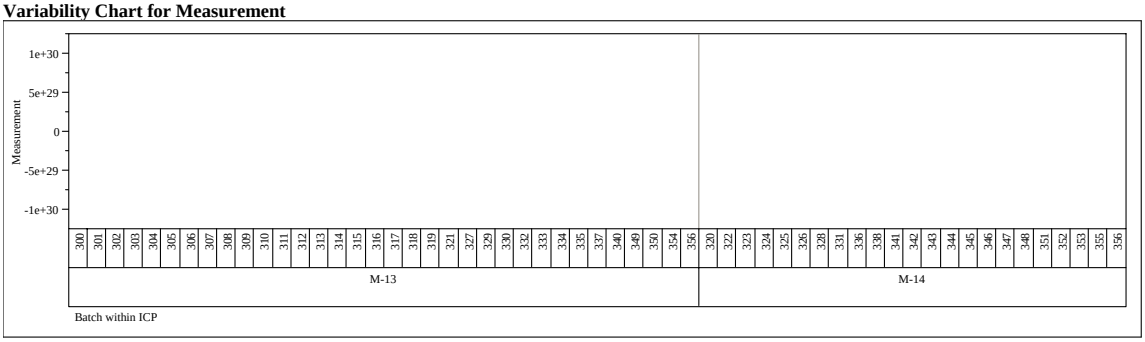
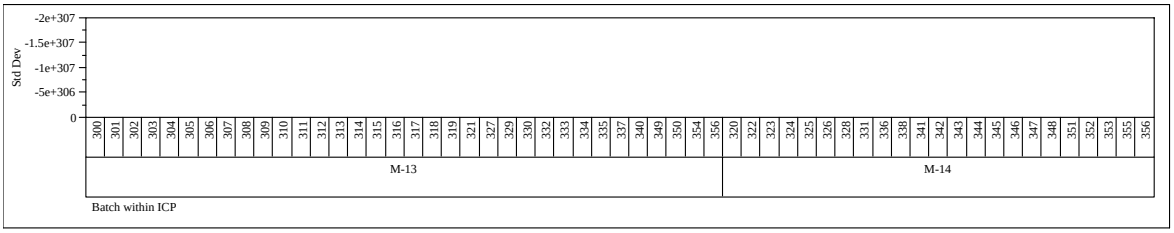


Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

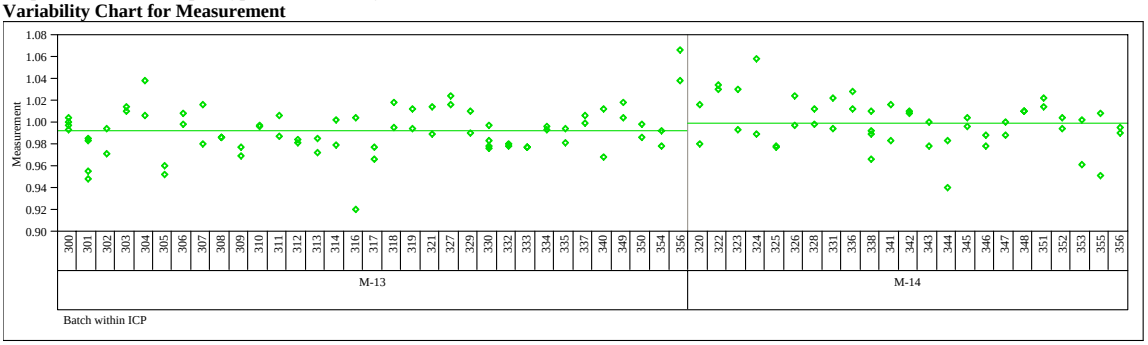
(continued)

Prep=Mixed Acid, Sample Type=ARG-1, Analyte=B/Li
Variability Chart for Measurement





Prep=Mixed Acid, Sample Type=ARG-1, Analyte=Ca
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=ARG-1, Analyte=Cr
Variability Chart for Measurement

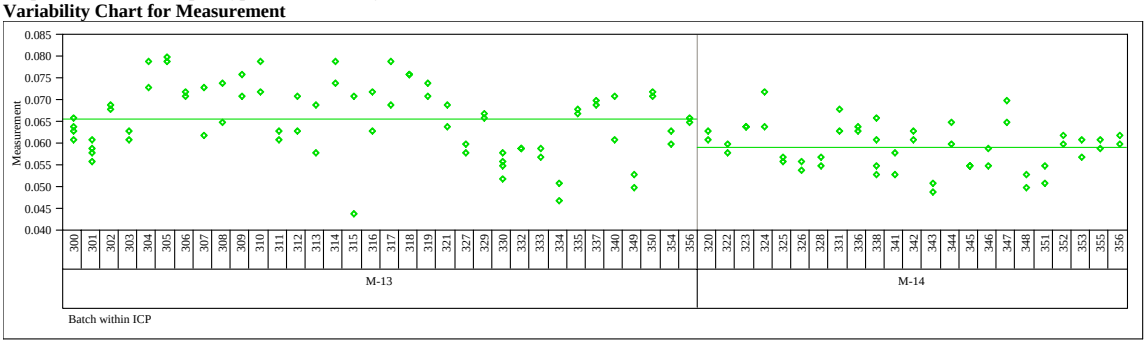
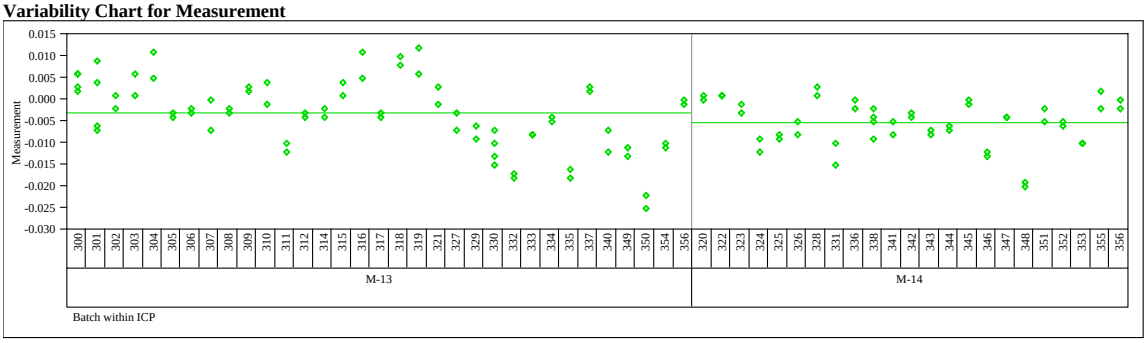


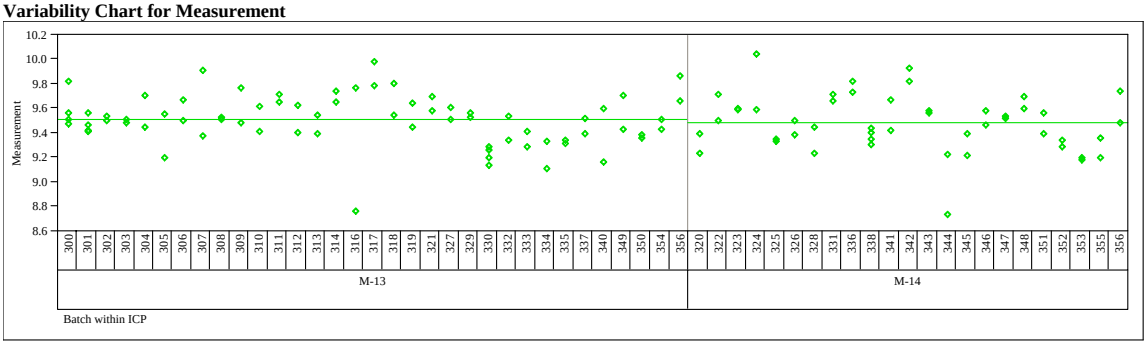
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

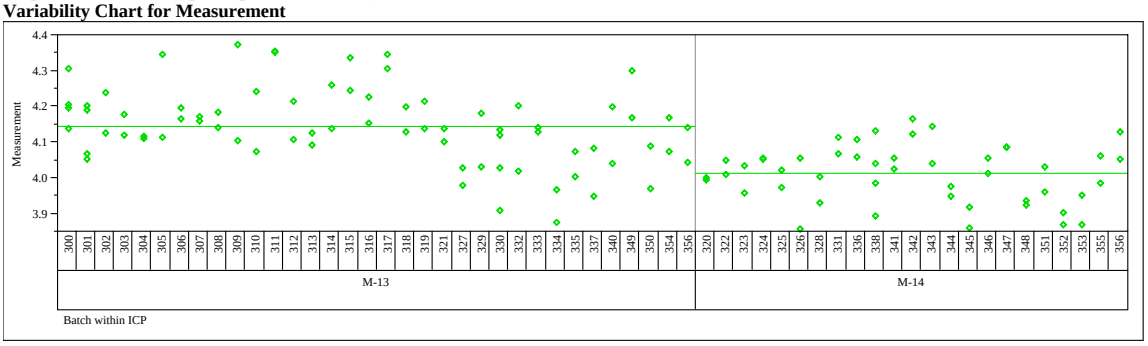
Prep=Mixed Acid, Sample Type=ARG-1, Analyte=Cu
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=ARG-1, Analyte=Fe
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=ARG-1, Analyte=Fe/Al
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=ARG-1, Analyte=Fe/Ca
Variability Chart for Measurement

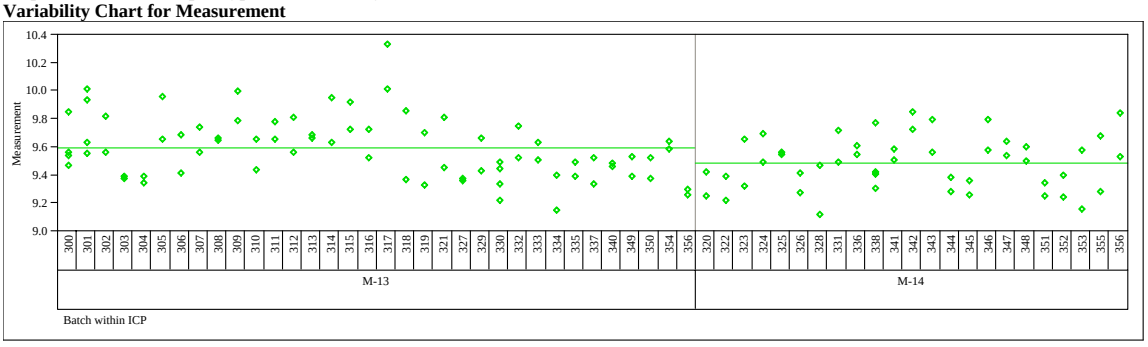
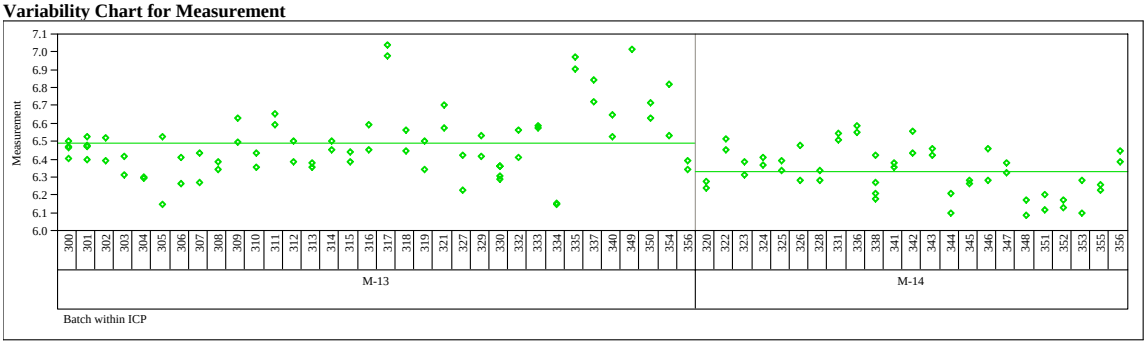


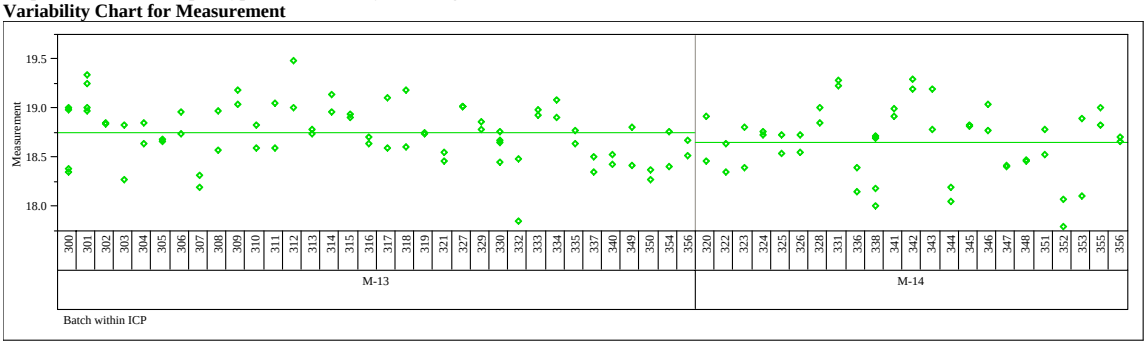
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

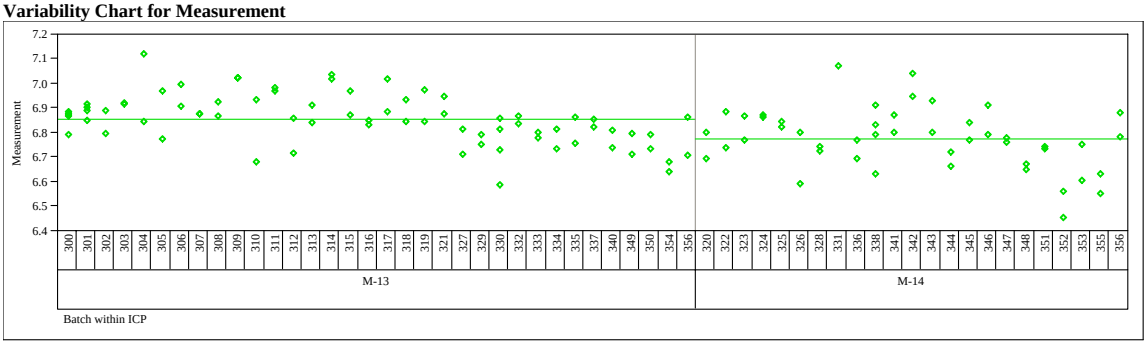
Prep=Mixed Acid, Sample Type=ARG-1, Analyte=Fe/Li
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=ARG-1, Analyte=Fe/Mg
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=ARG-1, Analyte=Fe/Mn
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=ARG-1, Analyte=Fe/Ni
Variability Chart for Measurement

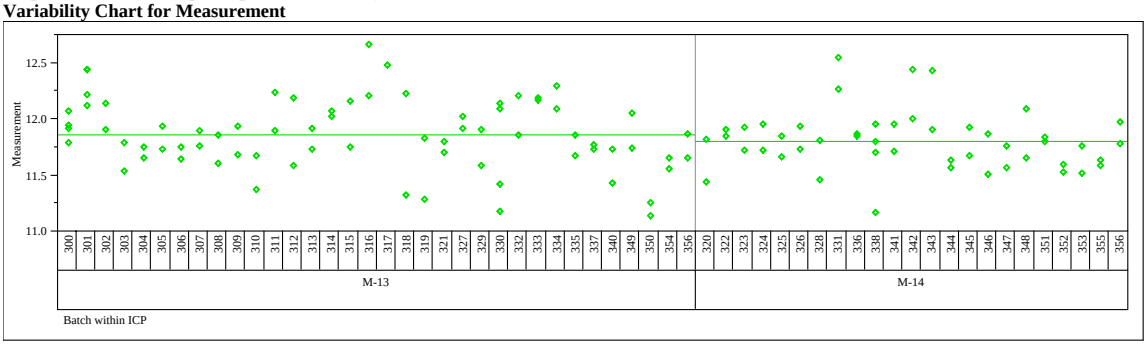
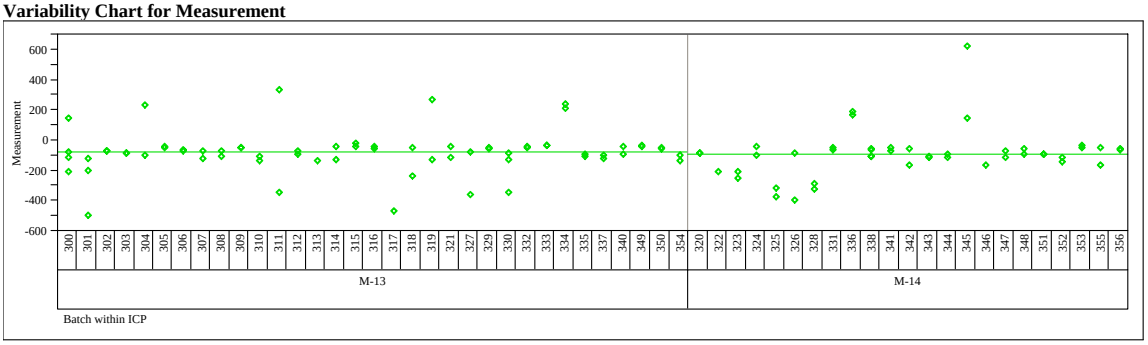


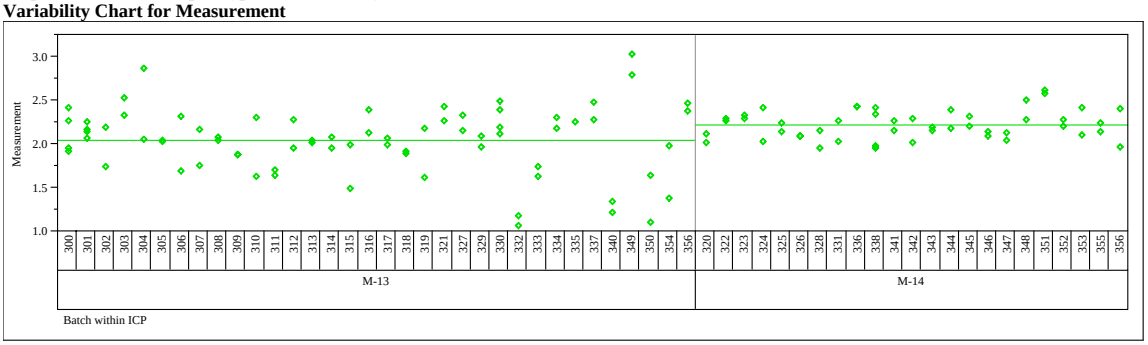
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

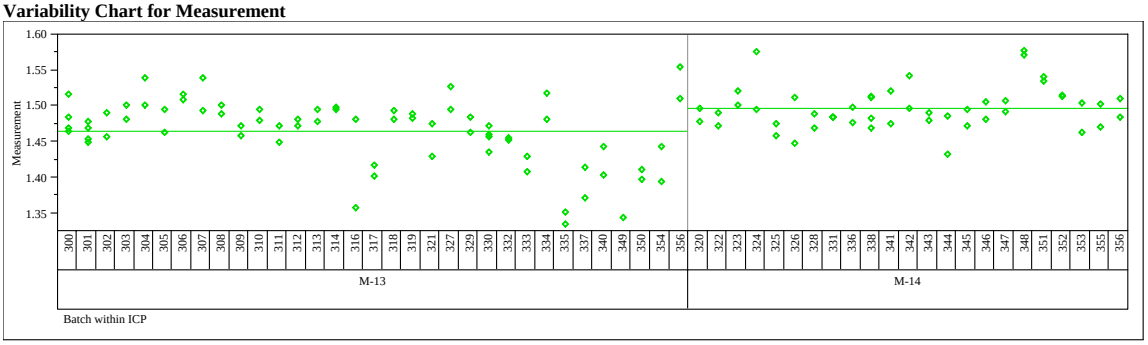
Prep=Mixed Acid, Sample Type=ARG-1, Analyte=Fe/U
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=ARG-1, Analyte=K
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=ARG-1, Analyte=Li
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=ARG-1, Analyte=Mg
Variability Chart for Measurement

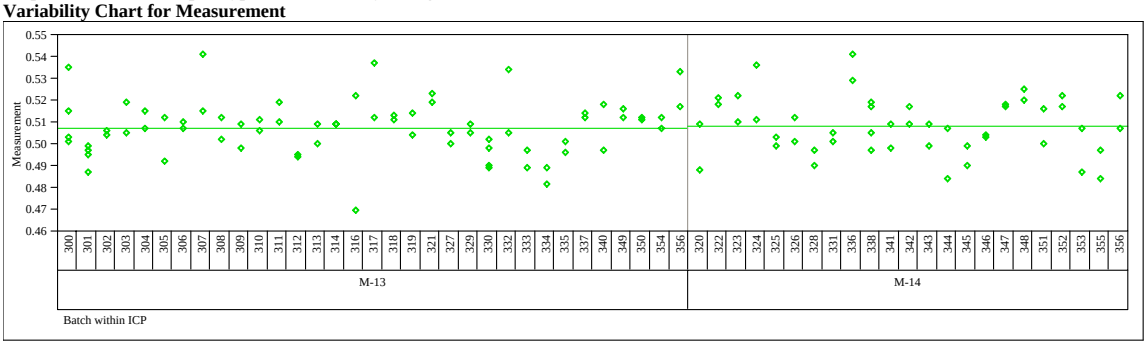
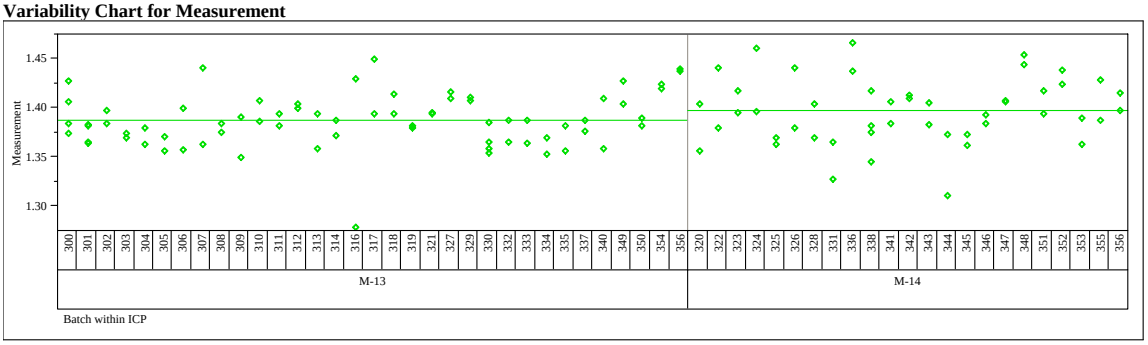


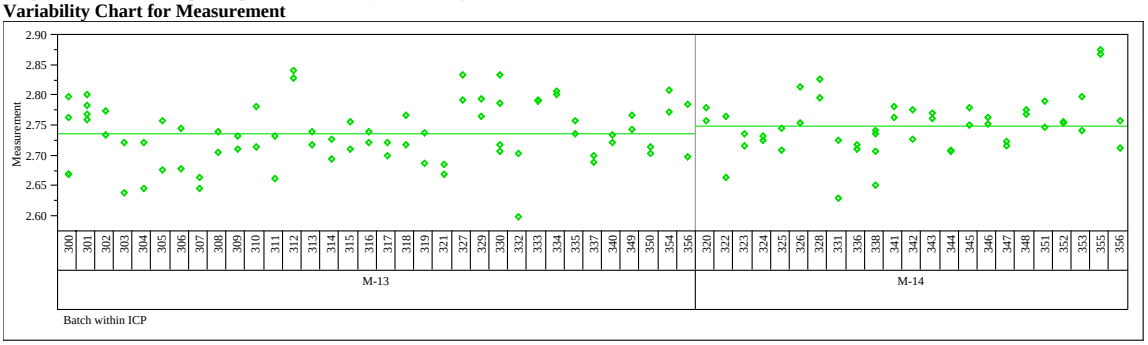
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

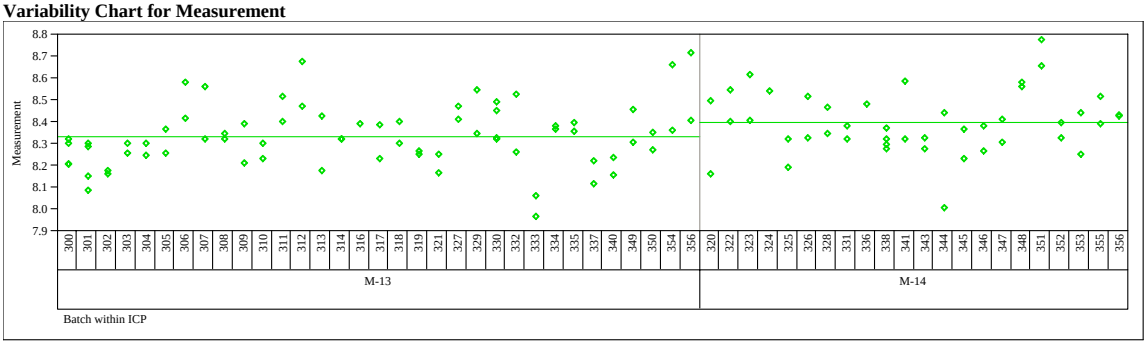
Prep=Mixed Acid, Sample Type=ARG-1, Analyte=Mn
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=ARG-1, Analyte=Mn/Mg
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=ARG-1, Analyte=Na
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=ARG-1, Analyte=Ni
Variability Chart for Measurement

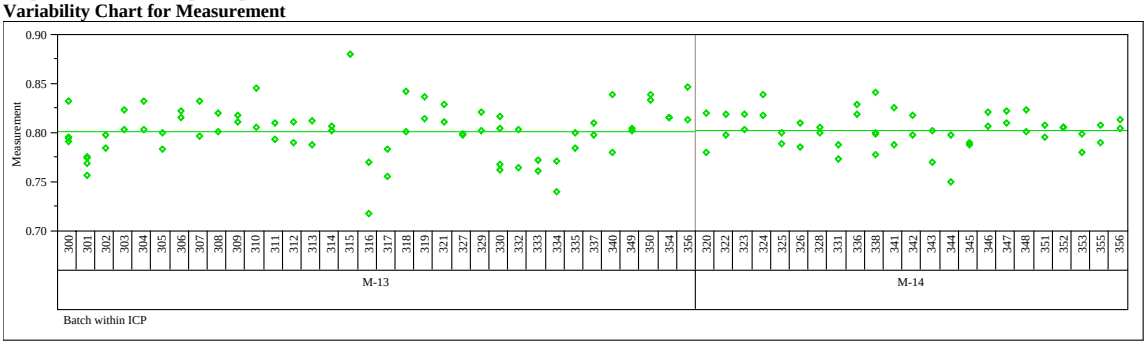
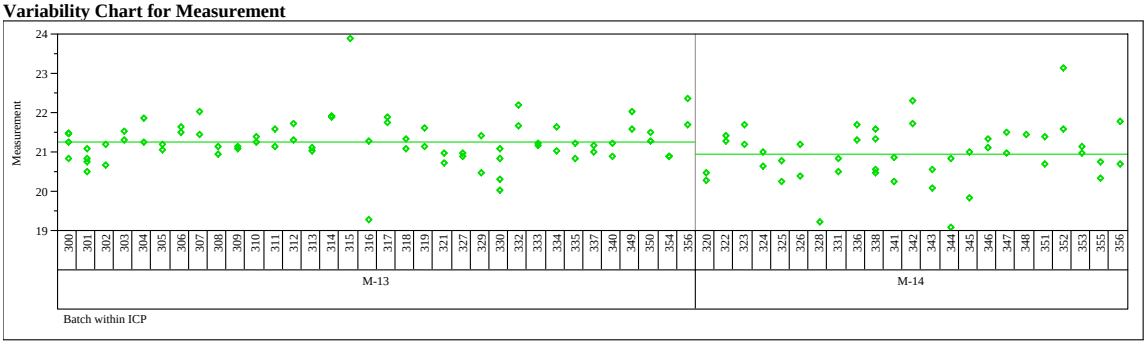


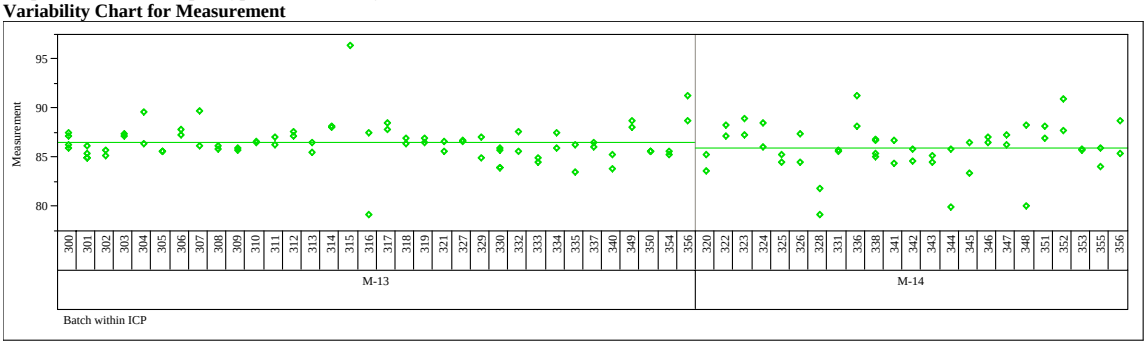
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

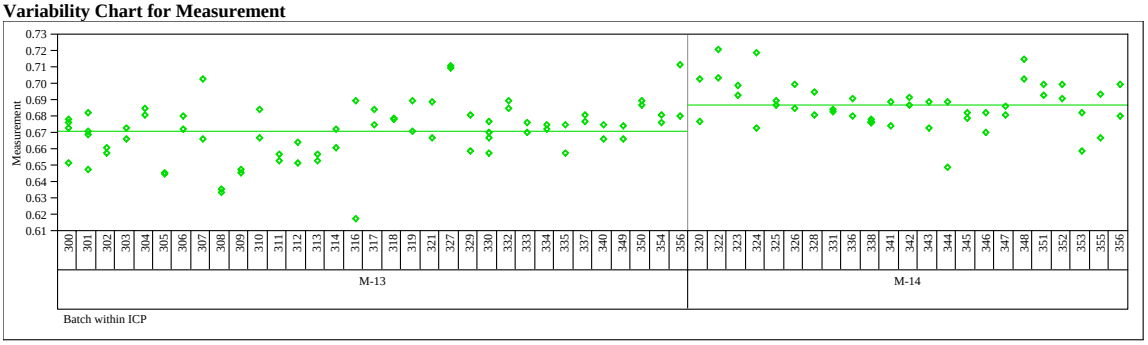
Prep=Mixed Acid, Sample Type=ARG-1, Analyte=Si
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=ARG-1, Analyte=Sum of Oxides
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=ARG-1, Analyte=Ti
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=ARG-1, Analyte=U
Variability Chart for Measurement

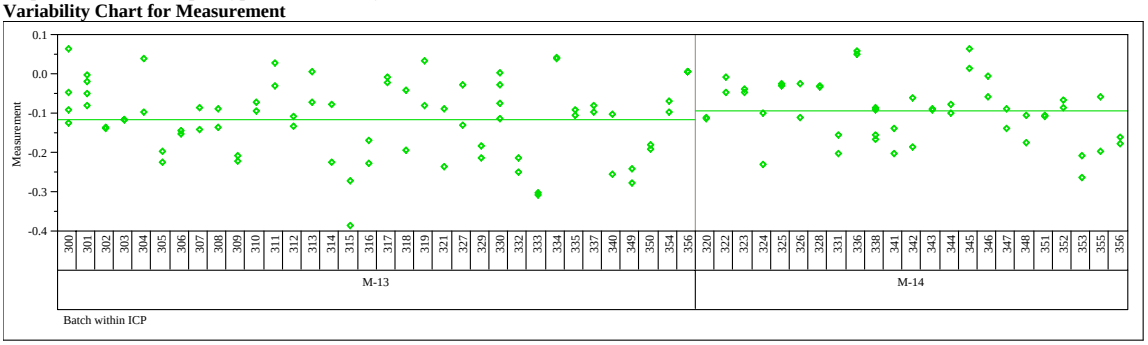
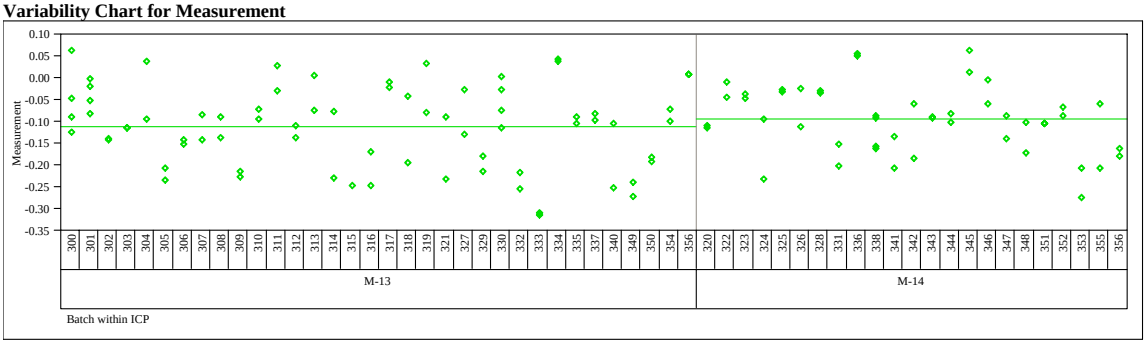


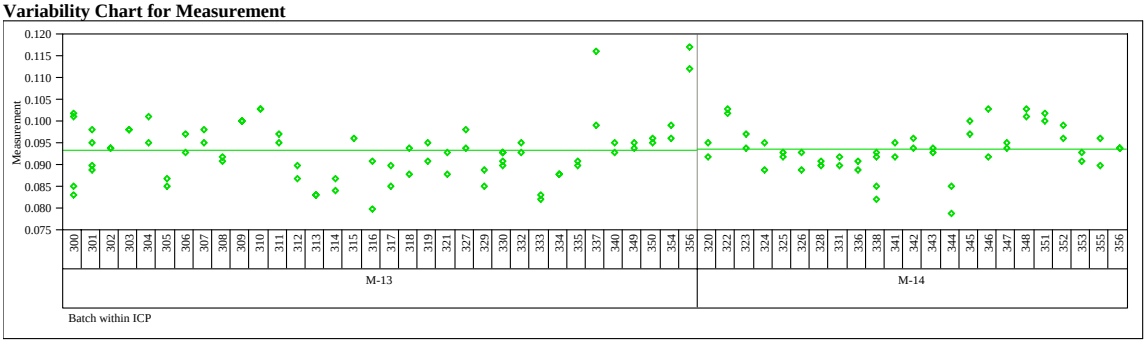
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

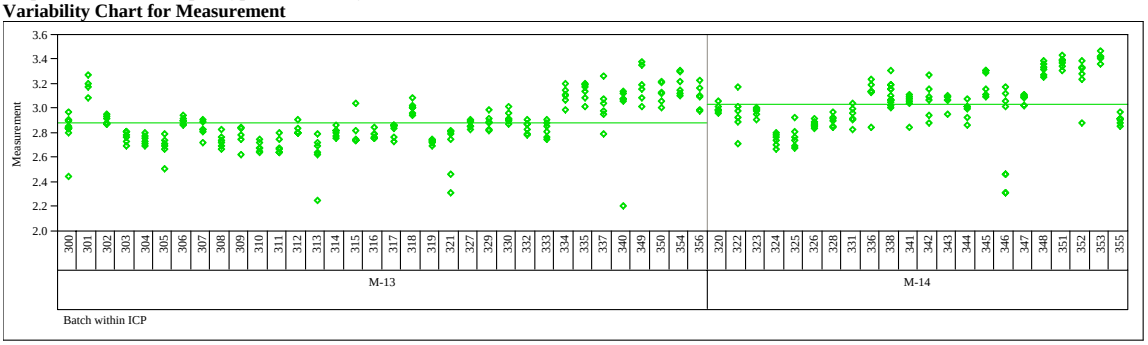
Prep=Mixed Acid, Sample Type=ARG-1, Analyte=U/Ca
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=ARG-1, Analyte=Zr
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=SME, Analyte=Al
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=SME, Analyte=Al/Ca
Variability Chart for Measurement

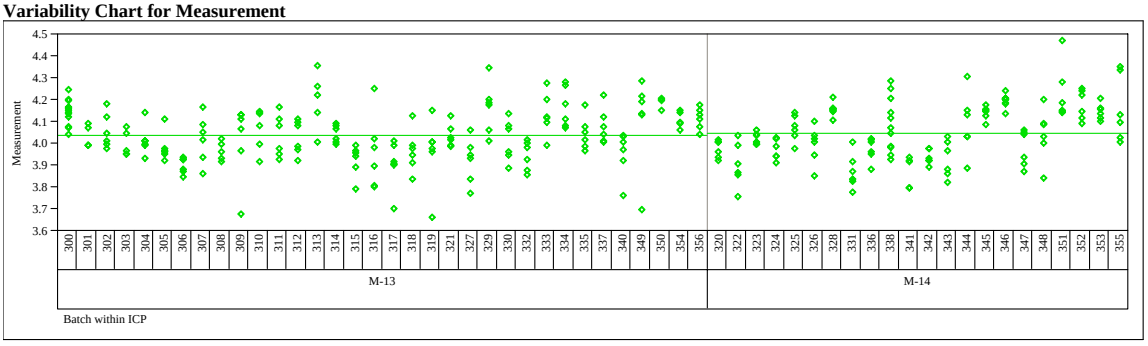
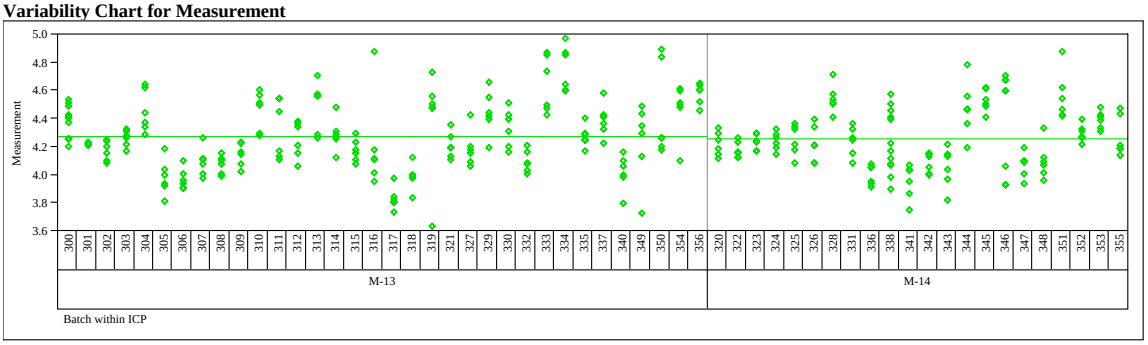


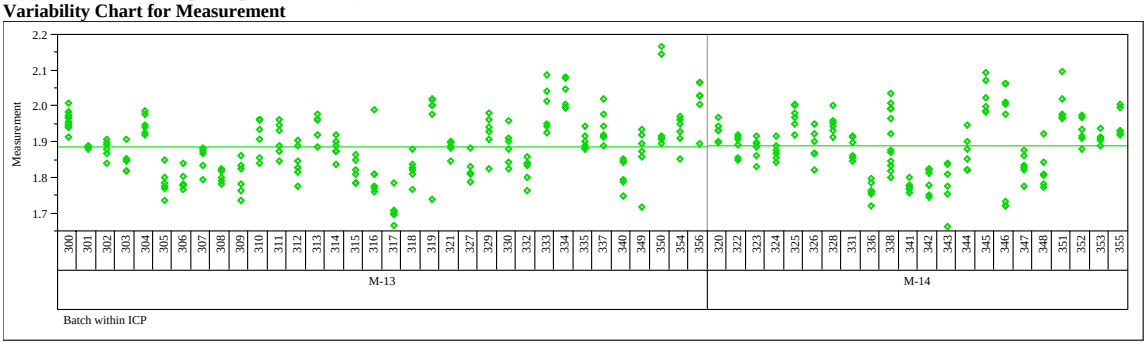
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

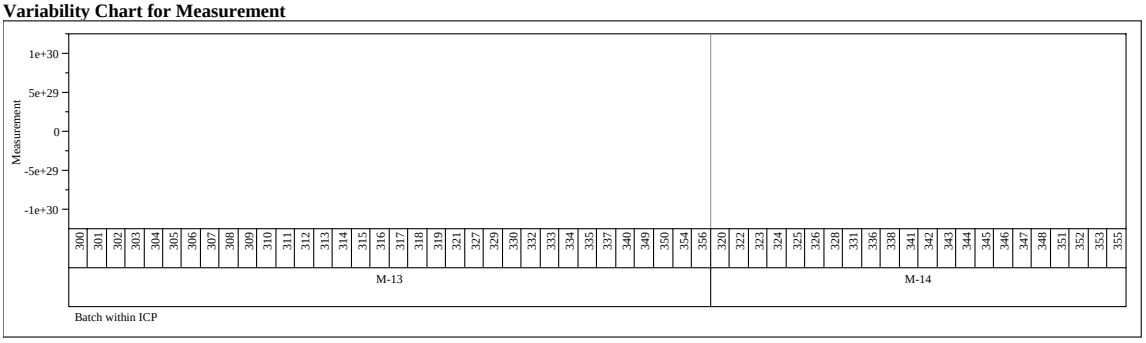
Prep=Mixed Acid, Sample Type=SME, Analyte=Al/Mg
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=SME, Analyte=Al/Mn
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=SME, Analyte=B
Variability Chart for Measurement



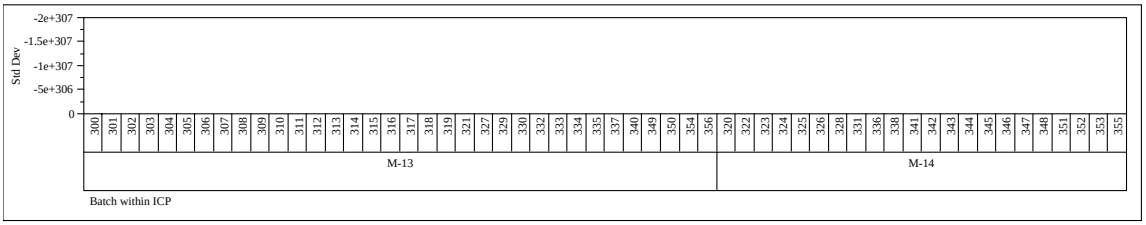
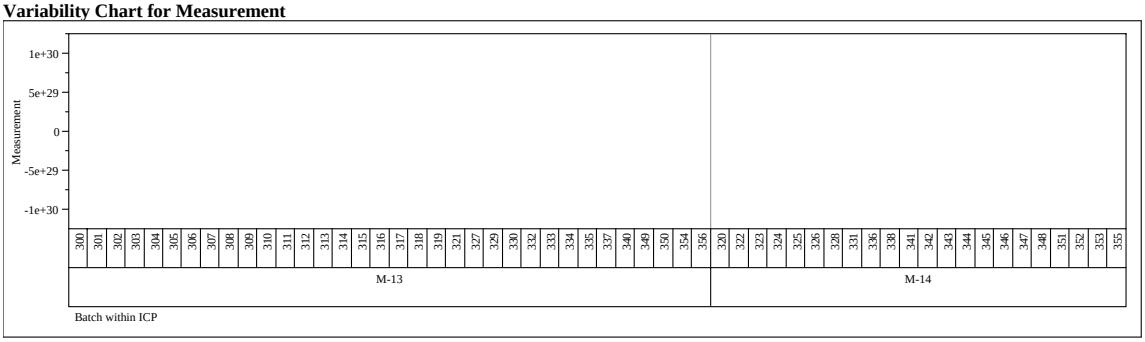
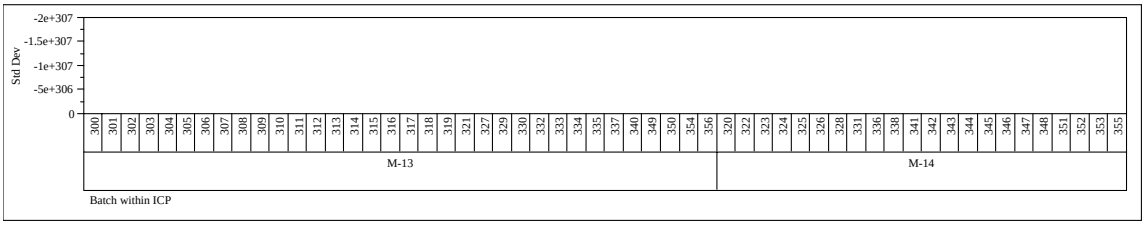


Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

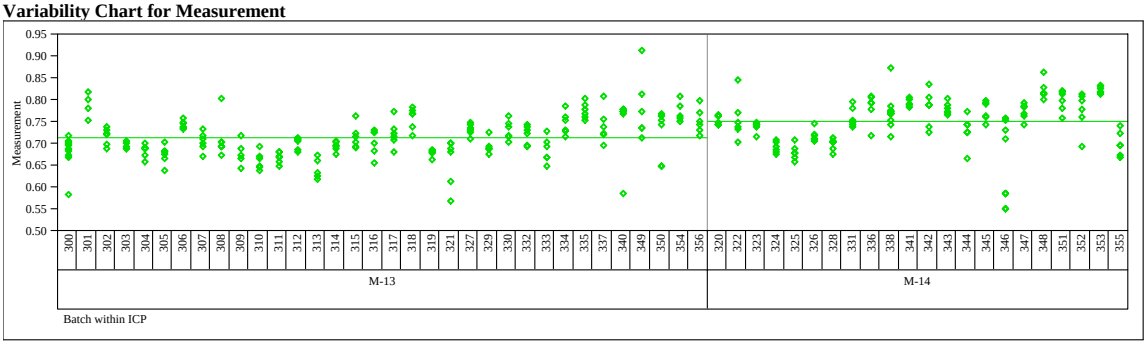
(continued)

Prep=Mixed Acid, Sample Type=SME, Analyte=B/Li
Variability Chart for Measurement





Prep=Mixed Acid, Sample Type=SME, Analyte=Ca
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=SME, Analyte=Cr
Variability Chart for Measurement

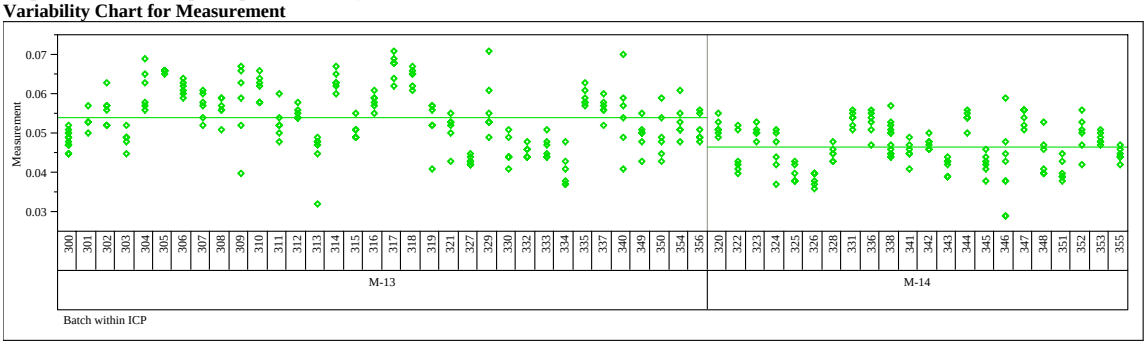
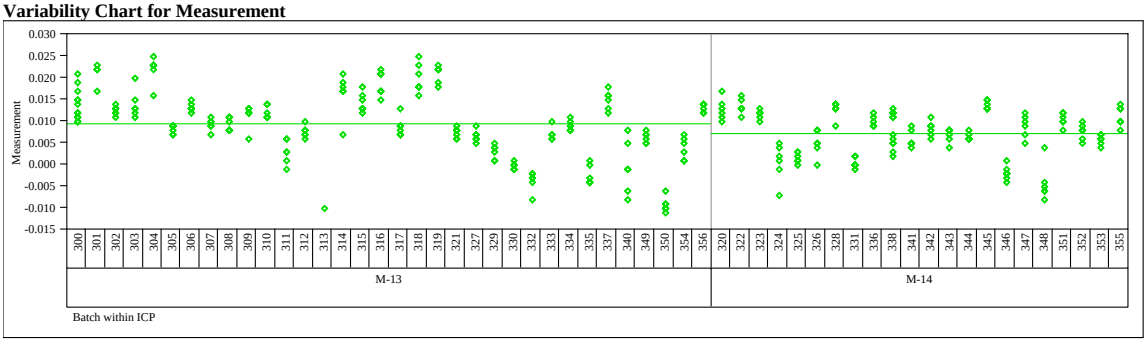


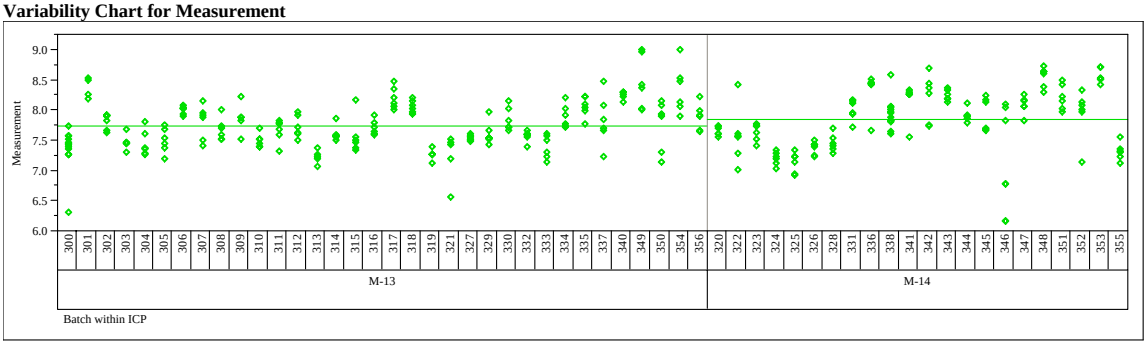
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

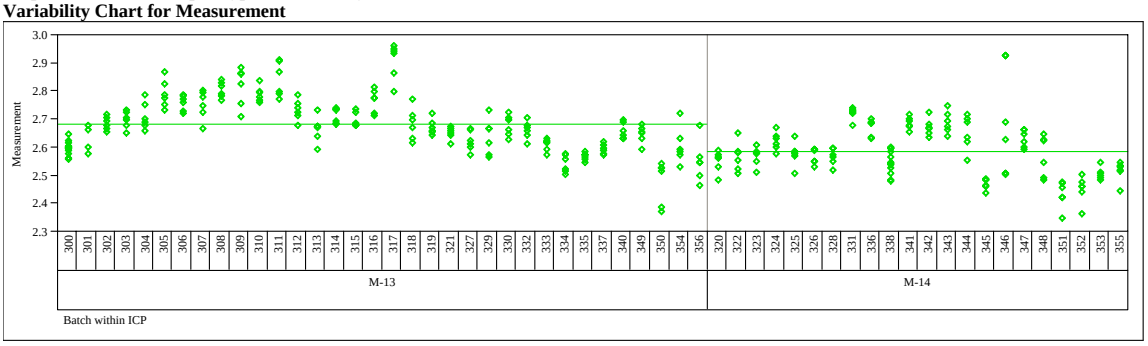
Prep=Mixed Acid, Sample Type=SME, Analyte=Cu
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=SME, Analyte=Fe
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=SME, Analyte=Fe/Al
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=SME, Analyte=Fe/Ca
Variability Chart for Measurement

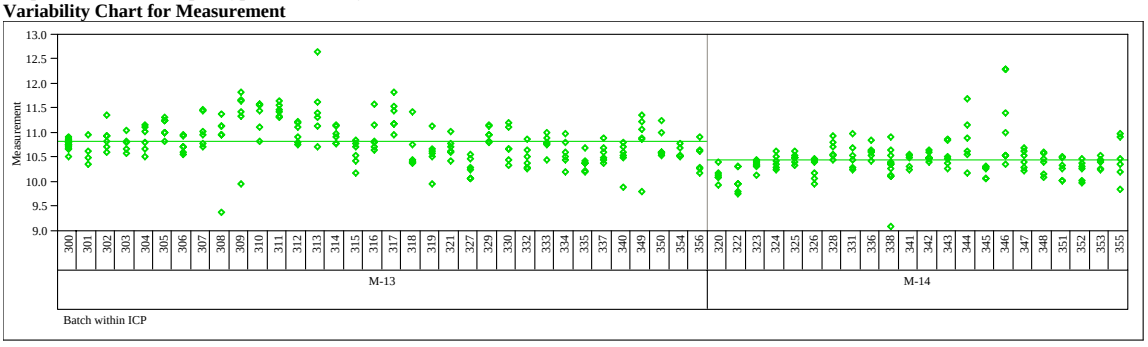
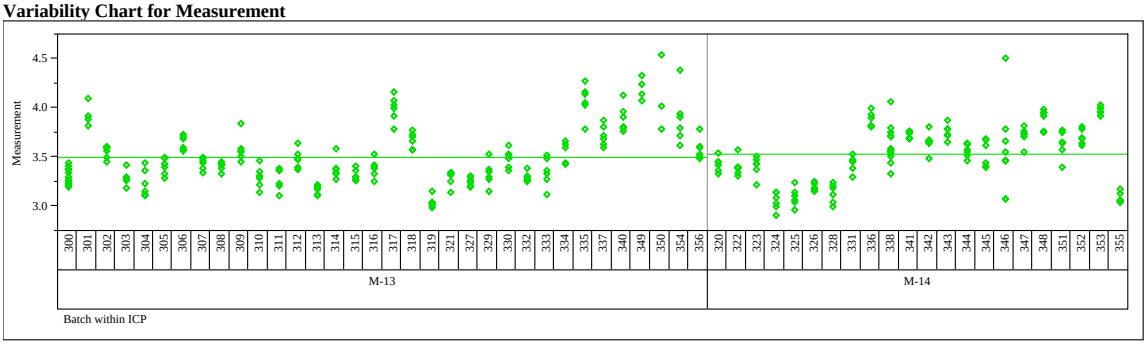


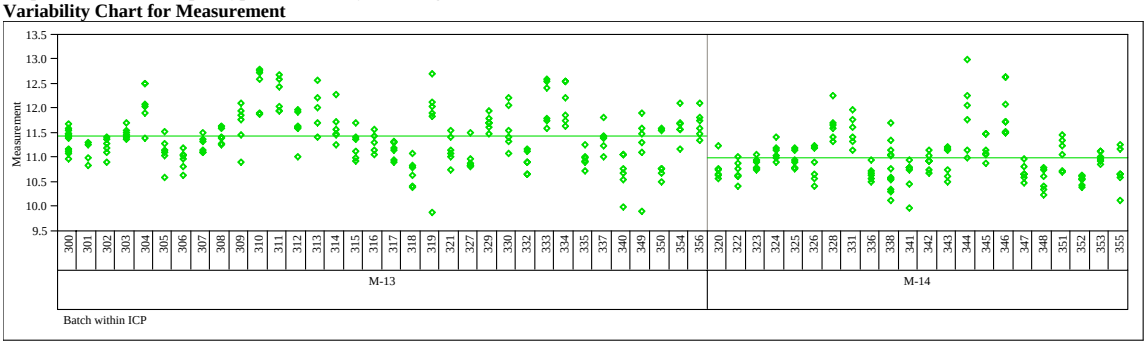
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

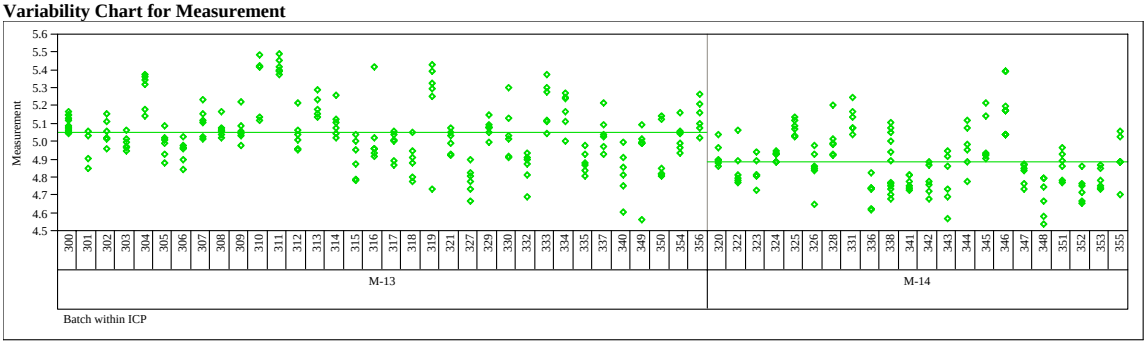
Prep=Mixed Acid, Sample Type=SME, Analyte=Fe/Li
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=SME, Analyte=Fe/Mg
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=SME, Analyte=Fe/Mn
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=SME, Analyte=Fe/Ni
Variability Chart for Measurement

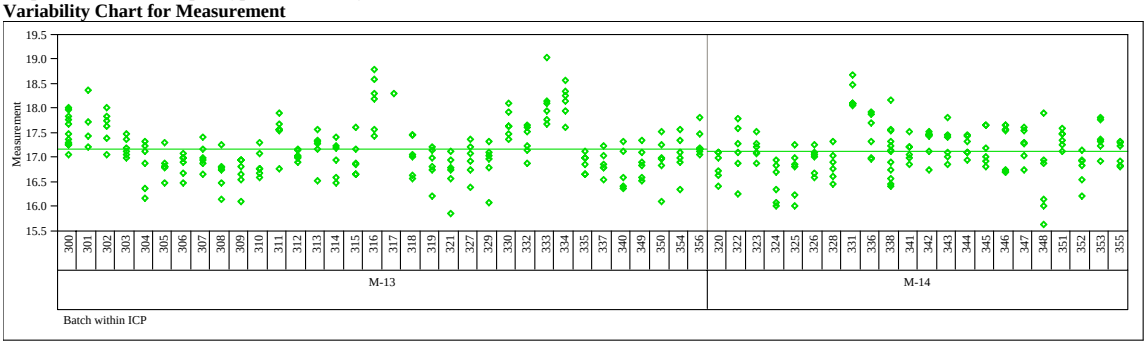
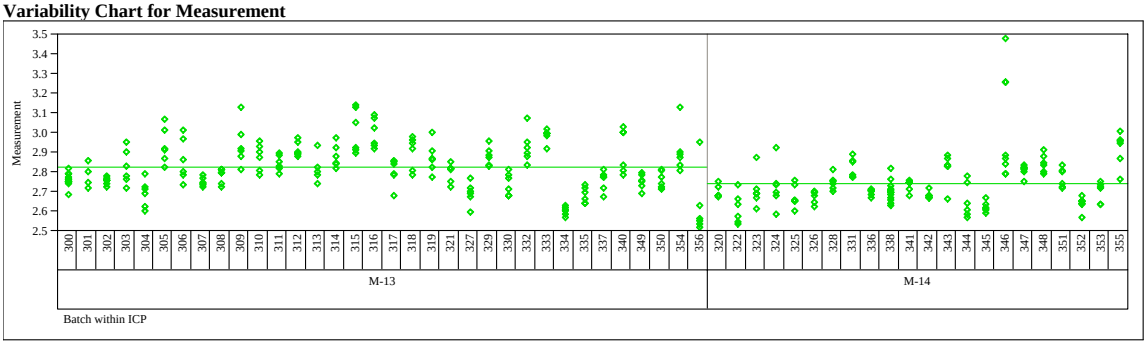


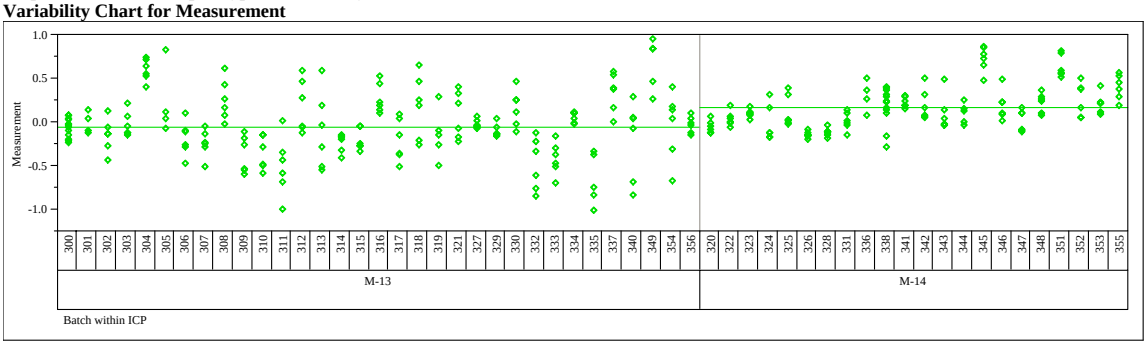
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

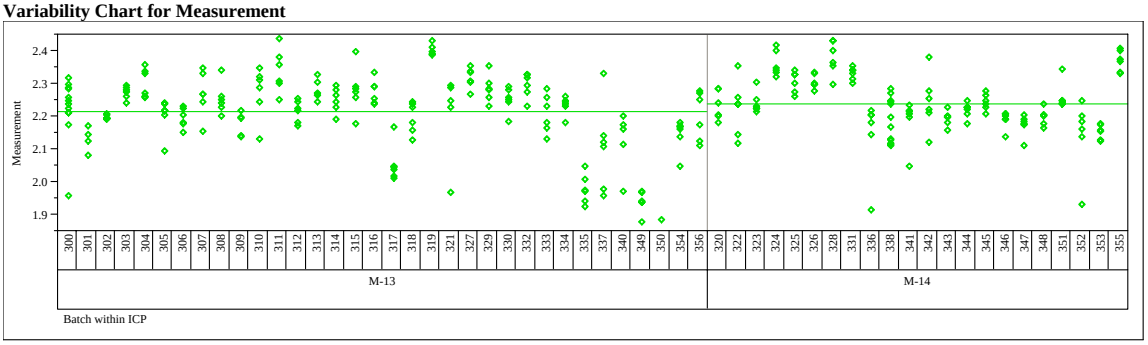
Prep=Mixed Acid, Sample Type=SME, Analyte=Fe/U
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=SME, Analyte=K
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=SME, Analyte=Li
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=SME, Analyte=Mg
Variability Chart for Measurement

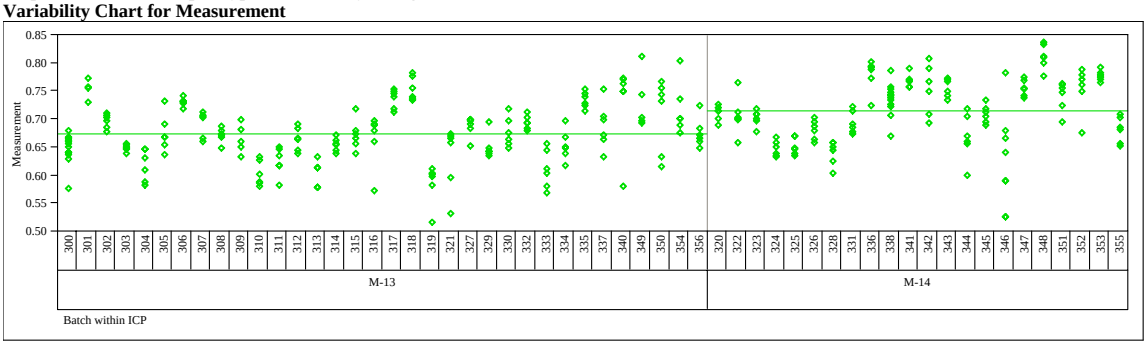
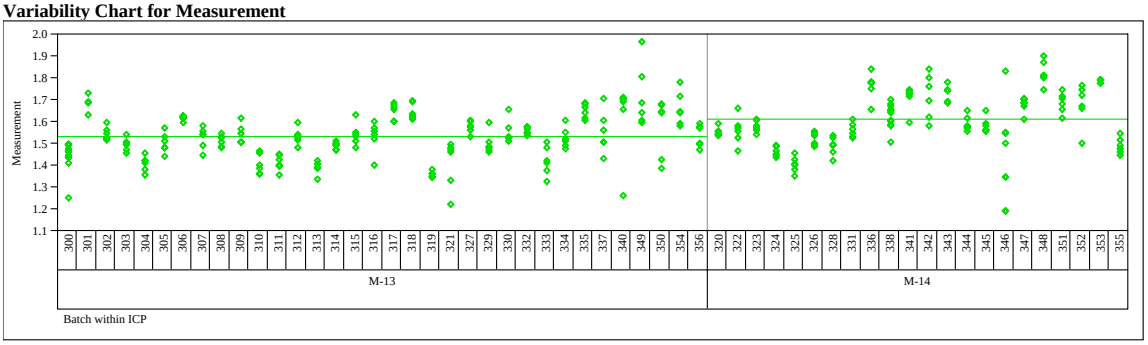


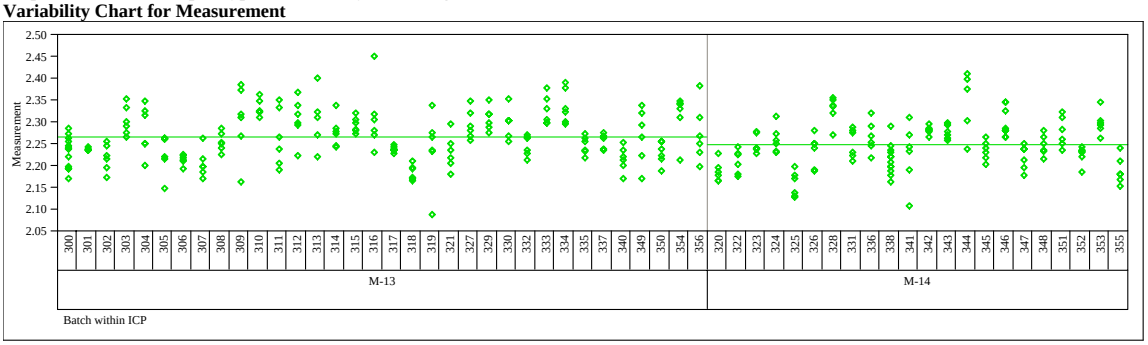
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

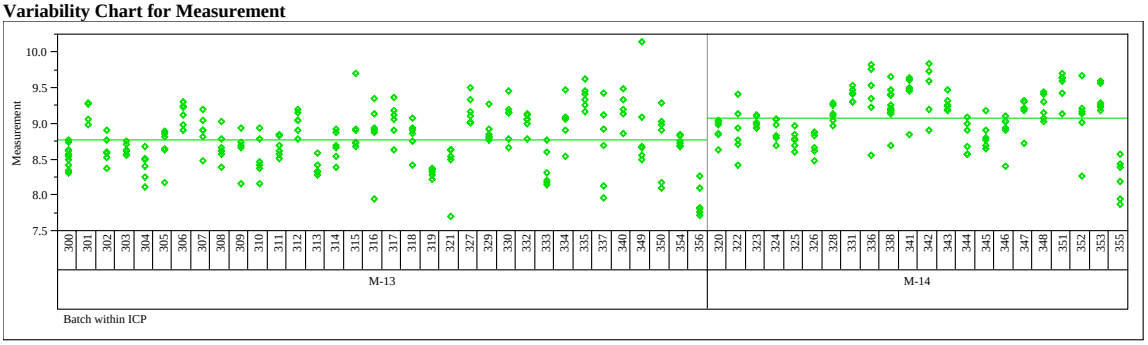
Prep=Mixed Acid, Sample Type=SME, Analyte=Mn
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=SME, Analyte=Mn/Mg
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=SME, Analyte=Na
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=SME, Analyte=Ni
Variability Chart for Measurement

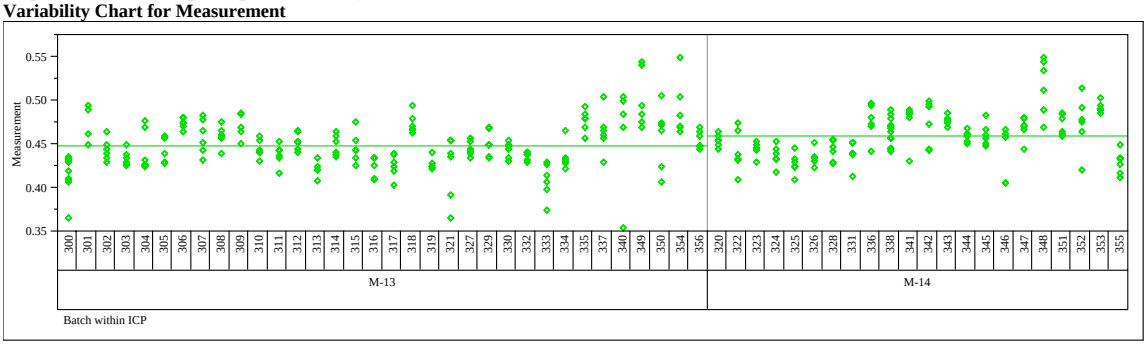
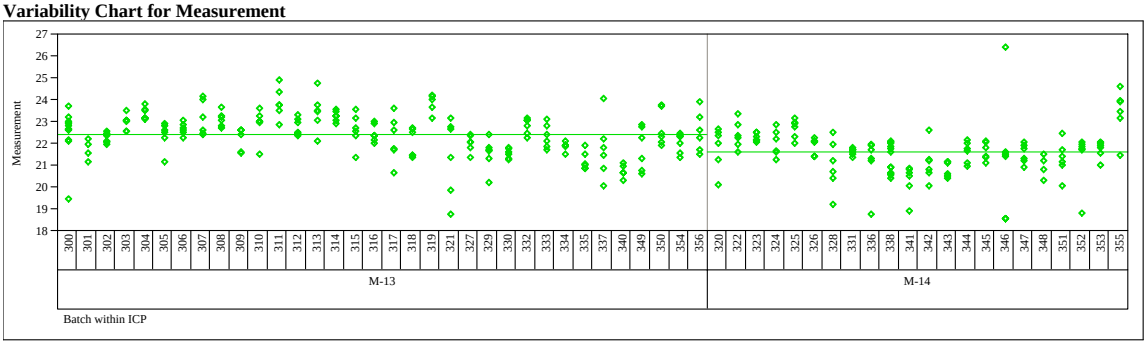


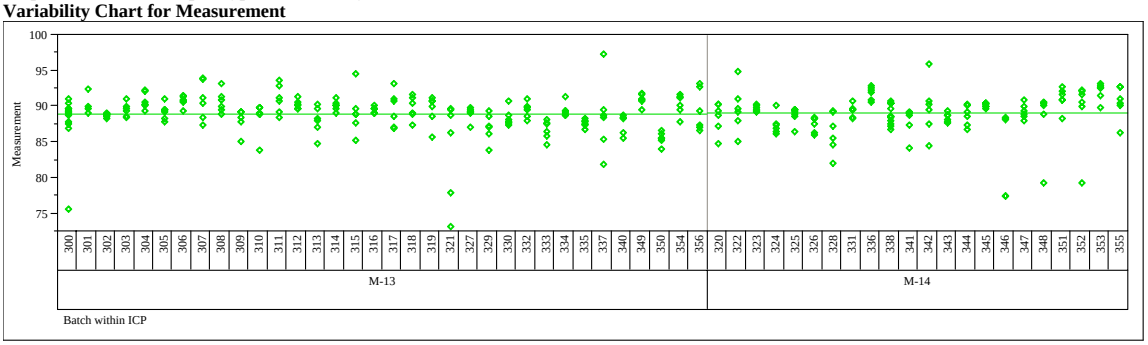
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

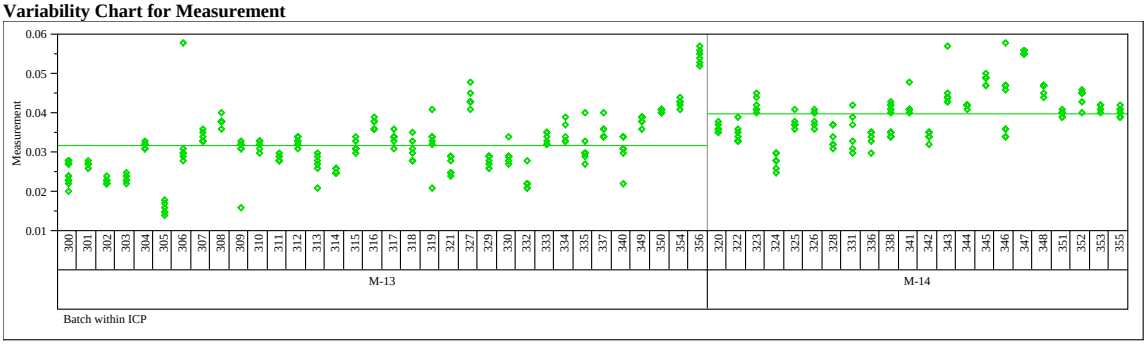
Prep=Mixed Acid, Sample Type=SME, Analyte=Si
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=SME, Analyte=Sum of Oxides
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=SME, Analyte=Ti
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=SME, Analyte=U
Variability Chart for Measurement

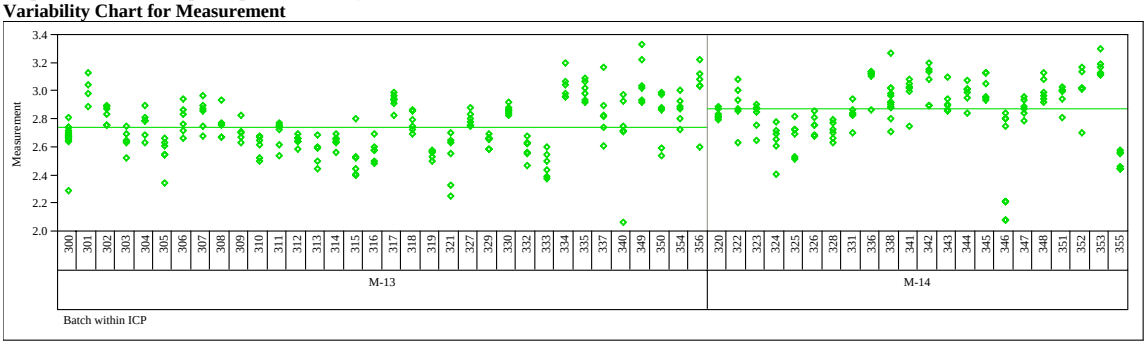
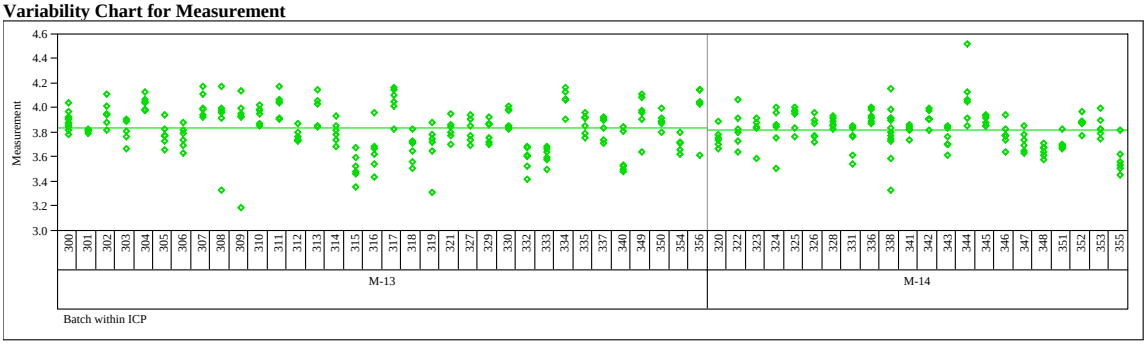


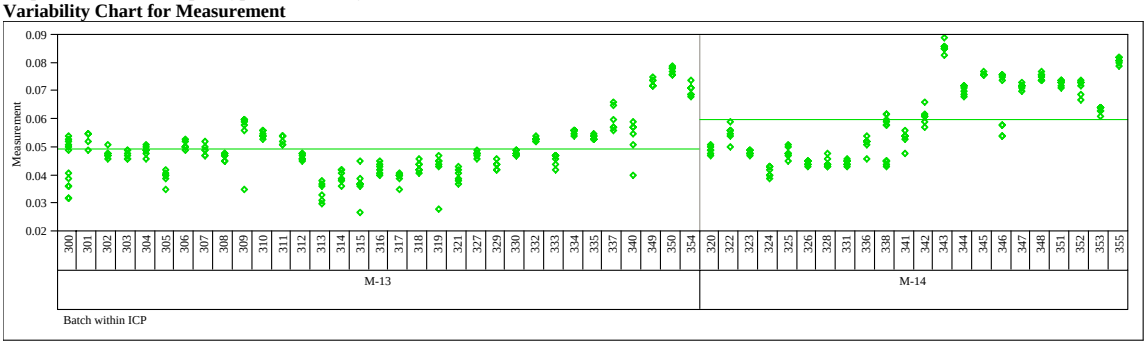
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

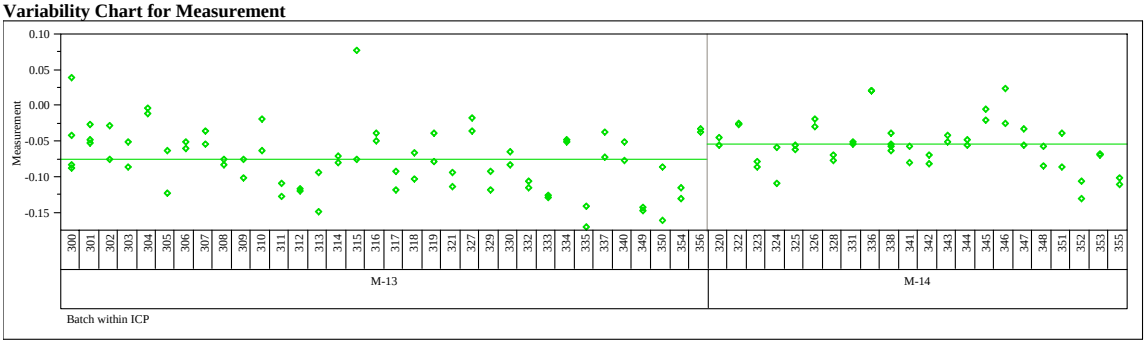
Prep=Mixed Acid, Sample Type=SME, Analyte=U/Ca
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=SME, Analyte=Zr
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=blank, Analyte=Al
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=blank, Analyte=Al/Ca
Variability Chart for Measurement

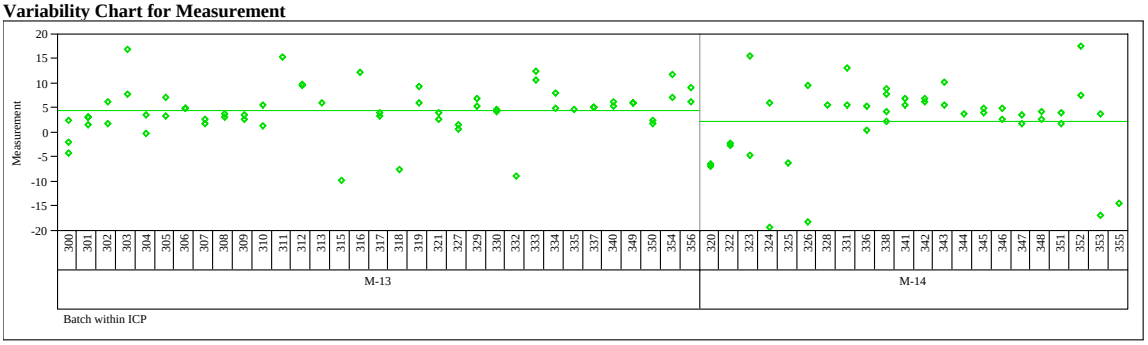
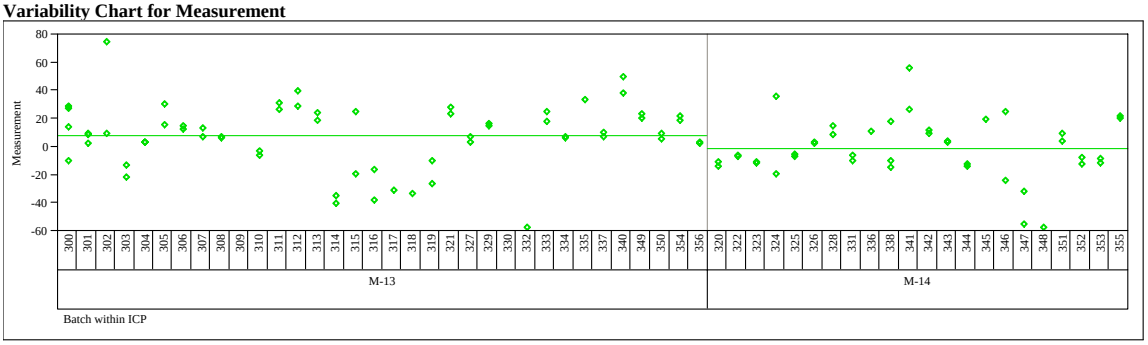


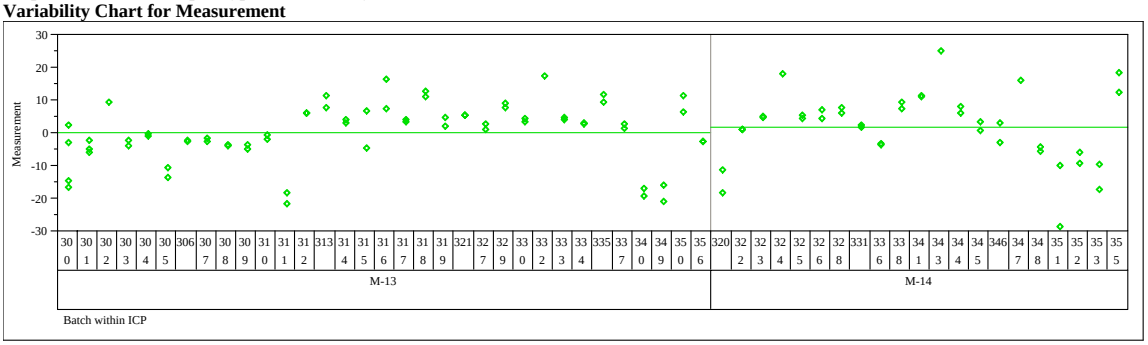
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

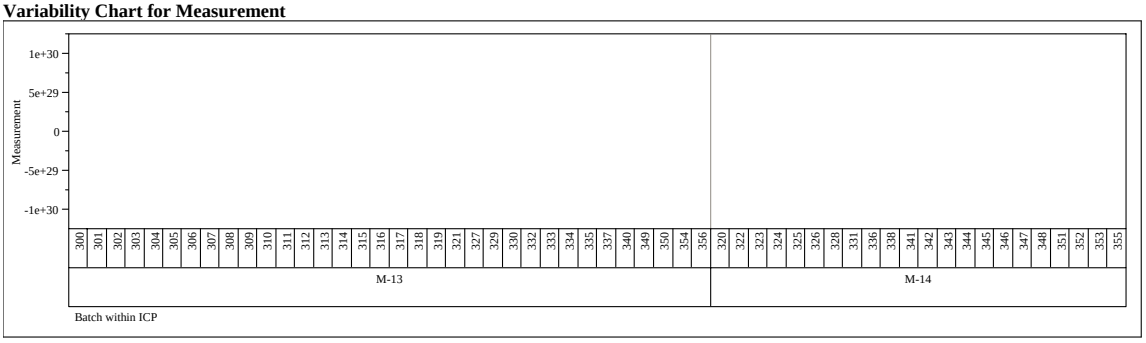
Prep=Mixed Acid, Sample Type=blank, Analyte=Al/Mg
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=blank, Analyte=Al/Mn
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=blank, Analyte=B
Variability Chart for Measurement



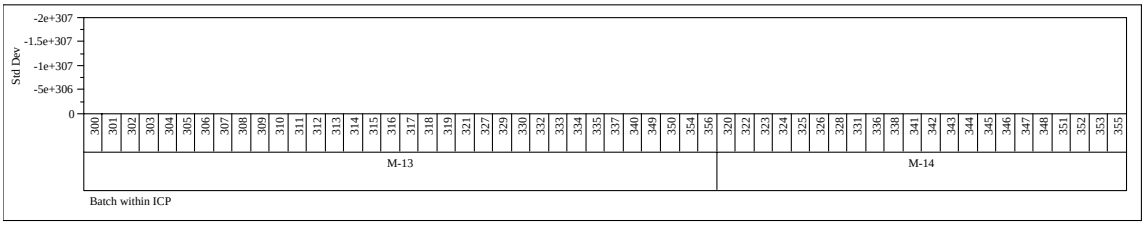
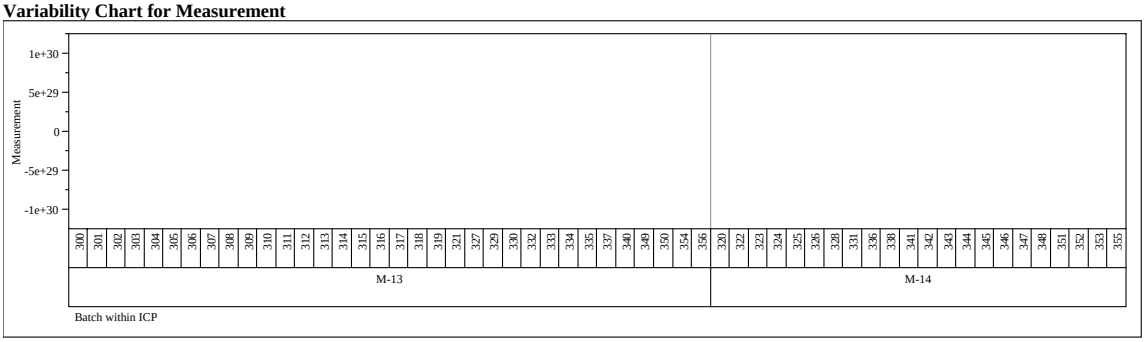
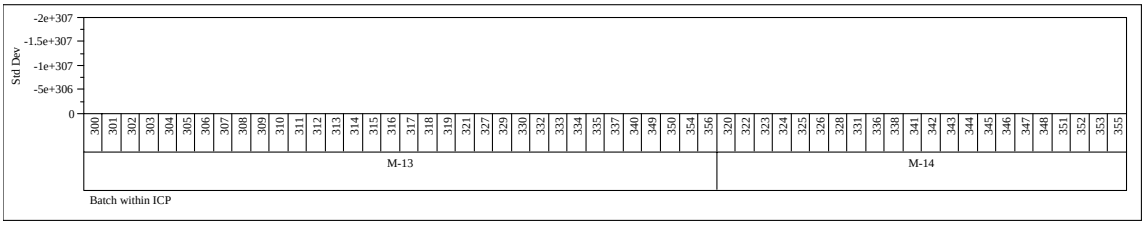


Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

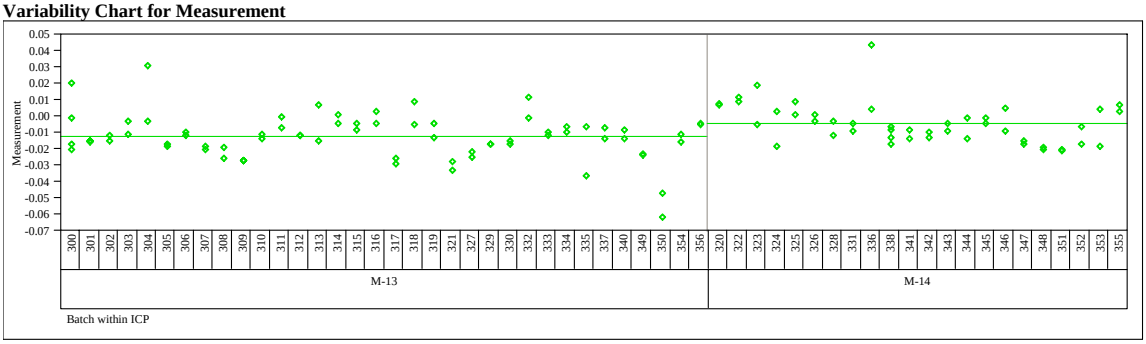
(continued)

Prep=Mixed Acid, Sample Type=blank, Analyte=B/Li
Variability Chart for Measurement





Prep=Mixed Acid, Sample Type=blank, Analyte=Ca
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=blank, Analyte=Cr
Variability Chart for Measurement

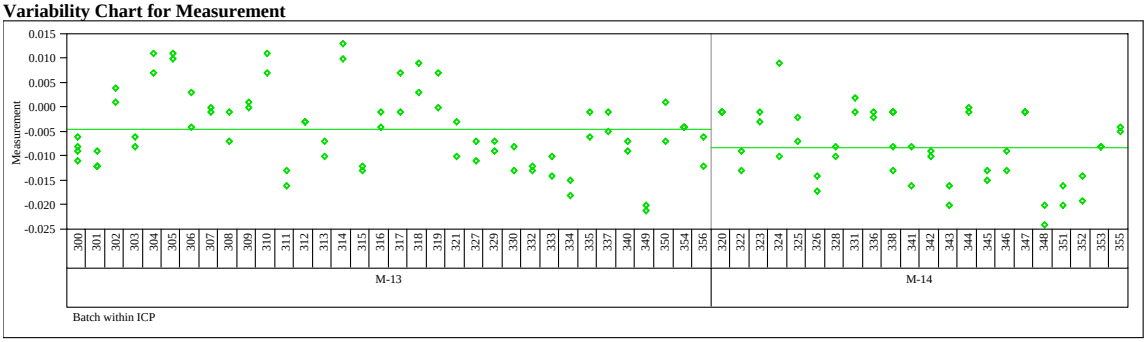
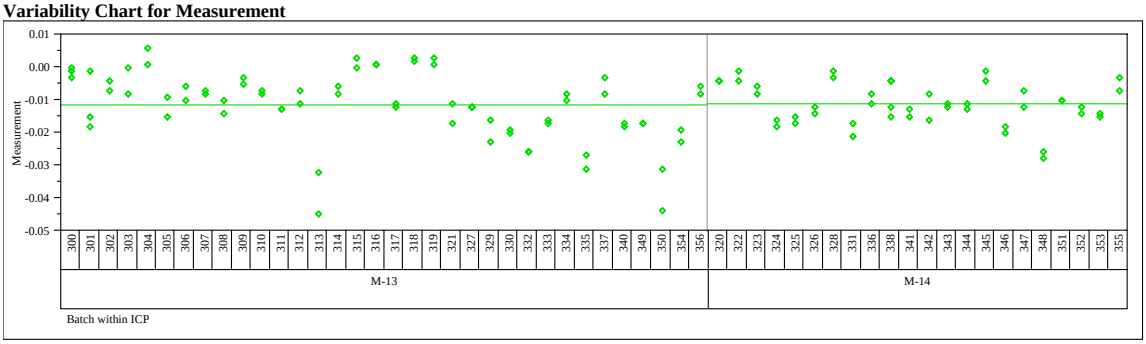


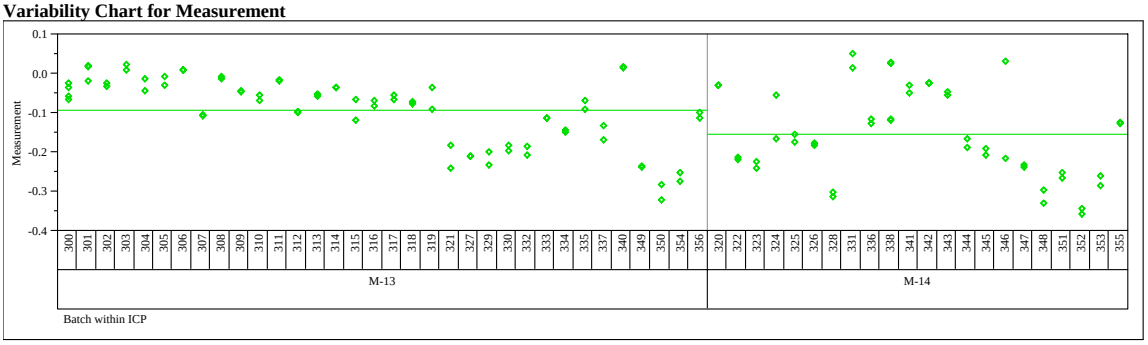
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

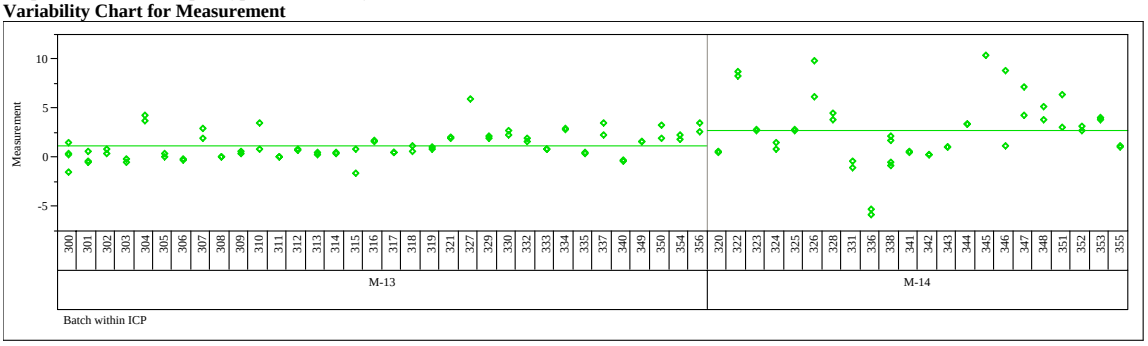
Prep=Mixed Acid, Sample Type=blank, Analyte=Cu
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=blank, Analyte=Fe
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=blank, Analyte=Fe/Al
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=blank, Analyte=Fe/Ca
Variability Chart for Measurement

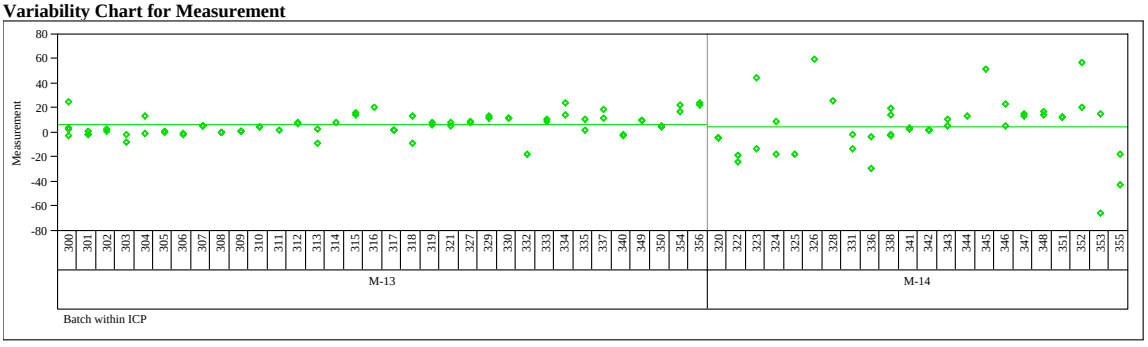
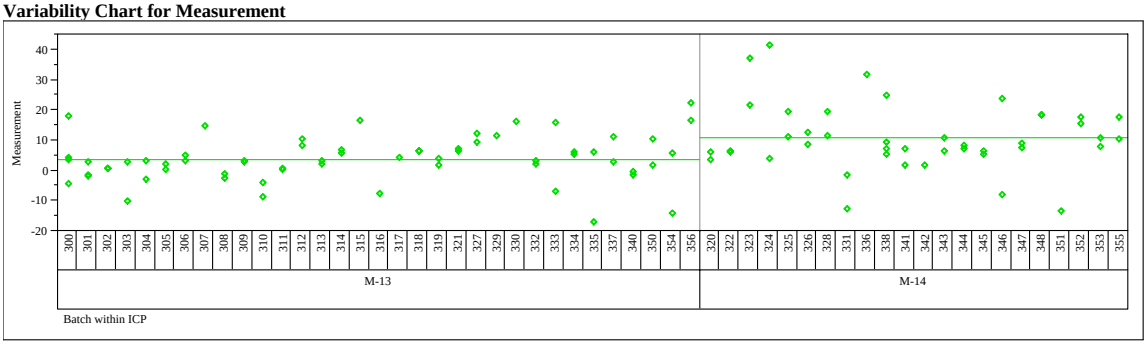


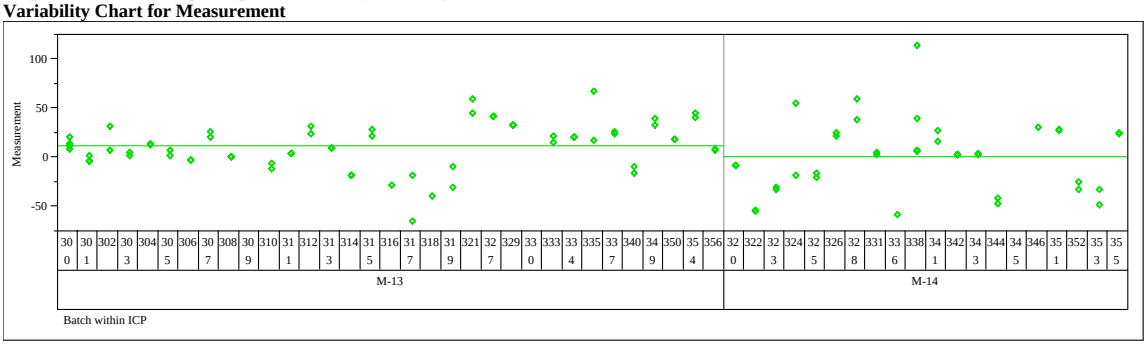
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

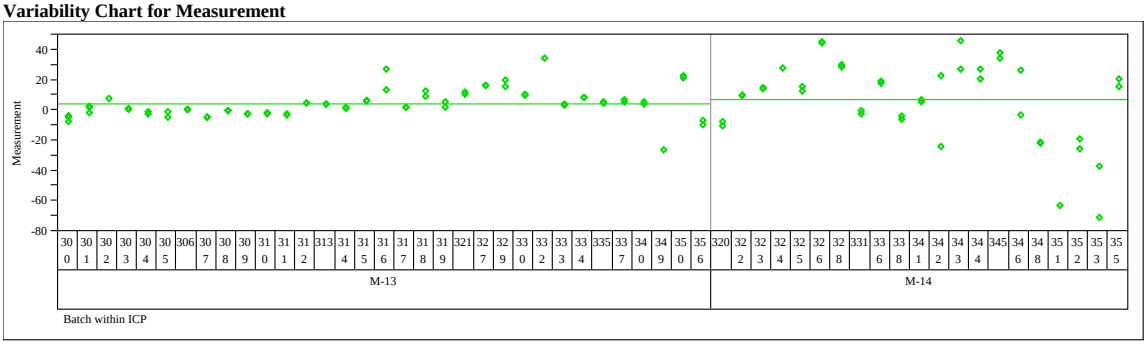
Prep=Mixed Acid, Sample Type=blank, Analyte=Fe/Li
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=blank, Analyte=Fe/Mg
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=blank, Analyte=Fe/Mn
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=blank, Analyte=Fe/Ni
Variability Chart for Measurement

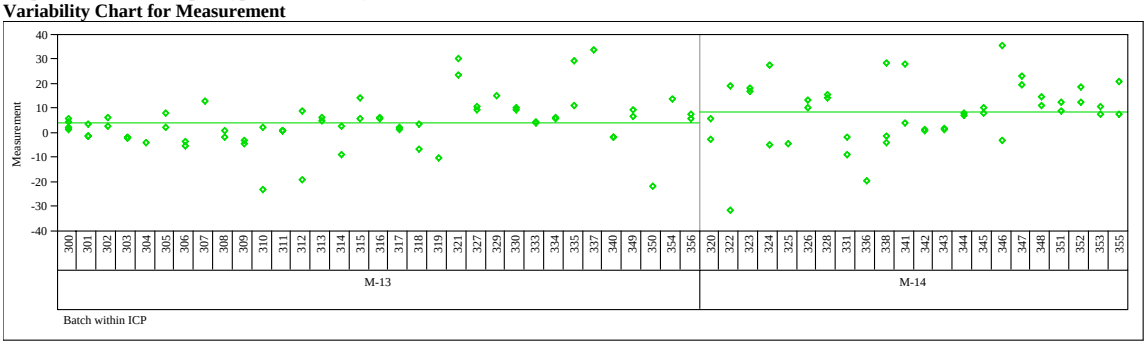
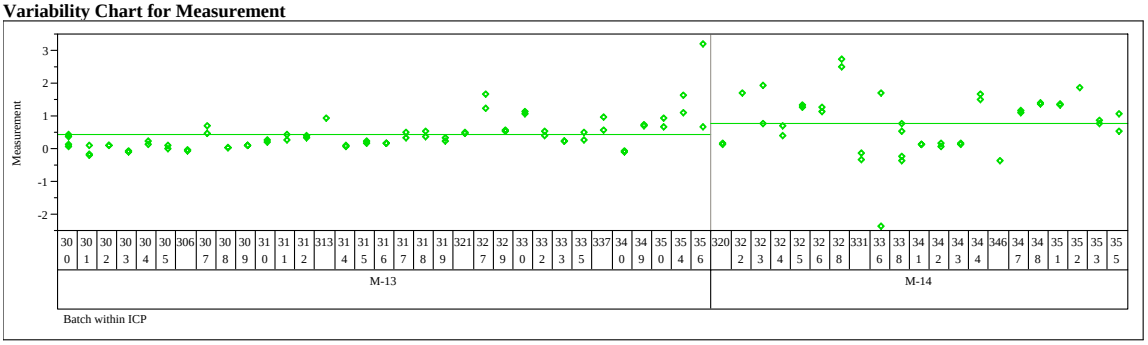


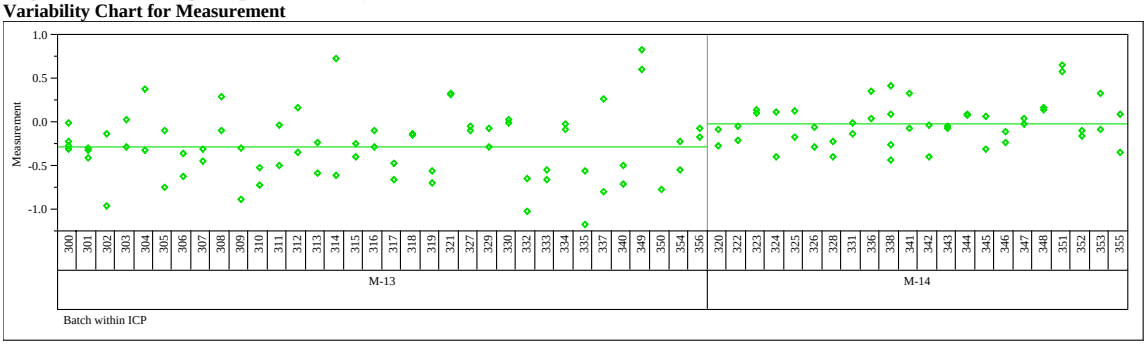
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

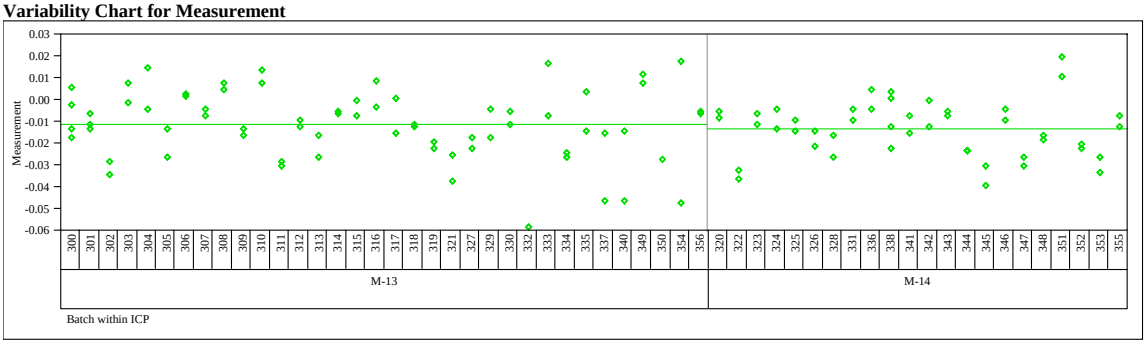
Prep=Mixed Acid, Sample Type=blank, Analyte=Fe/U
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=blank, Analyte=K
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=blank, Analyte=Li
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=blank, Analyte=Mg
Variability Chart for Measurement

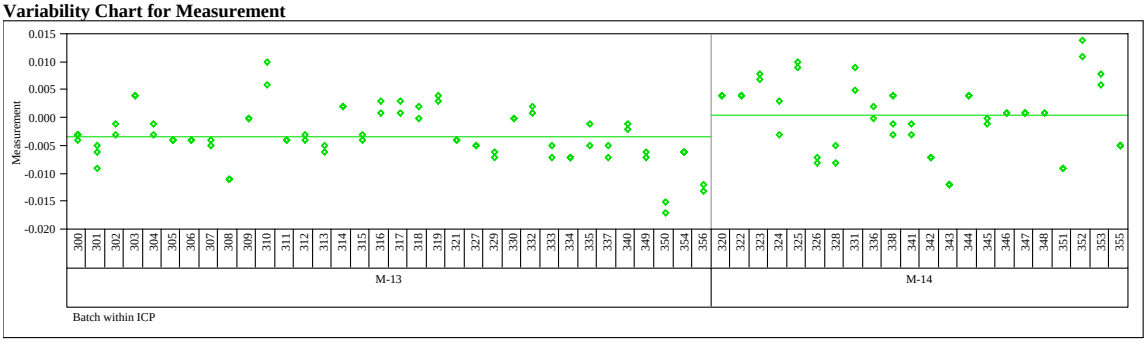
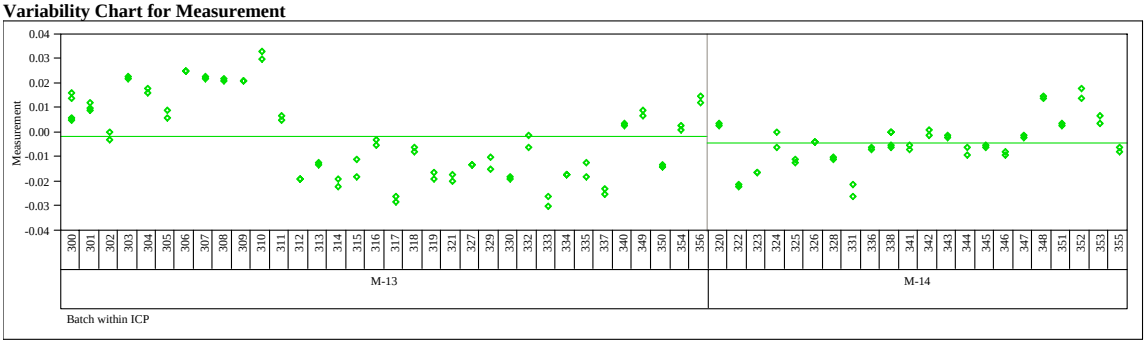


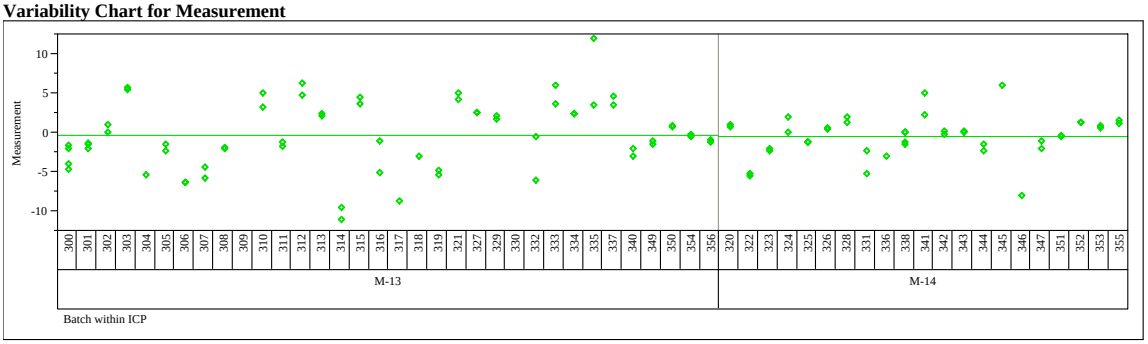
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

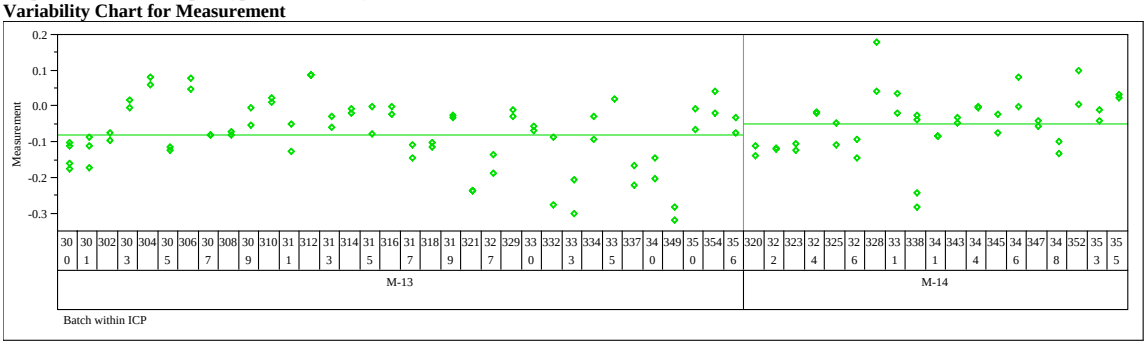
Prep=Mixed Acid, Sample Type=blank, Analyte=Mn
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=blank, Analyte=Mn/Mg
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=blank, Analyte=Na
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=blank, Analyte=Ni
Variability Chart for Measurement

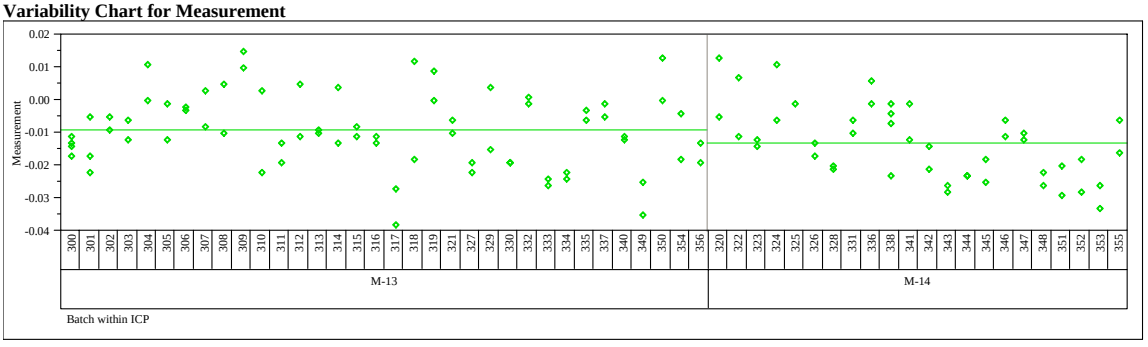
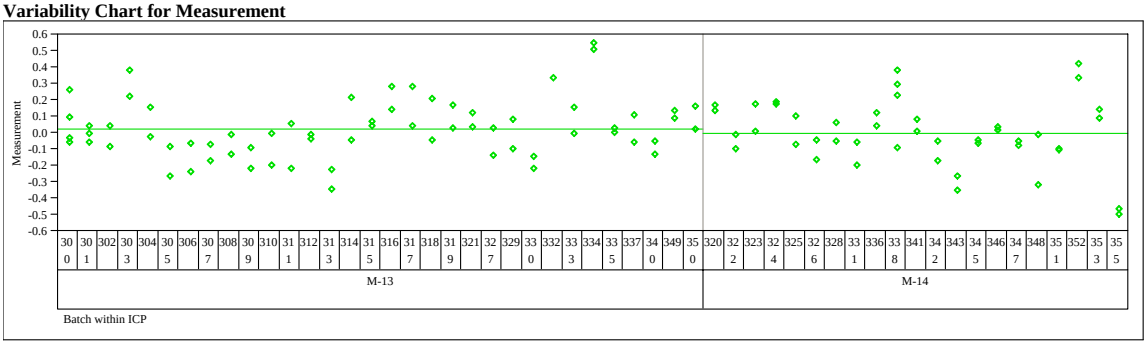


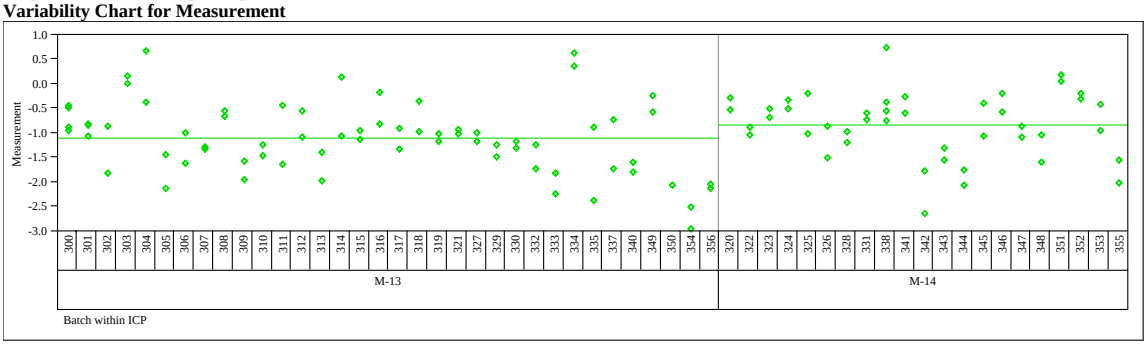
Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

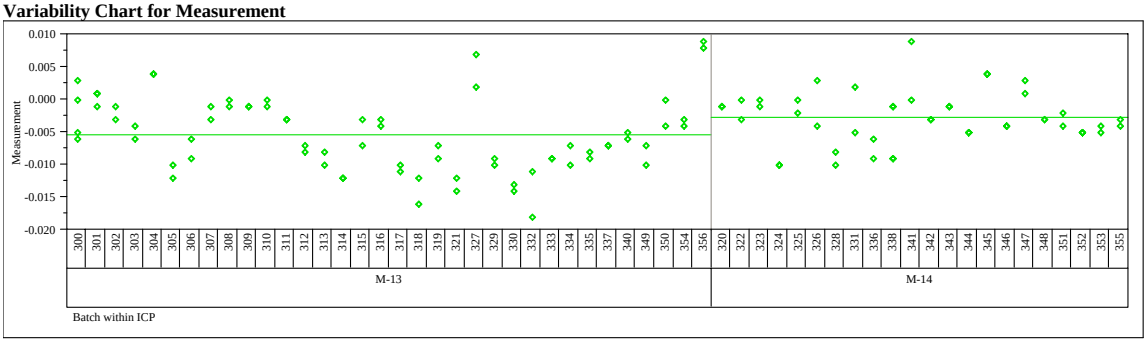
Prep=Mixed Acid, Sample Type=blank, Analyte=Si
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=blank, Analyte=Sum of Oxides
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=blank, Analyte=Ti
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=blank, Analyte=U
Variability Chart for Measurement

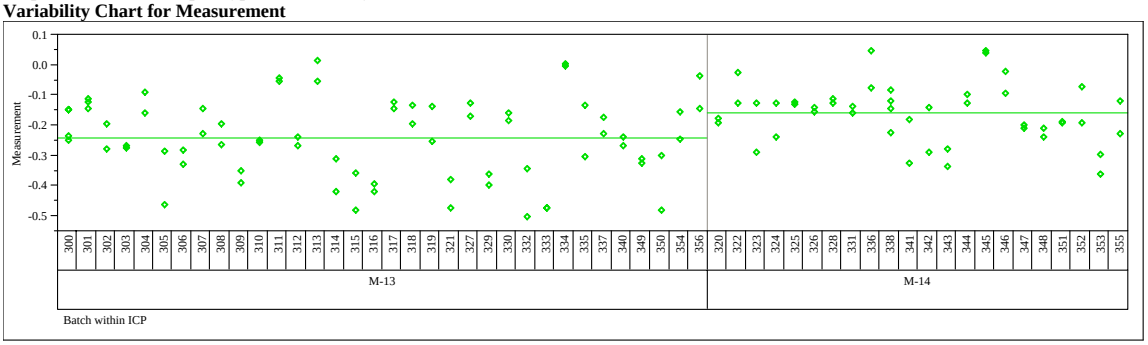
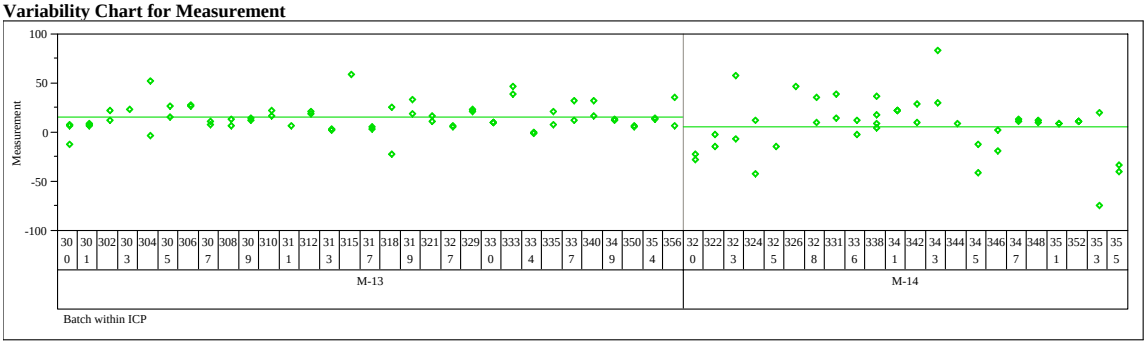


Exhibit A2. Measurement Data by Batch by ICP for Prep Method, Sample Type, and Analyte

(continued)

Prep=Mixed Acid, Sample Type=blank, Analyte=U/Ca
Variability Chart for Measurement



Prep=Mixed Acid, Sample Type=blank, Analyte=Zr
Variability Chart for Measurement

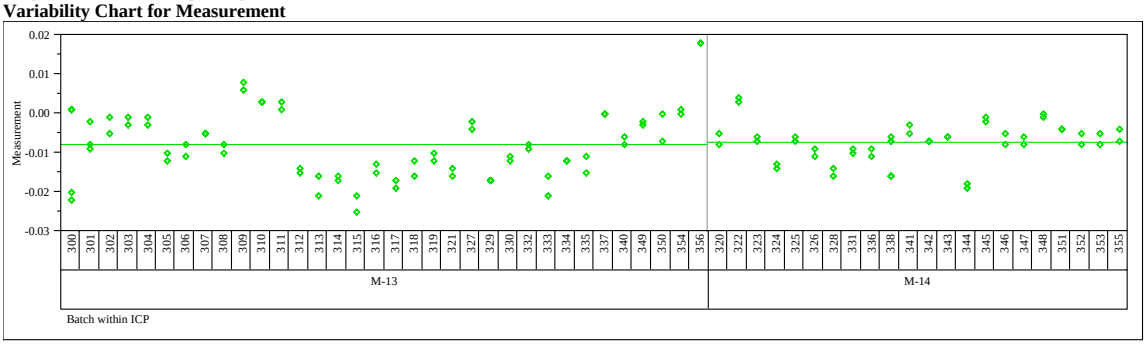
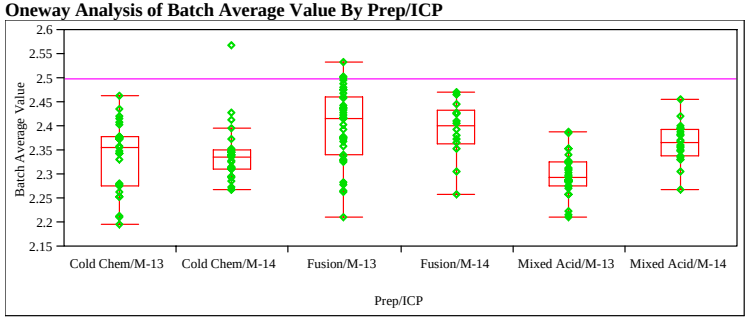


Exhibit A3. Measurement Comparisons Using Batch Averages of Prep Method/ICP Combination for ARG-1 by Analyte

Sample Type=ARG-1, Analyte=Al

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

Rsquare	0.26417
Adj Rsquare	0.240123
Root Mean Square Error	0.062234
Mean of Response	2.355091
Observations (or Sum Wgts)	159

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	0.21274095	0.042548	10.9857	<.0001
Error	153	0.59257698	0.003873		
C. Total	158	0.80531793			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	27	2.33776	0.01198	2.3141	2.3614
Cold Chem/M-14	27	2.34037	0.01198	2.3167	2.3640
Fusion/M-13	39	2.40105	0.00997	2.3814	2.4207
Fusion/M-14	14	2.39229	0.01663	2.3594	2.4251
Mixed Acid/M-13	30	2.29897	0.01136	2.2765	2.3214
Mixed Acid/M-14	22	2.36582	0.01327	2.3396	2.3920

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	27	2.33776	0.073540	0.01415	2.3087	2.3669
Cold Chem/M-14	27	2.34037	0.060686	0.01168	2.3164	2.3644
Fusion/M-13	39	2.40105	0.076841	0.01230	2.3761	2.4260
Fusion/M-14	14	2.39229	0.058939	0.01575	2.3583	2.4263
Mixed Acid/M-13	30	2.29897	0.042664	0.00779	2.2830	2.3149
Mixed Acid/M-14	22	2.36582	0.040175	0.00857	2.3480	2.3836

Means Comparisons

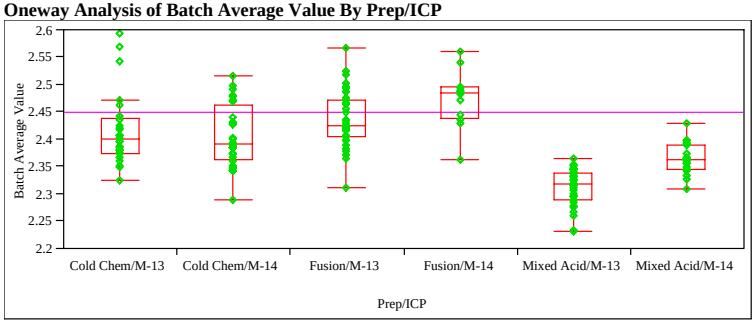
Comparisons for all pairs using Tukey-Kramer HSD

Level			Mean
Fusion/M-13	A		2.4010513
Fusion/M-14	A	B	2.3922857
Mixed Acid/M-14	A	B	2.3658182
Cold Chem/M-14		B C	2.3403704
Cold Chem/M-13		B C	2.3377593
Mixed Acid/M-13		C	2.2989667

Levels not connected by same letter are significantly different

Sample Type=ARG-1, Analyte=Al/Ca

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

Rsquare	0.512073
Adj Rsquare	0.495917
Root Mean Square Error	0.049778
Mean of Response	2.396927
Observations (or Sum Wgts)	157

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	0.39266484	0.078533	31.6946	<.0001
Error	151	0.37414881	0.002478		
C. Total	156	0.76681365			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	26	2.41711	0.00976	2.3978	2.4364
Cold Chem/M-14	28	2.40686	0.00941	2.3883	2.4254
Fusion/M-13	38	2.43804	0.00807	2.4221	2.4540
Fusion/M-14	12	2.47527	0.01437	2.4469	2.5037
Mixed Acid/M-13	31	2.31282	0.00894	2.2952	2.3305
Mixed Acid/M-14	22	2.36521	0.01061	2.3442	2.3862

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	26	2.41711	0.066086	0.01296	2.3904	2.4438
Cold Chem/M-14	28	2.40686	0.057148	0.01080	2.3847	2.4290
Fusion/M-13	38	2.43804	0.050881	0.00825	2.4213	2.4548
Fusion/M-14	12	2.47527	0.052331	0.01511	2.4420	2.5085
Mixed Acid/M-13	31	2.31282	0.034121	0.00613	2.3003	2.3253
Mixed Acid/M-14	22	2.36521	0.027554	0.00587	2.3530	2.3774

Means Comparisons

Comparisons for all pairs using Tukey-Kramer HSD

Level				Mean
Fusion/M-14	A			2.4752687
Fusion/M-13	A	B		2.4380369
Cold Chem/M-13		B		2.4171087
Cold Chem/M-14		B		2.4068627
Mixed Acid/M-14			C	2.3652095
Mixed Acid/M-13			D	2.3128171

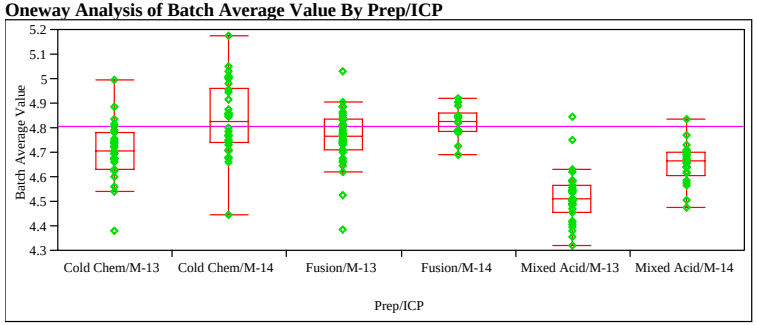
Levels not connected by same letter are significantly different

Exhibit A3. Measurement Comparisons Using Batch Averages of Prep Method/ICP Combination for ARG-1 by Analyte

(continued)

Sample Type=ARG-1, Analyte=Al/Mg

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

Rsquare	0.494721
Adj Rsquare	0.478526
Root Mean Square Error	0.113813
Mean of Response	4.711986
Observations (or Sum Wgts)	162

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	1.9785104	0.395702	30.5481	<.0001
Error	156	2.0207352	0.012953		
C. Total	161	3.9992456			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	27	4.70809	0.02190	4.6648	4.7514
Cold Chem/M-14	30	4.83889	0.02078	4.7978	4.8799
Fusion/M-13	38	4.76410	0.01846	4.7276	4.8006
Fusion/M-14	14	4.82087	0.03042	4.7608	4.8810
Mixed Acid/M-13	31	4.51864	0.02044	4.4783	4.5590
Mixed Acid/M-14	22	4.65683	0.02427	4.6089	4.7048

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	27	4.70809	0.117940	0.02270	4.6614	4.7547
Cold Chem/M-14	30	4.83889	0.150889	0.02755	4.7826	4.8952
Fusion/M-13	38	4.76410	0.111341	0.01806	4.7275	4.8007
Fusion/M-14	14	4.82087	0.064600	0.01727	4.7836	4.8582
Mixed Acid/M-13	31	4.51864	0.107032	0.01922	4.4794	4.5579
Mixed Acid/M-14	22	4.65683	0.082293	0.01754	4.6203	4.6933

Means Comparisons

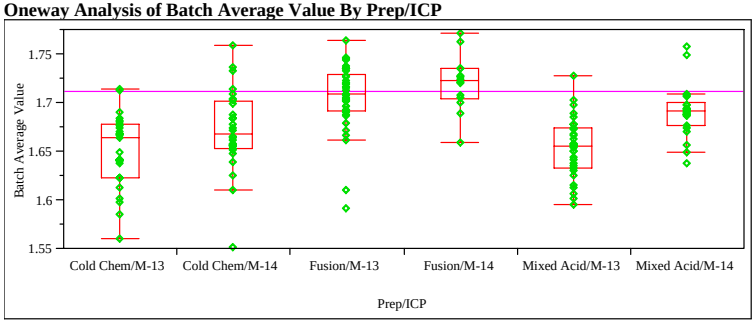
Comparisons for all pairs using Tukey-Kramer HSD

Level				Mean
Cold Chem/M-14	A			4.8388949
Fusion/M-14	A			4.8208709
Fusion/M-13	A	B		4.7641034
Cold Chem/M-13		B	C	4.7080893
Mixed Acid/M-14			C	4.6568332
Mixed Acid/M-13			D	4.5186449

Levels not connected by same letter are significantly different

Sample Type=ARG-1, Analyte=Al/Mn

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

Rsquare	0.346403
Adj Rsquare	0.325182
Root Mean Square Error	0.034348
Mean of Response	1.680259
Observations (or Sum Wgts)	160

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	0.09629528	0.019259	16.3238	<.0001
Error	154	0.18169095	0.001180		
C. Total	159	0.27798623			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	27	1.65154	0.00661	1.6385	1.6646
Cold Chem/M-14	28	1.67291	0.00649	1.6601	1.6857
Fusion/M-13	38	1.70602	0.00557	1.6950	1.7170
Fusion/M-14	14	1.72097	0.00918	1.7028	1.7391
Mixed Acid/M-13	31	1.65402	0.00617	1.6418	1.6662
Mixed Acid/M-14	22	1.69143	0.00732	1.6770	1.7059

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	27	1.65154	0.037711	0.00726	1.6366	1.6665
Cold Chem/M-14	28	1.67291	0.041396	0.00782	1.6569	1.6890
Fusion/M-13	38	1.70602	0.034261	0.00556	1.6948	1.7173
Fusion/M-14	14	1.72097	0.028578	0.00764	1.7045	1.7375
Mixed Acid/M-13	31	1.65402	0.030901	0.00555	1.6427	1.6654
Mixed Acid/M-14	22	1.69143	0.027391	0.00584	1.6793	1.7036

Means Comparisons

Comparisons for all pairs using Tukey-Kramer HSD

Level				Mean
Fusion/M-14	A			1.7209737
Fusion/M-13	A			1.7060178
Mixed Acid/M-14	A	B		1.6914323
Cold Chem/M-14		B	C	1.6729072
Mixed Acid/M-13			C	1.6540209
Cold Chem/M-13			C	1.6515377

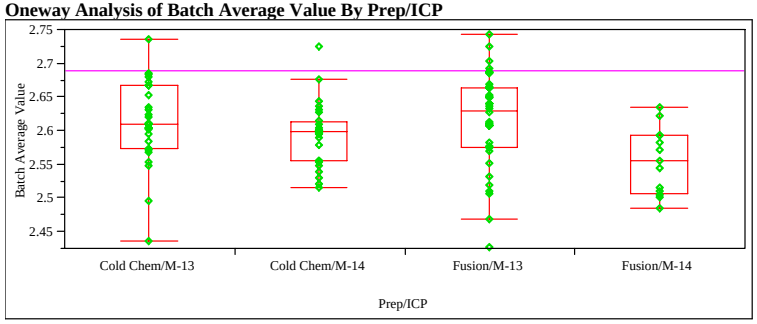
Levels not connected by same letter are significantly different

Exhibit A3. Measurement Comparisons Using Batch Averages of Prep Method/ICP Combination for ARG-1 by Analyte

(continued)

Sample Type=ARG-1, Analyte=B

Oneway Analysis of Batch Average Value By Prep/ICP



Missing Rows 53

Oneway Anova

Summary of Fit

Rsquare	0.099667
Adj Rsquare	0.073186
Root Mean Square Error	0.06026
Mean of Response	2.602425
Observations (or Sum Wgts)	106

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	3	0.04100255	0.013668	3.7638	0.0131
Error	102	0.37039435	0.003631		
C. Total	105	0.41139690			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	27	2.61252	0.01160	2.5895	2.6355
Cold Chem/M-14	28	2.59514	0.01139	2.5726	2.6177
Fusion/M-13	38	2.61676	0.00978	2.5974	2.6362
Fusion/M-14	13	2.55523	0.01671	2.5221	2.5884

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	27	2.61252	0.062406	0.01201	2.5878	2.6372
Cold Chem/M-14	28	2.59514	0.046204	0.00873	2.5772	2.6131
Fusion/M-13	38	2.61676	0.070343	0.01141	2.5936	2.6399
Fusion/M-14	13	2.55523	0.048660	0.01350	2.5258	2.5846

Means Comparisons

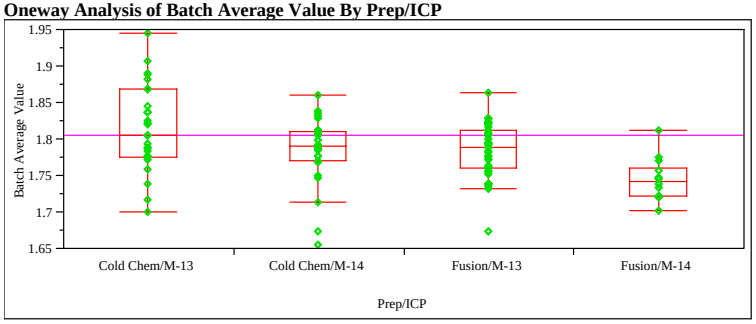
Comparisons for all pairs using Tukey-Kramer HSD

Level			Mean
Fusion/M-13	A		2.6167632
Cold Chem/M-13	A		2.6125185
Cold Chem/M-14	A	B	2.5951429
Fusion/M-14		B	2.5552308

Levels not connected by same letter are significantly different

Sample Type=ARG-1, Analyte=B/Li

Oneway Analysis of Batch Average Value By Prep/ICP



Missing Rows 53

Oneway Anova

Summary of Fit

Rsquare	0.18932
Adj Rsquare	0.166377
Root Mean Square Error	0.044162
Mean of Response	1.78726
Observations (or Sum Wgts)	110

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	3	0.04827758	0.016093	8.2515	<.0001
Error	106	0.20672720	0.001950		
C. Total	109	0.25500478			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	27	1.81582	0.00850	1.7990	1.8327
Cold Chem/M-14	30	1.78566	0.00806	1.7697	1.8016
Fusion/M-13	39	1.78413	0.00707	1.7701	1.7981
Fusion/M-14	14	1.74434	0.01180	1.7209	1.7677

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	27	1.81582	0.058877	0.01133	1.7925	1.8391
Cold Chem/M-14	30	1.78566	0.044246	0.00808	1.7691	1.8022
Fusion/M-13	39	1.78413	0.036103	0.00578	1.7724	1.7958
Fusion/M-14	14	1.74434	0.028141	0.00752	1.7281	1.7606

Means Comparisons

Comparisons for all pairs using Tukey-Kramer HSD

Level			Mean
Cold Chem/M-13	A		1.8158208
Cold Chem/M-14	A	B	1.7856610
Fusion/M-13		B	1.7841253
Fusion/M-14		C	1.7443371

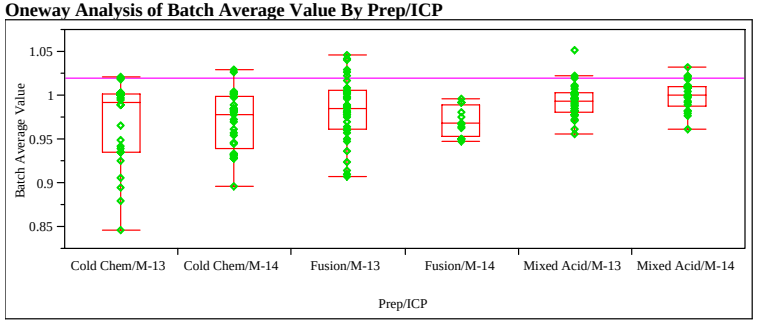
Levels not connected by same letter are significantly different

Exhibit A3. Measurement Comparisons Using Batch Averages of Prep Method/ICP Combination for ARG-1 by Analyte

(continued)

Sample Type=ARG-1, Analyte=Ca

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

Rsquare	0.125684
Adj Rsquare	0.09654
Root Mean Square Error	0.032042
Mean of Response	0.981859
Observations (or Sum Wgts)	156

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	0.02213808	0.004428	4.3125	0.0011
Error	150	0.15400232	0.001027		
C. Total	155	0.17614040			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	26	0.96787	0.00628	0.95545	0.9803
Cold Chem/M-14	29	0.97053	0.00595	0.95878	0.9823
Fusion/M-13	37	0.98334	0.00527	0.97293	0.9937
Fusion/M-14	12	0.97108	0.00925	0.95281	0.9894
Mixed Acid/M-13	30	0.99383	0.00585	0.98227	1.0054
Mixed Acid/M-14	22	1.00039	0.00683	0.98689	1.0139

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	26	0.96787	0.047597	0.00933	0.94864	0.9871
Cold Chem/M-14	29	0.97053	0.032966	0.00612	0.95800	0.9831
Fusion/M-13	37	0.98334	0.036078	0.00593	0.97131	0.9954
Fusion/M-14	12	0.97108	0.017041	0.00492	0.96026	0.9819
Mixed Acid/M-13	30	0.99383	0.019244	0.00351	0.98665	1.0010
Mixed Acid/M-14	22	1.00039	0.017105	0.00365	0.99280	1.0080

Means Comparisons

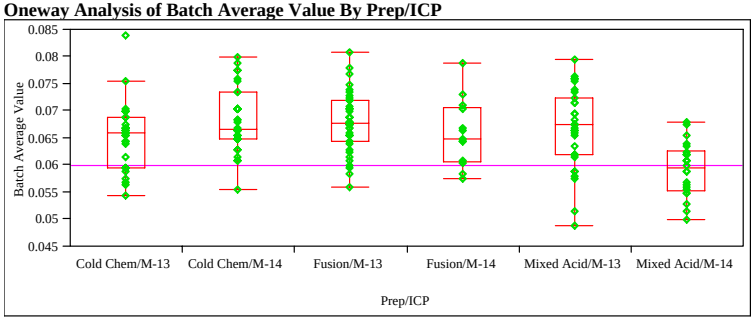
Comparisons for all pairs using Tukey-Kramer HSD

Level				Mean
Mixed Acid/M-14	A			1.0003864
Mixed Acid/M-13	A	B		0.9938333
Fusion/M-13	A	B	C	0.9833378
Fusion/M-14	A	B	C	0.9710833
Cold Chem/M-14		B	C	0.9705345
Cold Chem/M-13			C	0.9678654

Levels not connected by same letter are significantly different

Sample Type=ARG-1, Analyte=Cr

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

Rsquare	0.187822
Adj Rsquare	0.161623
Root Mean Square Error	0.00611
Mean of Response	0.066034
Observations (or Sum Wgts)	161

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	0.00133806	0.000268	7.1690	<.0001
Error	155	0.00578601	0.000037		
C. Total	160	0.00712406			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	27	0.065315	0.00118	0.06299	0.06764
Cold Chem/M-14	30	0.068383	0.00112	0.06618	0.07059
Fusion/M-13	38	0.067961	0.00099	0.06600	0.06992
Fusion/M-14	13	0.066038	0.00169	0.06269	0.06939
Mixed Acid/M-13	31	0.066806	0.00110	0.06464	0.06897
Mixed Acid/M-14	22	0.059295	0.00130	0.05672	0.06187

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	27	0.065315	0.006248	0.00120	0.06284	0.06779
Cold Chem/M-14	30	0.068383	0.006000	0.00110	0.06614	0.07062
Fusion/M-13	38	0.067961	0.005555	0.00090	0.06613	0.06979
Fusion/M-14	13	0.066038	0.006149	0.00171	0.06232	0.06975
Mixed Acid/M-13	31	0.066806	0.007341	0.00132	0.06411	0.06950
Mixed Acid/M-14	22	0.059295	0.004951	0.00106	0.05710	0.06149

Means Comparisons

Comparisons for all pairs using Tukey-Kramer HSD

Level			Mean
Cold Chem/M-14	A		0.06838333
Fusion/M-13	A		0.06796053
Mixed Acid/M-13	A		0.06680645
Fusion/M-14	A		0.06603846
Cold Chem/M-13	A		0.06531481
Mixed Acid/M-14		B	0.05929545

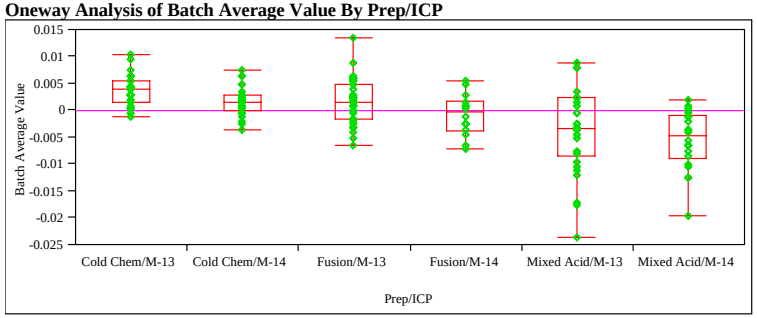
Levels not connected by same letter are significantly different

Exhibit A3. Measurement Comparisons Using Batch Averages of Prep Method/ICP Combination for ARG-1 by Analyte

(continued)

Sample Type=ARG-1, Analyte=Cu

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

Rsquare	0.302638
Adj Rsquare	0.280143
Root Mean Square Error	0.004863
Mean of Response	-0.00002
Observations (or Sum Wgts)	161

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	0.00159109	0.000318	13.4533	<.0001
Error	155	0.00366631	0.000024		
C. Total	160	0.00525740			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	27	0.00376	0.00094	0.0019	0.0056
Cold Chem/M-14	29	0.00179	0.00090	9.07e-6	0.0036
Fusion/M-13	39	0.00185	0.00078	0.00031	0.0034
Fusion/M-14	14	-0.00071	0.00130	-0.0033	0.0019
Mixed Acid/M-13	30	-0.00338	0.00089	-0.0051	-0.0016
Mixed Acid/M-14	22	-0.00536	0.00104	-0.0074	-0.0033

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	27	0.00376	0.002826	0.00054	0.0026	0.0049
Cold Chem/M-14	29	0.00179	0.002644	0.00049	0.00079	0.0028
Fusion/M-13	39	0.00185	0.004059	0.00065	0.00053	0.0032
Fusion/M-14	14	-0.00071	0.003911	0.00105	-0.0030	0.0015
Mixed Acid/M-13	30	-0.00338	0.007945	0.00145	-0.0063	-0.0004
Mixed Acid/M-14	22	-0.00536	0.005379	0.00115	-0.0077	-0.0030

Means Comparisons

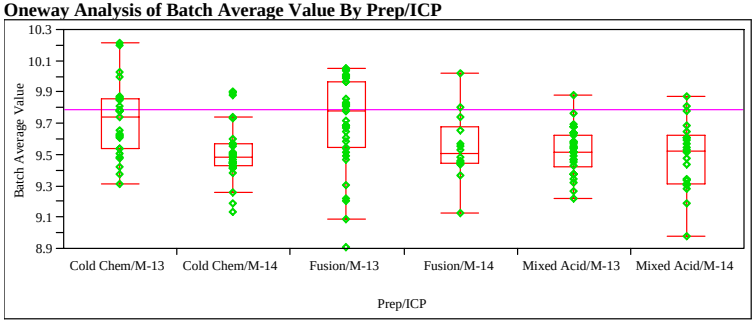
Comparisons for all pairs using Tukey-Kramer HSD

Level			Mean
Cold Chem/M-13	A		0.0037593
Fusion/M-13	A		0.0018462
Cold Chem/M-14	A		0.0017931
Fusion/M-14	A	B	-0.0007143
Mixed Acid/M-13		B	-0.0033833
Mixed Acid/M-14		B	-0.0053636

Levels not connected by same letter are significantly different

Sample Type=ARG-1, Analyte=Fe

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

Rsquare	0.16694
Adj Rsquare	0.139355
Root Mean Square Error	0.22269
Mean of Response	9.598309
Observations (or Sum Wgts)	157

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	1.5005884	0.300118	6.0519	<.0001
Error	151	7.4881973	0.049591		
C. Total	156	8.9887858			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	27	9.72298	0.04286	9.6383	9.8077
Cold Chem/M-14	27	9.51683	0.04286	9.4322	9.6015
Fusion/M-13	37	9.70891	0.03661	9.6366	9.7812
Fusion/M-14	14	9.54957	0.05952	9.4320	9.6672
Mixed Acid/M-13	30	9.52393	0.04066	9.4436	9.6043
Mixed Acid/M-14	22	9.49173	0.04748	9.3979	9.5855

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	27	9.72298	0.232931	0.04483	9.6308	9.8151
Cold Chem/M-14	27	9.51683	0.189821	0.03653	9.4417	9.5919
Fusion/M-13	37	9.70891	0.285684	0.04697	9.6137	9.8042
Fusion/M-14	14	9.54957	0.213466	0.05705	9.4263	9.6728
Mixed Acid/M-13	30	9.52393	0.146956	0.02683	9.4691	9.5788
Mixed Acid/M-14	22	9.49173	0.216449	0.04615	9.3958	9.5877

Means Comparisons

Comparisons for all pairs using Tukey-Kramer HSD

Level			Mean
Cold Chem/M-13	A		9.7229815
Fusion/M-13	A		9.7089054
Fusion/M-14	A	B	9.5495714
Mixed Acid/M-13		B	9.5239333
Cold Chem/M-14		B	9.5168333
Mixed Acid/M-14		B	9.4917273

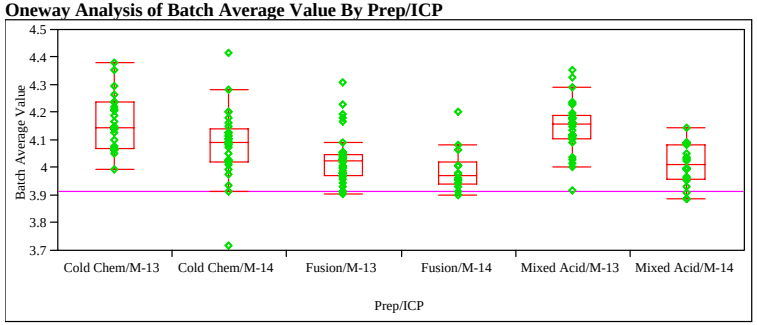
Levels not connected by same letter are significantly different

Exhibit A3. Measurement Comparisons Using Batch Averages of Prep Method/ICP Combination for ARG-1 by Analyte

(continued)

Sample Type=ARG-1, Analyte=Fe/Al

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

Rsquare	0.307108
Adj Rsquare	0.284757
Root Mean Square Error	0.095263
Mean of Response	4.079849
Observations (or Sum Wgts)	161

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	0.6234506	0.124690	13.7400	<.0001
Error	155	1.4066189	0.009075		
C. Total	160	2.0300695			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	27	4.16207	0.01833	4.1259	4.1983
Cold Chem/M-14	29	4.08531	0.01769	4.0504	4.1203
Fusion/M-13	38	4.03166	0.01545	4.0011	4.0622
Fusion/M-14	14	3.99370	0.02546	3.9434	4.0440
Mixed Acid/M-13	31	4.14894	0.01711	4.1151	4.1827
Mixed Acid/M-14	22	4.01245	0.02031	3.9723	4.0526

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	27	4.16207	0.097602	0.01878	4.1235	4.2007
Cold Chem/M-14	29	4.08531	0.124108	0.02305	4.0381	4.1325
Fusion/M-13	38	4.03166	0.087798	0.01424	4.0028	4.0605
Fusion/M-14	14	3.99370	0.079369	0.02121	3.9479	4.0395
Mixed Acid/M-13	31	4.14894	0.091960	0.01652	4.1152	4.1827
Mixed Acid/M-14	22	4.01245	0.071334	0.01521	3.9808	4.0441

Means Comparisons

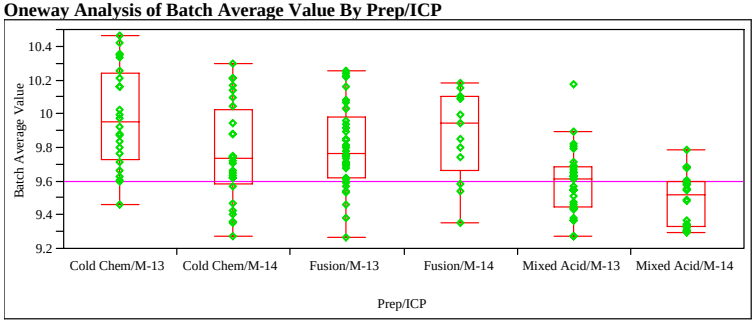
Comparisons for all pairs using Tukey-Kramer HSD

Level				Mean
Cold Chem/M-13	A			4.1620697
Mixed Acid/M-13	A	B		4.1489365
Cold Chem/M-14		B	C	4.0853122
Fusion/M-13			C D	4.0316589
Mixed Acid/M-14			C D	4.0124493
Fusion/M-14			D	3.9936986

Levels not connected by same letter are significantly different

Sample Type=ARG-1, Analyte=Fe/Ca

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

Rsquare	0.303185
Adj Rsquare	0.279958
Root Mean Square Error	0.243711
Mean of Response	9.74495
Observations (or Sum Wgts)	156

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	3.876414	0.775283	13.0530	<.0001
Error	150	8.909233	0.059395		
C. Total	155	12.785646			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	24	9.97977	0.04975	9.8815	10.078
Cold Chem/M-14	28	9.76386	0.04606	9.6729	9.855
Fusion/M-13	38	9.80705	0.03954	9.7289	9.885
Fusion/M-14	13	9.88299	0.06759	9.7494	10.017
Mixed Acid/M-13	31	9.59347	0.04377	9.5070	9.680
Mixed Acid/M-14	22	9.48934	0.05196	9.3867	9.592

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	24	9.97977	0.295652	0.06035	9.8549	10.105
Cold Chem/M-14	28	9.76386	0.289952	0.05480	9.6514	9.876
Fusion/M-13	38	9.80705	0.244267	0.03963	9.7268	9.887
Fusion/M-14	13	9.88299	0.263783	0.07316	9.7236	10.042
Mixed Acid/M-13	31	9.59347	0.189746	0.03408	9.5239	9.663
Mixed Acid/M-14	22	9.48934	0.155243	0.03310	9.4205	9.558

Means Comparisons

Comparisons for all pairs using Tukey-Kramer HSD

Level				Mean
Cold Chem/M-13	A			9.9797731
Fusion/M-14	A	B		9.8829863
Fusion/M-13	A	B		9.8070497
Cold Chem/M-14		B	C	9.7638569
Mixed Acid/M-13			C D	9.5934669
Mixed Acid/M-14			D	9.4893408

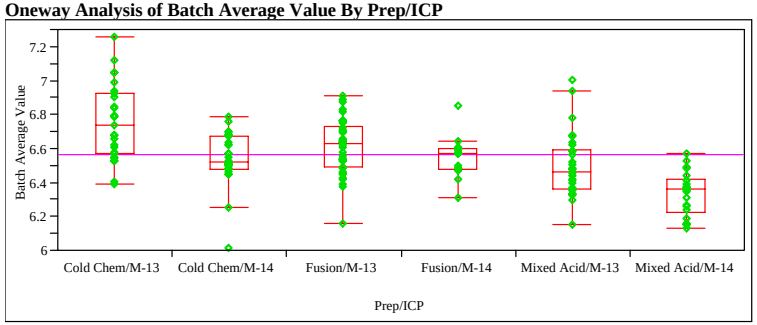
Levels not connected by same letter are significantly different

Exhibit A3. Measurement Comparisons Using Batch Averages of Prep Method/ICP Combination for ARG-1 by Analyte

(continued)

Sample Type=ARG-1, Analyte=Fe/Li

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

Rsquare	0.345144
Adj Rsquare	0.324019
Root Mean Square Error	0.170212
Mean of Response	6.561351
Observations (or Sum Wgts)	161

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	2.3668145	0.473363	16.3386	<.0001
Error	155	4.4906613	0.028972		
C. Total	160	6.8574758			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	27	6.75764	0.03276	6.6929	6.8223
Cold Chem/M-14	30	6.54782	0.03108	6.4864	6.6092
Fusion/M-13	38	6.61406	0.02761	6.5595	6.6686
Fusion/M-14	14	6.55183	0.04549	6.4620	6.6417
Mixed Acid/M-13	30	6.49997	0.03108	6.4386	6.5614
Mixed Acid/M-14	22	6.33763	0.03629	6.2659	6.4093

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	27	6.75764	0.222561	0.04283	6.6696	6.8457
Cold Chem/M-14	30	6.54782	0.150555	0.02749	6.4916	6.6040
Fusion/M-13	38	6.61406	0.162496	0.02636	6.5606	6.6675
Fusion/M-14	14	6.55183	0.124537	0.03328	6.4799	6.6237
Mixed Acid/M-13	30	6.49997	0.187674	0.03426	6.4299	6.5700
Mixed Acid/M-14	22	6.33763	0.128252	0.02734	6.2808	6.3945

Means Comparisons

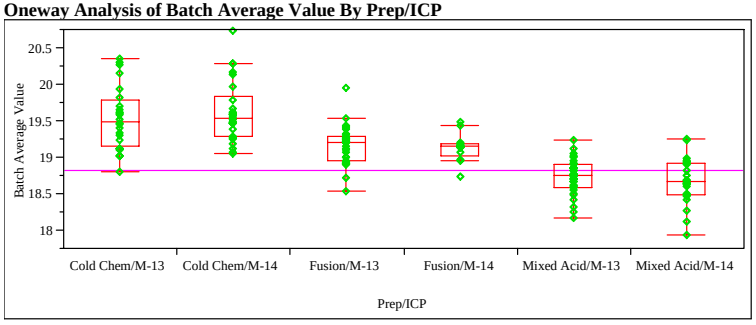
Comparisons for all pairs using Tukey-Kramer HSD

Level		Mean
Cold Chem/M-13	A	6.7576381
Fusion/M-13	B	6.6140599
Fusion/M-14	B	6.5518281
Cold Chem/M-14	B	6.5478214
Mixed Acid/M-13	B	6.4999683
Mixed Acid/M-14	C	6.3376251

Levels not connected by same letter are significantly different

Sample Type=ARG-1, Analyte=Fe/Mg

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

Rsquare	0.558861
Adj Rsquare	0.543856
Root Mean Square Error	0.324713
Mean of Response	19.14412
Observations (or Sum Wgts)	153

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	19.635617	3.92712	37.2457	<.0001
Error	147	15.499451	0.10544		
C. Total	152	35.135068			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	24	19.5432	0.06628	19.412	19.674
Cold Chem/M-14	26	19.6221	0.06368	19.496	19.748
Fusion/M-13	37	19.1661	0.05338	19.061	19.272
Fusion/M-14	13	19.1432	0.09006	18.965	19.321
Mixed Acid/M-13	31	18.7366	0.05832	18.621	18.852
Mixed Acid/M-14	22	18.6816	0.06923	18.545	18.818

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	24	19.5432	0.432063	0.08819	19.361	19.726
Cold Chem/M-14	26	19.6221	0.419984	0.08237	19.452	19.792
Fusion/M-13	37	19.1661	0.250499	0.04118	19.083	19.250
Fusion/M-14	13	19.1432	0.191860	0.05321	19.027	19.259
Mixed Acid/M-13	31	18.7366	0.248374	0.04461	18.646	18.828
Mixed Acid/M-14	22	18.6816	0.326946	0.06971	18.537	18.827

Means Comparisons

Comparisons for all pairs using Tukey-Kramer HSD

Level		Mean
Cold Chem/M-14	A	19.622102
Cold Chem/M-13	A	19.543232
Fusion/M-13	B	19.166117
Fusion/M-14	B	19.143169
Mixed Acid/M-13	C	18.736626
Mixed Acid/M-14	C	18.681567

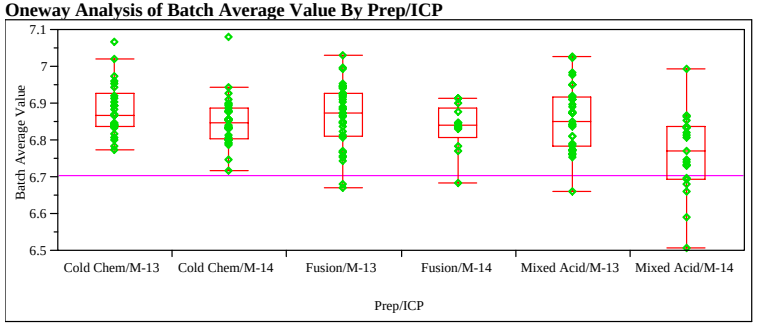
Levels not connected by same letter are significantly different

Exhibit A3. Measurement Comparisons Using Batch Averages of Prep Method/ICP Combination for ARG-1 by Analyte

(continued)

Sample Type=ARG-1, Analyte=Fe/Mn

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

Rsquare	0.157656
Adj Rsquare	0.129947
Root Mean Square Error	0.082399
Mean of Response	6.850188
Observations (or Sum Wgts)	158

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	0.1931565	0.038631	5.6897	<.0001
Error	152	1.0320238	0.006790		
C. Total	157	1.2251802			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	26	6.88421	0.01616	6.8523	6.9161
Cold Chem/M-14	30	6.85320	0.01504	6.8235	6.8829
Fusion/M-13	37	6.86782	0.01355	6.8411	6.8946
Fusion/M-14	13	6.83840	0.02285	6.7932	6.8836
Mixed Acid/M-13	31	6.85929	0.01480	6.8300	6.8885
Mixed Acid/M-14	21	6.76655	0.01798	6.7310	6.8021

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	26	6.88421	0.071948	0.01411	6.8552	6.9133
Cold Chem/M-14	30	6.85320	0.066750	0.01219	6.8283	6.8781
Fusion/M-13	37	6.86782	0.085809	0.01411	6.8392	6.8964
Fusion/M-14	13	6.83840	0.063198	0.01753	6.8002	6.8766
Mixed Acid/M-13	31	6.85929	0.087540	0.01572	6.8272	6.8914
Mixed Acid/M-14	21	6.76655	0.107354	0.02343	6.7177	6.8154

Means Comparisons

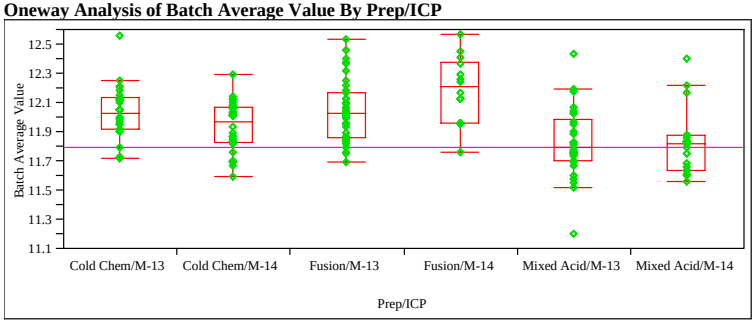
Comparisons for all pairs using Tukey-Kramer HSD

Level			Mean
Cold Chem/M-13	A		6.8842136
Fusion/M-13	A		6.8678229
Mixed Acid/M-13	A		6.8592873
Cold Chem/M-14	A		6.8532001
Fusion/M-14	A	B	6.8383996
Mixed Acid/M-14		B	6.7665496

Levels not connected by same letter are significantly different

Sample Type=ARG-1, Analyte=Fe/Ni

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

Rsquare	0.247477
Adj Rsquare	0.223044
Root Mean Square Error	0.206381
Mean of Response	11.96546
Observations (or Sum Wgts)	160

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	2.1571261	0.431425	10.1290	<.0001
Error	154	6.5593437	0.042593		
C. Total	159	8.7164698			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	26	12.0303	0.04047	11.950	12.110
Cold Chem/M-14	30	11.9373	0.03768	11.863	12.012
Fusion/M-13	38	12.0521	0.03348	11.986	12.118
Fusion/M-14	14	12.1914	0.05516	12.082	12.300
Mixed Acid/M-13	30	11.8287	0.03768	11.754	11.903
Mixed Acid/M-14	22	11.8203	0.04400	11.733	11.907

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	26	12.0303	0.186546	0.03658	11.955	12.106
Cold Chem/M-14	30	11.9373	0.169601	0.03096	11.874	12.001
Fusion/M-13	38	12.0521	0.209028	0.03391	11.983	12.121
Fusion/M-14	14	12.1914	0.225559	0.06028	12.061	12.322
Mixed Acid/M-13	30	11.8287	0.237153	0.04330	11.740	11.917
Mixed Acid/M-14	22	11.8203	0.212261	0.04525	11.726	11.914

Means Comparisons

Comparisons for all pairs using Tukey-Kramer HSD

Level				Mean
Fusion/M-14	A			12.191359
Fusion/M-13	A	B		12.052060
Cold Chem/M-13	A	B		12.030331
Cold Chem/M-14		B	C	11.937335
Mixed Acid/M-13			C	11.828695
Mixed Acid/M-14			C	11.820322

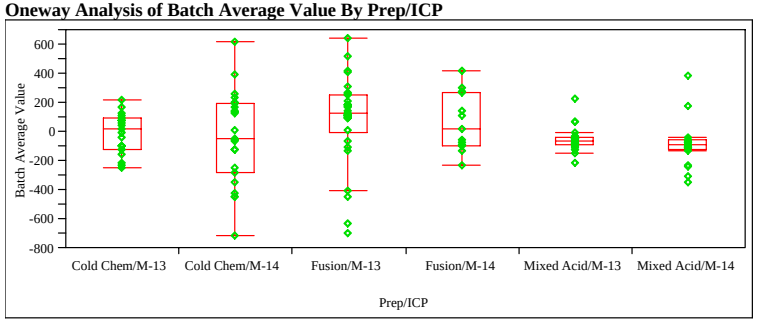
Levels not connected by same letter are significantly different

Exhibit A3. Measurement Comparisons Using Batch Averages of Prep Method/ICP Combination for ARG-1 by Analyte

(continued)

Sample Type=ARG-1, Analyte=Fe/U

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

Rsquare	0.079012
Adj Rsquare	0.042753
Root Mean Square Error	223.0314
Mean of Response	-5.01646
Observations (or Sum Wgts)	133

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	541970.4	108394	2.1791	0.0605
Error	127	6317359.6	49743		
C. Total	132	6859330.1			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	19	-8.714	51.167	-110.0	92.54
Cold Chem/M-14	23	-33.244	46.505	-125.3	58.78
Fusion/M-13	30	86.994	40.720	6.4	167.57
Fusion/M-14	13	68.552	61.858	-53.9	190.96
Mixed Acid/M-13	28	-54.156	42.149	-137.6	29.25
Mixed Acid/M-14	20	-86.083	49.871	-184.8	12.60

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	19	-8.714	139.437	31.989	-75.9	58.5
Cold Chem/M-14	23	-33.244	314.603	65.599	-169.3	102.8
Fusion/M-13	30	86.994	303.768	55.460	-26.4	200.4
Fusion/M-14	13	68.552	202.133	56.062	-53.6	190.7
Mixed Acid/M-13	28	-54.156	78.405	14.817	-84.6	-23.8
Mixed Acid/M-14	20	-86.083	155.205	34.705	-158.7	-13.4

Means Comparisons

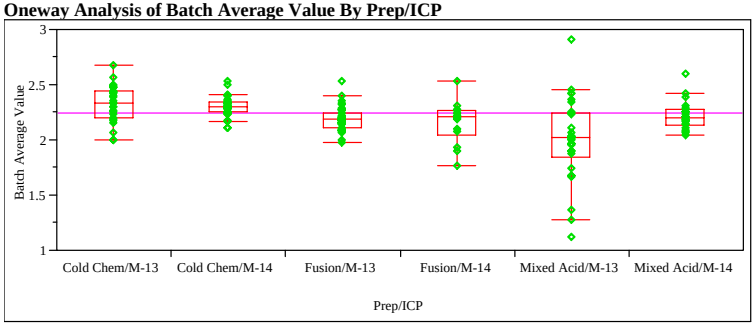
Comparisons for all pairs using Tukey-Kramer HSD

Level		Mean
Fusion/M-13	A	86.99412
Fusion/M-14	A	68.55243
Cold Chem/M-13	A	-8.71399
Cold Chem/M-14	A	-33.24439
Mixed Acid/M-13	A	-54.15562
Mixed Acid/M-14	A	-86.08253

Levels not connected by same letter are significantly different

Sample Type=ARG-1, Analyte=K

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

Rsquare	0.240736
Adj Rsquare	0.2164
Root Mean Square Error	0.199689
Mean of Response	2.206543
Observations (or Sum Wgts)	162

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	1.9723285	0.394466	9.8924	<.0001
Error	156	6.2205902	0.039876		
C. Total	161	8.1929187			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	27	2.33307	0.03843	2.2572	2.4090
Cold Chem/M-14	30	2.30827	0.03646	2.2363	2.3803
Fusion/M-13	39	2.19758	0.03198	2.1344	2.2607
Fusion/M-14	14	2.16504	0.05337	2.0596	2.2705
Mixed Acid/M-13	30	2.00710	0.03646	1.9351	2.0791
Mixed Acid/M-14	22	2.22682	0.04257	2.1427	2.3109

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	27	2.33307	0.167570	0.03225	2.2668	2.3994
Cold Chem/M-14	30	2.30827	0.094889	0.01732	2.2728	2.3437
Fusion/M-13	39	2.19758	0.106733	0.01709	2.1630	2.2322
Fusion/M-14	14	2.16504	0.192538	0.05146	2.0539	2.2762
Mixed Acid/M-13	30	2.00710	0.369803	0.06752	1.8690	2.1452
Mixed Acid/M-14	22	2.22682	0.128860	0.02747	2.1697	2.2840

Means Comparisons

Comparisons for all pairs using Tukey-Kramer HSD

Level			Mean
Cold Chem/M-13	A		2.3330741
Cold Chem/M-14	A		2.3082667
Mixed Acid/M-14	A		2.2268182
Fusion/M-13	A		2.1975769
Fusion/M-14	A	B	2.1650357
Mixed Acid/M-13		B	2.0071000

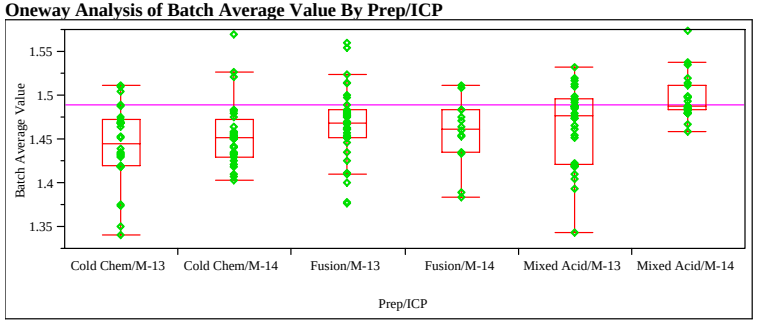
Levels not connected by same letter are significantly different

Exhibit A3. Measurement Comparisons Using Batch Averages of Prep Method/ICP Combination for ARG-1 by Analyte

(continued)

Sample Type=ARG-1, Analyte=Li

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

Rsquare	0.141202
Adj Rsquare	0.112765
Root Mean Square Error	0.039732
Mean of Response	1.464252
Observations (or Sum Wgts)	157

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	0.03919225	0.007838	4.9654	0.0003
Error	151	0.23837006	0.001579		
C. Total	156	0.27756231			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	26	1.44360	0.00779	1.4282	1.4590
Cold Chem/M-14	28	1.45505	0.00751	1.4402	1.4699
Fusion/M-13	38	1.46705	0.00645	1.4543	1.4798
Fusion/M-14	14	1.45807	0.01062	1.4371	1.4791
Mixed Acid/M-13	29	1.46547	0.00738	1.4509	1.4800
Mixed Acid/M-14	22	1.49786	0.00847	1.4811	1.5146

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	26	1.44360	0.045735	0.00897	1.4251	1.4621
Cold Chem/M-14	28	1.45505	0.037533	0.00709	1.4405	1.4696
Fusion/M-13	38	1.46705	0.039949	0.00648	1.4539	1.4802
Fusion/M-14	14	1.45807	0.037901	0.01013	1.4362	1.4800
Mixed Acid/M-13	29	1.46547	0.044733	0.00831	1.4485	1.4825
Mixed Acid/M-14	22	1.49786	0.026087	0.00556	1.4863	1.5094

Means Comparisons

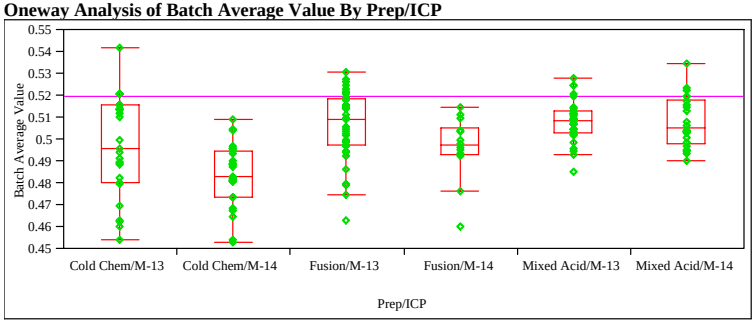
Comparisons for all pairs using Tukey-Kramer HSD

Level			Mean
Mixed Acid/M-14	A		1.4978636
Fusion/M-13		B	1.4670526
Mixed Acid/M-13	A	B	1.4654655
Fusion/M-14		B	1.4580714
Cold Chem/M-14		B	1.4550536
Cold Chem/M-13		B	1.4435962

Levels not connected by same letter are significantly different

Sample Type=ARG-1, Analyte=Mg

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

Rsquare	0.256825
Adj Rsquare	0.232217
Root Mean Square Error	0.015387
Mean of Response	0.500599
Observations (or Sum Wgts)	157

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	0.01235399	0.002471	10.4365	<.0001
Error	151	0.03574873	0.000237		
C. Total	156	0.04810272			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	27	0.496981	0.00296	0.49113	0.50283
Cold Chem/M-14	27	0.483944	0.00296	0.47809	0.48980
Fusion/M-13	37	0.506027	0.00253	0.50103	0.51102
Fusion/M-14	14	0.496357	0.00411	0.48823	0.50448
Mixed Acid/M-13	30	0.508567	0.00281	0.50302	0.51412
Mixed Acid/M-14	22	0.508182	0.00328	0.50170	0.51466

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	27	0.496981	0.022651	0.00436	0.48802	0.50594
Cold Chem/M-14	27	0.483944	0.014232	0.00274	0.47831	0.48957
Fusion/M-13	37	0.506027	0.015843	0.00260	0.50074	0.51131
Fusion/M-14	14	0.496357	0.014065	0.00376	0.48824	0.50448
Mixed Acid/M-13	30	0.508567	0.009599	0.00175	0.50498	0.51215
Mixed Acid/M-14	22	0.508182	0.011678	0.00249	0.50300	0.51336

Means Comparisons

Comparisons for all pairs using Tukey-Kramer HSD

Level			Mean
Mixed Acid/M-13	A		0.50856667
Mixed Acid/M-14	A		0.50818182
Fusion/M-13	A		0.50602703
Cold Chem/M-13	A		0.49698148
Fusion/M-14	A	B	0.49635714
Cold Chem/M-14		B	0.48394444

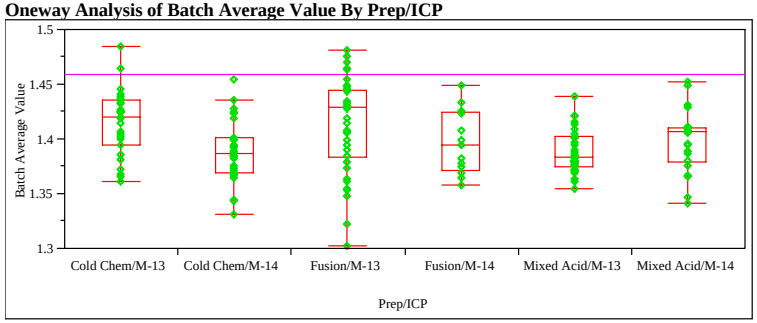
Levels not connected by same letter are significantly different

Exhibit A3. Measurement Comparisons Using Batch Averages of Prep Method/ICP Combination for ARG-1 by Analyte

(continued)

Sample Type=ARG-1, Analyte=Mn

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

Rsquare	0.119139
Adj Rsquare	0.090163
Root Mean Square Error	0.03195
Mean of Response	1.401747
Observations (or Sum Wgts)	158

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	0.02098580	0.004197	4.1117	0.0016
Error	152	0.15516007	0.001021		
C. Total	157	0.17614587			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	27	1.41574	0.00615	1.4036	1.4279
Cold Chem/M-14	28	1.38916	0.00604	1.3772	1.4011
Fusion/M-13	38	1.41428	0.00518	1.4040	1.4245
Fusion/M-14	13	1.39719	0.00886	1.3797	1.4147
Mixed Acid/M-13	30	1.38902	0.00583	1.3775	1.4005
Mixed Acid/M-14	22	1.39900	0.00681	1.3855	1.4125

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	27	1.41574	0.030285	0.00583	1.4038	1.4277
Cold Chem/M-14	28	1.38916	0.028443	0.00538	1.3781	1.4002
Fusion/M-13	38	1.41428	0.043574	0.00707	1.4000	1.4286
Fusion/M-14	13	1.39719	0.029112	0.00807	1.3796	1.4148
Mixed Acid/M-13	30	1.38902	0.020216	0.00369	1.3815	1.3966
Mixed Acid/M-14	22	1.39900	0.028617	0.00610	1.3863	1.4117

Means Comparisons

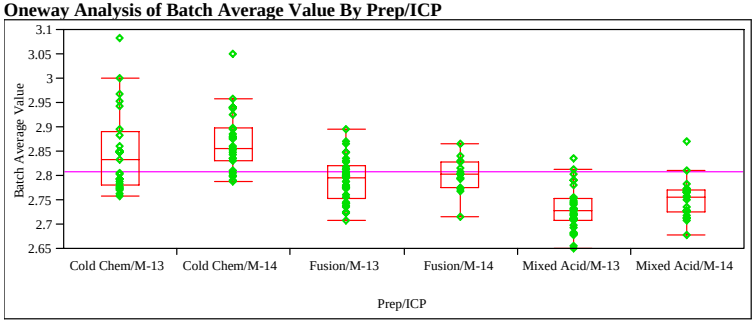
Comparisons for all pairs using Tukey-Kramer HSD

Level			Mean
Cold Chem/M-13	A		1.4157407
Fusion/M-13	A		1.4142763
Mixed Acid/M-14	A	B	1.3990000
Fusion/M-14	A	B	1.3971923
Cold Chem/M-14		B	1.3891607
Mixed Acid/M-13		B	1.3890167

Levels not connected by same letter are significantly different

Sample Type=ARG-1, Analyte=Mn/Mg

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

Rsquare	0.459497
Adj Rsquare	0.441599
Root Mean Square Error	0.054823
Mean of Response	2.798359
Observations (or Sum Wgts)	157

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	0.38582232	0.077164	25.6738	<.0001
Error	151	0.45384078	0.003006		
C. Total	156	0.83966310			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	25	2.84879	0.01096	2.8271	2.8705
Cold Chem/M-14	27	2.87040	0.01055	2.8496	2.8912
Fusion/M-13	38	2.79290	0.00889	2.7753	2.8105
Fusion/M-14	14	2.80167	0.01465	2.7727	2.8306
Mixed Acid/M-13	31	2.73201	0.00985	2.7126	2.7515
Mixed Acid/M-14	22	2.75345	0.01169	2.7304	2.7765

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	25	2.84879	0.084618	0.01692	2.8139	2.8837
Cold Chem/M-14	27	2.87040	0.061165	0.01177	2.8462	2.8946
Fusion/M-13	38	2.79290	0.044792	0.00727	2.7782	2.8076
Fusion/M-14	14	2.80167	0.036621	0.00979	2.7805	2.8228
Mixed Acid/M-13	31	2.73201	0.044279	0.00795	2.7158	2.7482
Mixed Acid/M-14	22	2.75345	0.040379	0.00861	2.7356	2.7714

Means Comparisons

Comparisons for all pairs using Tukey-Kramer HSD

Level				Mean
Cold Chem/M-14	A			2.8703971
Cold Chem/M-13	A	B		2.8487878
Fusion/M-14		B	C	2.8016698
Fusion/M-13			C	2.7929036
Mixed Acid/M-14			C	D 2.7534543
Mixed Acid/M-13				D 2.7320062

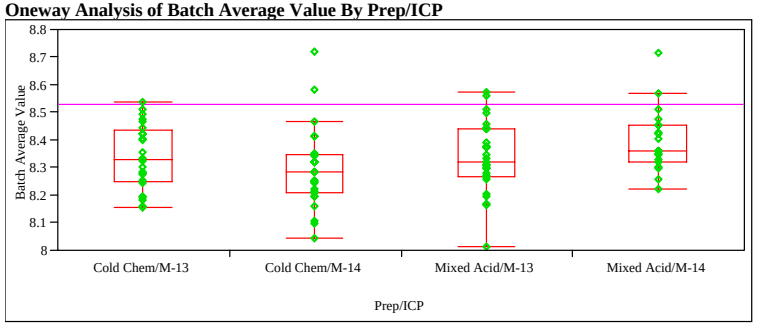
Levels not connected by same letter are significantly different

Exhibit A3. Measurement Comparisons Using Batch Averages of Prep Method/ICP Combination for ARG-1 by Analyte

(continued)

Sample Type=ARG-1, Analyte=Na

Oneway Analysis of Batch Average Value By Prep/ICP



Missing Rows 53

Oneway Anova

Summary of Fit

Rsquare	0.068416
Adj Rsquare	0.038997
Root Mean Square Error	0.127427
Mean of Response	8.340631
Observations (or Sum Wgts)	99

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	3	0.1132878	0.037763	2.3256	0.0797
Error	95	1.5425840	0.016238		
C. Total	98	1.6558718			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	24	8.34015	0.02601	8.2885	8.3918
Cold Chem/M-14	27	8.29965	0.02452	8.2510	8.3483
Mixed Acid/M-13	29	8.34002	0.02366	8.2930	8.3870
Mixed Acid/M-14	19	8.40042	0.02923	8.3424	8.4585

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	24	8.34015	0.118021	0.02409	8.2903	8.3900
Cold Chem/M-14	27	8.29965	0.143639	0.02764	8.2428	8.3565
Mixed Acid/M-13	29	8.34002	0.125425	0.02329	8.2923	8.3877
Mixed Acid/M-14	19	8.40042	0.116738	0.02678	8.3442	8.4567

Means Comparisons

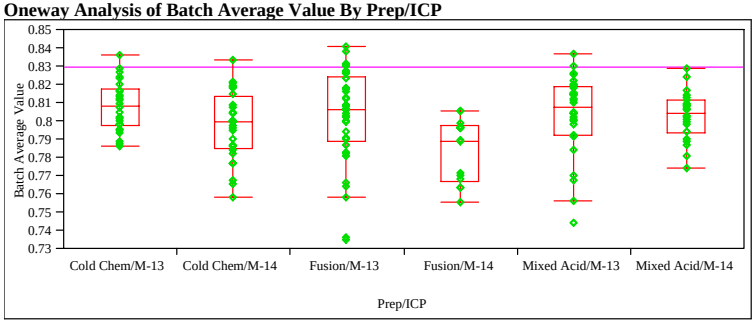
Comparisons for all pairs using Tukey-Kramer HSD

Level			Mean
Mixed Acid/M-14	A		8.4004211
Cold Chem/M-13	A	B	8.3401458
Mixed Acid/M-13	A	B	8.3400172
Cold Chem/M-14		B	8.2996481

Levels not connected by same letter are significantly different

Sample Type=ARG-1, Analyte=Ni

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

Rsquare	0.095056
Adj Rsquare	0.065288
Root Mean Square Error	0.019873
Mean of Response	0.801301
Observations (or Sum Wgts)	158

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	0.00630534	0.001261	3.1932	0.0090
Error	152	0.06002763	0.000395		
C. Total	157	0.06633297			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	26	0.808288	0.00390	0.80059	0.81599
Cold Chem/M-14	28	0.797821	0.00376	0.79040	0.80524
Fusion/M-13	38	0.802671	0.00322	0.79630	0.80904
Fusion/M-14	14	0.783607	0.00531	0.77311	0.79410
Mixed Acid/M-13	30	0.803683	0.00363	0.79652	0.81085
Mixed Acid/M-14	22	0.803114	0.00424	0.79474	0.81148

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	26	0.808288	0.013632	0.00267	0.80278	0.81379
Cold Chem/M-14	28	0.797821	0.018697	0.00353	0.79057	0.80507
Fusion/M-13	38	0.802671	0.025775	0.00418	0.79420	0.81114
Fusion/M-14	14	0.783607	0.017420	0.00466	0.77355	0.79367
Mixed Acid/M-13	30	0.803683	0.021671	0.00396	0.79559	0.81178
Mixed Acid/M-14	22	0.803114	0.013449	0.00287	0.79715	0.80908

Means Comparisons

Comparisons for all pairs using Tukey-Kramer HSD

Level			Mean
Cold Chem/M-13	A		0.80828846
Mixed Acid/M-13	A		0.80368333
Mixed Acid/M-14	A	B	0.80311364
Fusion/M-13	A		0.80267105
Cold Chem/M-14	A	B	0.79782143
Fusion/M-14		B	0.78360714

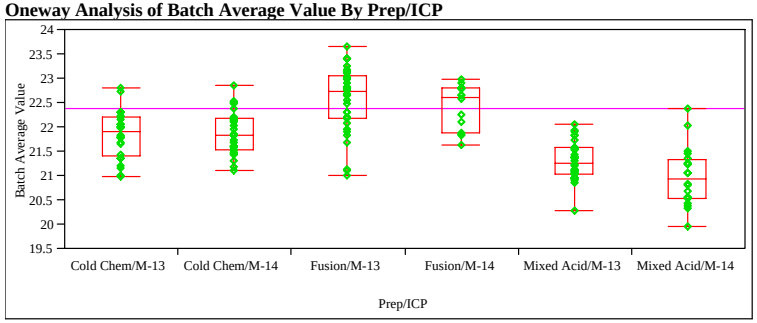
Levels not connected by same letter are significantly different

Exhibit A3. Measurement Comparisons Using Batch Averages of Prep Method/ICP Combination for ARG-1 by Analyte

(continued)

Sample Type=ARG-1, Analyte=Si

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

Rsquare	0.544945
Adj Rsquare	0.529675
Root Mean Square Error	0.522982
Mean of Response	21.87219
Observations (or Sum Wgts)	155

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	48.803342	9.76067	35.6866	<.0001
Error	149	40.753045	0.27351		
C. Total	154	89.556387			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	26	21.8597	0.10257	21.657	22.062
Cold Chem/M-14	27	21.8849	0.10065	21.686	22.084
Fusion/M-13	38	22.5857	0.08484	22.418	22.753
Fusion/M-14	14	22.4138	0.13977	22.138	22.690
Mixed Acid/M-13	30	21.3064	0.09548	21.118	21.495
Mixed Acid/M-14	20	20.9851	0.11694	20.754	21.216

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	26	21.8597	0.484660	0.09505	21.664	22.055
Cold Chem/M-14	27	21.8849	0.447320	0.08609	21.708	22.062
Fusion/M-13	38	22.5857	0.651093	0.10562	22.372	22.800
Fusion/M-14	14	22.4138	0.464782	0.12422	22.145	22.682
Mixed Acid/M-13	30	21.3064	0.391373	0.07145	21.160	21.453
Mixed Acid/M-14	20	20.9851	0.595720	0.13321	20.706	21.264

Means Comparisons

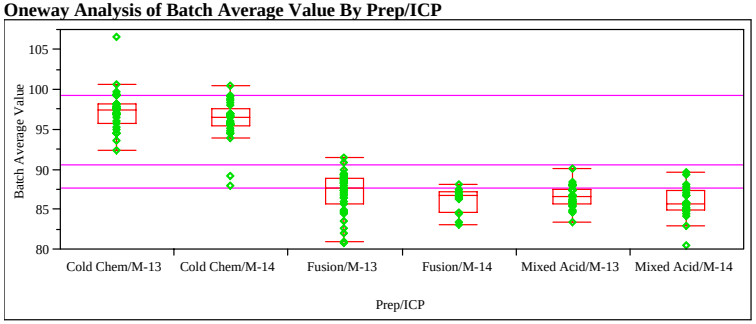
Comparisons for all pairs using Tukey-Kramer HSD

Level		Mean
Fusion/M-13	A	22.585684
Fusion/M-14	A	22.413821
Cold Chem/M-14	B	21.884926
Cold Chem/M-13	B	21.859731
Mixed Acid/M-13	C	21.306400
Mixed Acid/M-14	C	20.985075

Levels not connected by same letter are significantly different

Sample Type=ARG-1, Analyte=Sum of Oxides

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

Rsquare	0.826472
Adj Rsquare	0.820874
Root Mean Square Error	2.277669
Mean of Response	90.13247
Observations (or Sum Wgts)	161

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	3829.7578	765.952	147.6454	<.0001
Error	155	804.1056	5.188		
C. Total	160	4633.8634			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	27	97.4129	0.43834	96.547	98.279
Cold Chem/M-14	29	96.1790	0.42295	95.344	97.014
Fusion/M-13	39	87.1026	0.36472	86.382	87.823
Fusion/M-14	14	86.1759	0.60873	84.973	87.378
Mixed Acid/M-13	30	86.5702	0.41584	85.749	87.392
Mixed Acid/M-14	22	85.9735	0.48560	85.014	86.933

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	27	97.4129	2.66286	0.51247	96.359	98.466
Cold Chem/M-14	29	96.1790	2.63160	0.48868	95.178	97.180
Fusion/M-13	39	87.1026	2.56926	0.41141	86.270	87.935
Fusion/M-14	14	86.1759	1.55437	0.41542	85.278	87.073
Mixed Acid/M-13	30	86.5702	1.35843	0.24801	86.063	87.077
Mixed Acid/M-14	22	85.9735	2.07099	0.44154	85.055	86.892

Means Comparisons

Comparisons for all pairs using Tukey-Kramer HSD

Level		Mean
Cold Chem/M-13	A	97.412860
Cold Chem/M-14	A	96.179002
Fusion/M-13	B	87.102613
Mixed Acid/M-13	B	86.570229
Fusion/M-14	B	86.175937
Mixed Acid/M-14	B	85.973550

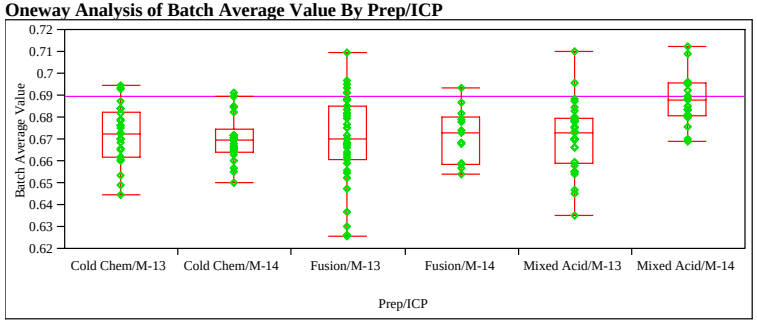
Levels not connected by same letter are significantly different

Exhibit A3. Measurement Comparisons Using Batch Averages of Prep Method/ICP Combination for ARG-1 by Analyte

(continued)

Sample Type=ARG-1, Analyte=Ti

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

Rsquare	0.13631
Adj Rsquare	0.10752
Root Mean Square Error	0.014925
Mean of Response	0.673699
Observations (or Sum Wgts)	156

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	0.00527354	0.001055	4.7347	0.0005
Error	150	0.03341430	0.000223		
C. Total	155	0.03868784			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	26	0.672423	0.00293	0.66664	0.67821
Cold Chem/M-14	26	0.670615	0.00293	0.66483	0.67640
Fusion/M-13	39	0.670949	0.00239	0.66623	0.67567
Fusion/M-14	13	0.671654	0.00414	0.66347	0.67983
Mixed Acid/M-13	30	0.671467	0.00272	0.66608	0.67685
Mixed Acid/M-14	22	0.687977	0.00318	0.68169	0.69426

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	26	0.672423	0.013244	0.00260	0.66707	0.67777
Cold Chem/M-14	26	0.670615	0.010788	0.00212	0.66626	0.67497
Fusion/M-13	39	0.670949	0.019687	0.00315	0.66457	0.67733
Fusion/M-14	13	0.671654	0.012262	0.00340	0.66424	0.67906
Mixed Acid/M-13	30	0.671467	0.015753	0.00288	0.66558	0.67735
Mixed Acid/M-14	22	0.687977	0.010669	0.00227	0.68325	0.69271

Means Comparisons

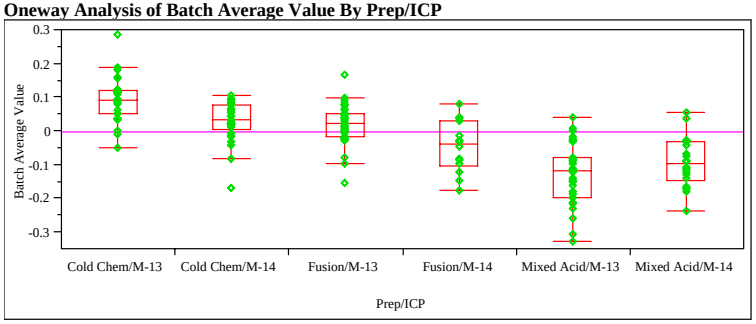
Comparisons for all pairs using Tukey-Kramer HSD

Level		Mean
Mixed Acid/M-14	A	0.68797727
Cold Chem/M-13	B	0.67242308
Fusion/M-14	B	0.67165385
Mixed Acid/M-13	B	0.67146667
Fusion/M-13	B	0.67094872
Cold Chem/M-14	B	0.67061538

Levels not connected by same letter are significantly different

Sample Type=ARG-1, Analyte=U

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

Rsquare	0.553964
Adj Rsquare	0.539668
Root Mean Square Error	0.070493
Mean of Response	-0.01454
Observations (or Sum Wgts)	162

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	0.9627928	0.192559	38.7496	<.0001
Error	156	0.7752124	0.004969		
C. Total	161	1.7380052			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	27	0.09398	0.01357	0.0672	0.1208
Cold Chem/M-14	29	0.02991	0.01309	0.0041	0.0558
Fusion/M-13	39	0.02123	0.01129	-0.0011	0.0435
Fusion/M-14	14	-0.04486	0.01884	-0.0821	-0.0076
Mixed Acid/M-13	31	-0.12731	0.01266	-0.1523	-0.1023
Mixed Acid/M-14	22	-0.09157	0.01503	-0.1213	-0.0619

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	27	0.09398	0.068027	0.01309	0.0671	0.1209
Cold Chem/M-14	29	0.02991	0.059607	0.01107	0.0072	0.0526
Fusion/M-13	39	0.02123	0.057350	0.00918	0.0026	0.0398
Fusion/M-14	14	-0.04486	0.075976	0.02031	-0.0887	-0.001
Mixed Acid/M-13	31	-0.12731	0.090744	0.01630	-0.1606	-0.0940
Mixed Acid/M-14	22	-0.09157	0.071830	0.01531	-0.1234	-0.0597

Means Comparisons

Comparisons for all pairs using Tukey-Kramer HSD

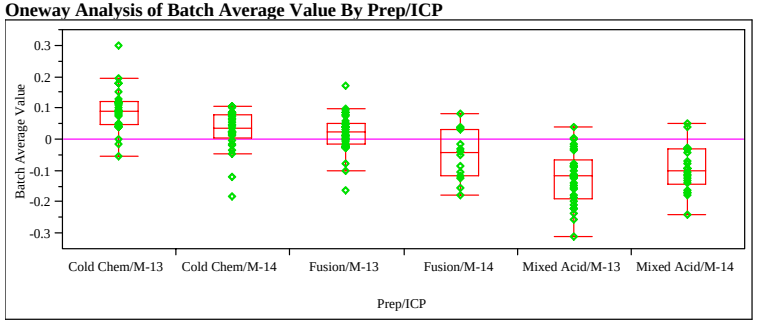
Level			Mean
Cold Chem/M-13	A		0.0939815
Cold Chem/M-14		B	0.0299138
Fusion/M-13		B	0.0212308
Fusion/M-14		C	-0.0448571
Mixed Acid/M-14		C	D -0.0915682
Mixed Acid/M-13			D -0.1273065

Levels not connected by same letter are significantly different

Exhibit A3. Measurement Comparisons Using Batch Averages of Prep Method/ICP Combination for ARG-1 by Analyte

(continued)

Sample Type=ARG-1, Analyte=U/Ca
Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova
Summary of Fit

Rsquare	0.544187
Adj Rsquare	0.529483
Root Mean Square Error	0.071102
Mean of Response	-0.01273
Observations (or Sum Wgts)	161

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	0.9355274	0.187105	37.0103	<.0001
Error	155	0.7836018	0.005055		
C. Total	160	1.7191292			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	27	0.09600	0.01368	0.0690	0.1230
Cold Chem/M-14	29	0.03003	0.01320	0.0039	0.0561
Fusion/M-13	39	0.02211	0.01139	-0.0004	0.0446
Fusion/M-14	14	-0.04900	0.01900	-0.0865	-0.0115
Mixed Acid/M-13	30	-0.12214	0.01298	-0.1478	-0.0965
Mixed Acid/M-14	22	-0.09206	0.01516	-0.1220	-0.0621

Std Error uses a pooled estimate of error variance

Means and Std Deviations

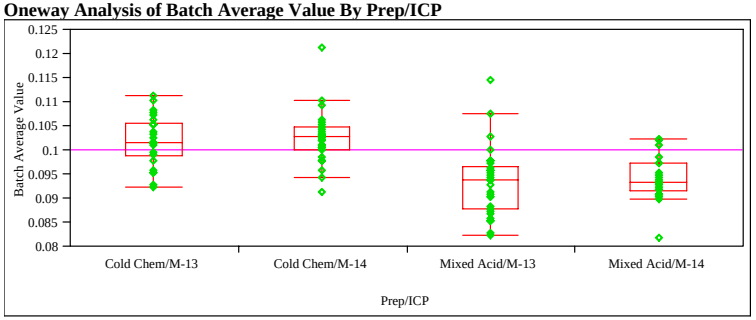
Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	27	0.09600	0.070349	0.01354	0.0682	0.1238
Cold Chem/M-14	29	0.03003	0.065022	0.01207	0.0053	0.0548
Fusion/M-13	39	0.02211	0.059013	0.00945	0.0030	0.0412
Fusion/M-14	14	-0.04900	0.079371	0.02121	-0.0948	-0.0032
Mixed Acid/M-13	30	-0.12214	0.085650	0.01564	-0.1541	-0.0902
Mixed Acid/M-14	22	-0.09206	0.072234	0.01540	-0.1241	-0.0600

Means Comparisons
Comparisons for all pairs using Tukey-Kramer HSD

Level			Mean
Cold Chem/M-13	A		0.0959995
Cold Chem/M-14		B	0.0300315
Fusion/M-13		B	0.0221128
Fusion/M-14		C	-0.0489994
Mixed Acid/M-14		C	D -0.0920569
Mixed Acid/M-13			D -0.1221373

Levels not connected by same letter are significantly different

Sample Type=ARG-1, Analyte=Zr
Oneway Analysis of Batch Average Value By Prep/ICP



Missing Rows 53

Oneway Anova
Summary of Fit

Rsquare	0.372912
Adj Rsquare	0.354469
Root Mean Square Error	0.005735
Mean of Response	0.098189
Observations (or Sum Wgts)	106

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	3	0.00199535	0.000665	20.2189	<.0001
Error	102	0.00335537	0.000033		
C. Total	105	0.00535073			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	26	0.102173	0.00112	0.09994	0.10440
Cold Chem/M-14	28	0.102679	0.00108	0.10053	0.10483
Mixed Acid/M-13	30	0.093467	0.00105	0.09139	0.09554
Mixed Acid/M-14	22	0.094205	0.00122	0.09178	0.09663

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	26	0.102173	0.005134	0.00101	0.10010	0.10425
Cold Chem/M-14	28	0.102679	0.005540	0.00105	0.10053	0.10483
Mixed Acid/M-13	30	0.093467	0.007029	0.00128	0.09084	0.09609
Mixed Acid/M-14	22	0.094205	0.004550	0.00097	0.09219	0.09622

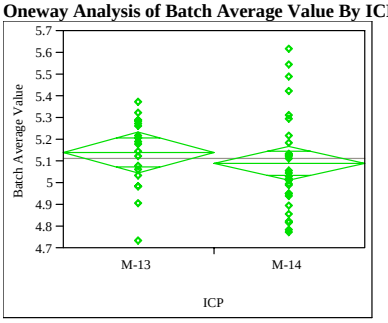
Means Comparisons
Comparisons for all pairs using Tukey-Kramer HSD

Level			Mean
Cold Chem/M-14	A		0.10267857
Cold Chem/M-13	A		0.10217308
Mixed Acid/M-14		B	0.09420455
Mixed Acid/M-13		B	0.09346667

Levels not connected by same letter are significantly different

Exhibit A4. ICP Comparisons Using Cold Chem Batch Averages of Process Samples by Analyte

Prep=Cold Chem, Sample Type=SRAT, Analyte=Al
Oneway Analysis of Batch Average Value By ICP

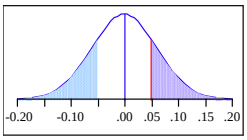


Oneway Anova
Summary of Fit

Rsquare	0.014975
Adj Rsquare	-0.00691
Root Mean Square Error	0.203965
Mean of Response	5.112443
Observations (or Sum Wgts)	47

t Test
M-13-M-14
Assuming equal variances

Difference	0.05014	t Ratio	0.827108
Std Err Dif	0.06062	DF	45
Upper CL Dif	0.17225	Prob > |t|	0.4125
Lower CL Dif	-0.07196	Prob > t	0.2063
Confidence	0.95	Prob < t	0.7937



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
ICP	1	0.0284602	0.028460	0.6841	0.4125
Error	45	1.8720846	0.041602		
C. Total	46	1.9005448			

Means for Oneway Anova

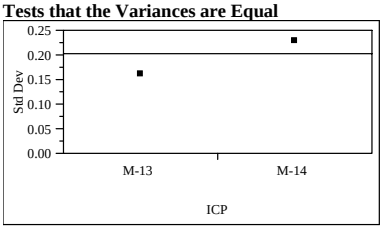
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
M-13	19	5.14232	0.04679	5.0481	5.2366
M-14	28	5.09217	0.03855	5.0145	5.1698

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
M-13	19	5.14232	0.161204	0.03698	5.0646	5.2200
M-14	28	5.09217	0.228061	0.04310	5.0037	5.1806

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
M-13	19	0.1612044	0.1275642	0.1255351
M-14	28	0.2280612	0.1783044	0.1726607

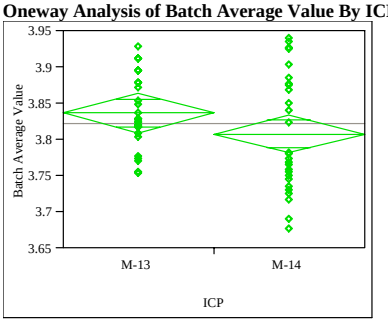
Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	2.0079	1	45	0.1634
Brown-Forsythe	1.3361	1	45	0.2538
Levene	1.9494	1	45	0.1695
Bartlett	2.3842	1	.	0.1226
F Test 2-sided	2.0015	27	18	0.1295

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
0.7796	1	44.892	0.3820

t Test
0.8829

Prep=Cold Chem, Sample Type=SRAT, Analyte=Al/Ca
Oneway Analysis of Batch Average Value By ICP

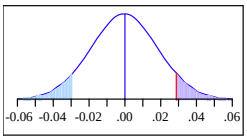


Oneway Anova
Summary of Fit

Rsquare	0.045126
Adj Rsquare	0.026029
Root Mean Square Error	0.067688
Mean of Response	3.822113
Observations (or Sum Wgts)	52

t Test
M-13-M-14
Assuming equal variances

Difference	0.02888	t Ratio	1.537186
Std Err Dif	0.01879	DF	50
Upper CL Dif	0.06661	Prob > |t|	0.1306
Lower CL Dif	-0.00886	Prob > t	0.0653
Confidence	0.95	Prob < t	0.9347



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
ICP	1	0.01082608	0.010826	2.3629	0.1306
Error	50	0.22908069	0.004582		
C. Total	51	0.23990677			

Means for Oneway Anova

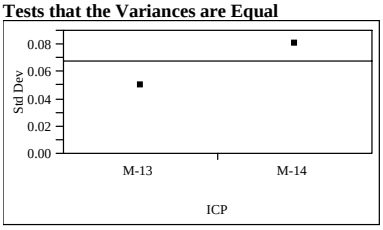
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
M-13	25	3.83711	0.01354	3.8099	3.8643
M-14	27	3.80823	0.01303	3.7821	3.8344

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
M-13	25	3.83711	0.050205	0.01004	3.8164	3.8578
M-14	27	3.80823	0.080524	0.01550	3.7764	3.8401

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
M-13	25	0.0502048	0.0407387	0.0398488
M-14	27	0.0805243	0.0710863	0.0682634

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	9.4852	1	50	0.0034
Brown-Forsythe	6.1690	1	50	0.0164
Levene	11.6858	1	50	0.0013
Bartlett	5.2076	1	.	0.0225
F Test 2-sided	2.5725	26	24	0.0228

Welch Anova testing Means Equal, allowing Std Devs Not Equal

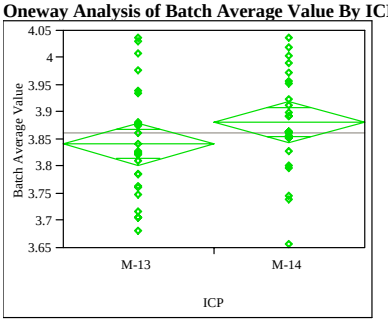
F Ratio	DFNum	DFDen	Prob > F
2.4460	1	44.01	0.1250

t Test
1.5640

Exhibit A4. ICP Comparisons Using Cold Chem Batch Averages of Process Samples by Analyte

(continued)

Prep=Cold Chem, Sample Type=SRAT, Analyte=Al/Mg
Oneway Analysis of Batch Average Value By ICP

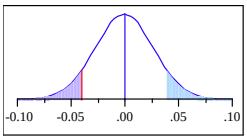


Oneway Anova
Summary of Fit

Rsquare	0.042669
Adj Rsquare	0.023131
Root Mean Square Error	0.096119
Mean of Response	3.862152
Observations (or Sum Wgts)	51

t Test
M-13-M-14
Assuming equal variances

Difference	-0.03979	t Ratio	-1.47782
Std Err Dif	0.02692	DF	49
Upper CL Dif	0.01432	Prob > |t|	0.1459
Lower CL Dif	-0.09389	Prob > t	0.9271
Confidence	0.95	Prob < t	0.0729



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
ICP	1	0.02017722	0.020177	2.1840	0.1459
Error	49	0.45270307	0.009239		
C. Total	50	0.47288029			

Means for Oneway Anova

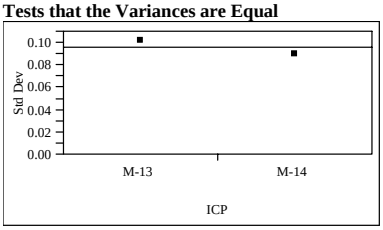
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
M-13	25	3.84187	0.01922	3.8032	3.8805
M-14	26	3.88166	0.01885	3.8438	3.9195

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
M-13	25	3.84187	0.102146	0.02043	3.7997	3.8840
M-14	26	3.88166	0.089954	0.01764	3.8453	3.9180

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
M-13	25	0.1021460	0.0809296	0.0793840
M-14	26	0.0899537	0.0680755	0.0667848

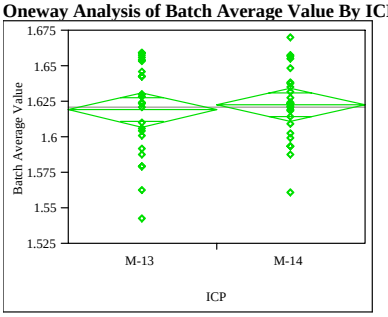
Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.4628	1	49	0.4995
Brown-Forsythe	0.5138	1	49	0.4769
Levene	0.6125	1	49	0.4376
Bartlett	0.3874	1	.	0.5337
F Test 2-sided	1.2895	24	25	0.5319

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
2.1729	1	47.684	0.1470

t Test
1.4741

Prep=Cold Chem, Sample Type=SRAT, Analyte=Al/Mn
Oneway Analysis of Batch Average Value By ICP

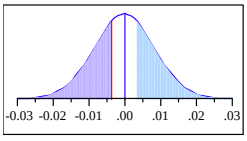


Oneway Anova
Summary of Fit

Rsquare	0.003919
Adj Rsquare	-0.01727
Root Mean Square Error	0.029323
Mean of Response	1.621328
Observations (or Sum Wgts)	49

t Test
M-13-M-14
Assuming equal variances

Difference	-0.00360	t Ratio	-0.43002
Std Err Dif	0.00838	DF	47
Upper CL Dif	0.01325	Prob > |t|	0.6691
Lower CL Dif	-0.02046	Prob > t	0.6654
Confidence	0.95	Prob < t	0.3346



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
ICP	1	0.00015900	0.000159	0.1849	0.6691
Error	47	0.04041296	0.000860		
C. Total	48	0.04057196			

Means for Oneway Anova

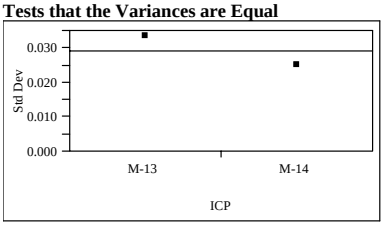
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
M-13	24	1.61949	0.00599	1.6074	1.6315
M-14	25	1.62309	0.00586	1.6113	1.6349

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
M-13	24	1.61949	0.033264	0.00679	1.6054	1.6335
M-14	25	1.62309	0.024970	0.00499	1.6128	1.6334

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
M-13	24	0.0332639	0.0274485	0.0269067
M-14	25	0.0249698	0.0185209	0.0185152

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	2.0808	1	47	0.1558
Brown-Forsythe	2.7008	1	47	0.1070
Levene	3.3347	1	47	0.0742
Bartlett	1.8740	1	.	0.1710
F Test 2-sided	1.7747	23	24	0.1701

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
0.1828	1	42.653	0.6711

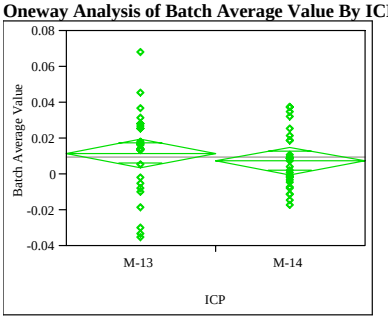
t Test
0.4275

Exhibit A4. ICP Comparisons Using Cold Chem Batch Averages of Process Samples by Analyte

(continued)

Prep=Cold Chem, Sample Type=SRAT, Analyte=B

Oneway Analysis of Batch Average Value By ICP



Oneway Anova

Summary of Fit

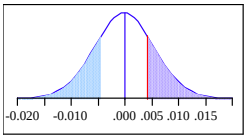
Rsquare	0.011485
Adj Rsquare	-0.00752
Root Mean Square Error	0.020377
Mean of Response	0.009654
Observations (or Sum Wgts)	54

t Test

M-13-M-14

Assuming equal variances

Difference	0.00431	t Ratio	0.777277
Std Err Dif	0.00555	DF	52
Upper CL Dif	0.01545	Prob > |t|	0.4405
Lower CL Dif	-0.00682	Prob > t	0.2203
Confidence	0.95	Prob < t	0.7797



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
ICP	1	0.00025086	0.000251	0.6042	0.4405
Error	52	0.02159125	0.000415		
C. Total	53	0.02184210			

Means for Oneway Anova

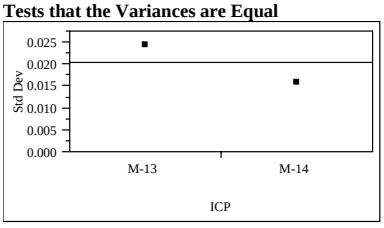
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
M-13	26	0.011891	0.00400	0.0039	0.01991
M-14	28	0.007577	0.00385	-0.0001	0.01530

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
M-13	26	0.011891	0.024356	0.00478	0.00205	0.02173
M-14	28	0.007577	0.015825	0.00299	0.00144	0.01371

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
M-13	26	0.0243555	0.0185399	0.0178782
M-14	28	0.0158248	0.0126424	0.0126369

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	3.8708	1	52	0.0545
Brown-Forsythe	2.0962	1	52	0.1537
Levene	2.9811	1	52	0.0902
Bartlett	4.6449	1	.	0.0311
F Test 2-sided	2.3687	25	27	0.0307

Welch Anova testing Means Equal, allowing Std Devs Not Equal

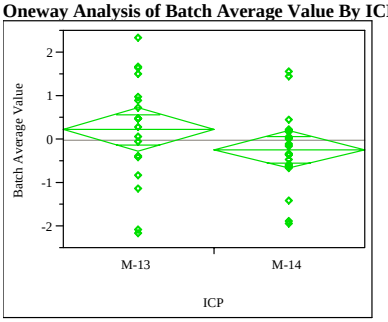
F Ratio	DFNum	DFDen	Prob > F
0.5859	1	42.408	0.4482

t Test

0.7654

Prep=Cold Chem, Sample Type=SRAT, Analyte=B/Li

Oneway Analysis of Batch Average Value By ICP



Oneway Anova

Summary of Fit

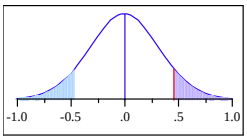
Rsquare	0.049402
Adj Rsquare	0.025028
Root Mean Square Error	1.031233
Mean of Response	-0.02668
Observations (or Sum Wgts)	41

t Test

M-13-M-14

Assuming equal variances

Difference	0.4620	t Ratio	1.423662
Std Err Dif	0.3245	DF	39
Upper CL Dif	1.1184	Prob > |t|	0.1625
Lower CL Dif	-0.1944	Prob > t	0.0812
Confidence	0.95	Prob < t	0.9188



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
ICP	1	2.155397	2.15540	2.0268	0.1625
Error	39	41.474222	1.06344		
C. Total	40	43.629618			

Means for Oneway Anova

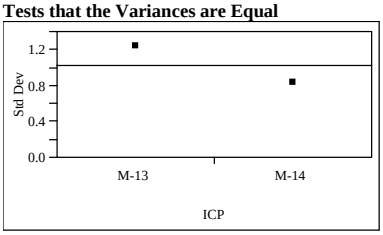
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
M-13	18	0.23250	0.24306	-0.2591	0.72414
M-14	23	-0.22952	0.21503	-0.6644	0.20542

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
M-13	18	0.23250	1.24484	0.29341	-0.3865	0.85154
M-14	23	-0.22952	0.82930	0.17292	-0.5881	0.12910

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
M-13	18	1.244845	0.9718205	0.9664776
M-14	23	0.829303	0.5761647	0.5746769

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	2.9260	1	39	0.0951
Brown-Forsythe	3.4393	1	39	0.0712
Levene	3.6610	1	39	0.0631
Bartlett	3.1066	1	.	0.0780
F Test 2-sided	2.2532	17	22	0.0747

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
1.8403	1	28.229	0.1857

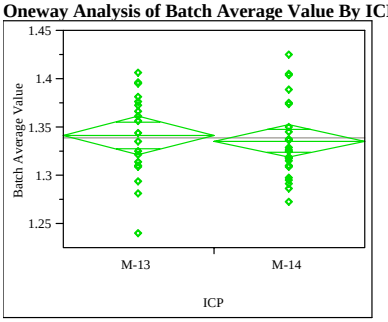
t Test

1.3566

Exhibit A4. ICP Comparisons Using Cold Chem Batch Averages of Process Samples by Analyte

(continued)

Prep=Cold Chem, Sample Type=SRAT, Analyte=Ca
Oneway Analysis of Batch Average Value By ICP

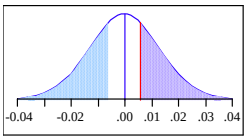


Oneway Anova
Summary of Fit

Rsquare	0.00489
Adj Rsquare	-0.01938
Root Mean Square Error	0.042209
Mean of Response	1.338779
Observations (or Sum Wgts)	43

t Test
M-13-M-14
Assuming equal variances

Difference	0.00582	t Ratio	0.448865
Std Err Dif	0.01296	DF	41
Upper CL Dif	0.03199	Prob > |t|	0.6559
Lower CL Dif	-0.02036	Prob > t	0.3279
Confidence	0.95	Prob < t	0.6721



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
ICP	1	0.00035896	0.000359	0.2015	0.6559
Error	41	0.07304536	0.001782		
C. Total	42	0.07340432			

Means for Oneway Anova

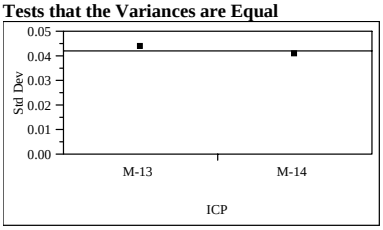
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
M-13	19	1.34203	0.00968	1.3225	1.3616
M-14	24	1.33621	0.00862	1.3188	1.3536

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
M-13	19	1.34203	0.043993	0.01009	1.3208	1.3632
M-14	24	1.33621	0.040758	0.00832	1.3190	1.3534

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
M-13	19	0.0439928	0.0360776	0.0364123
M-14	24	0.0407585	0.0321875	0.0308750

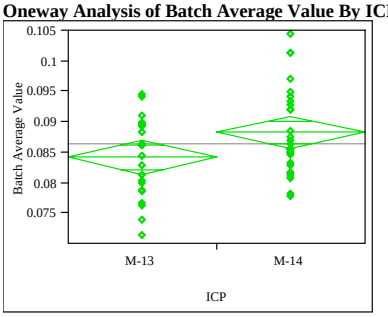
Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.1416	1	41	0.7086
Brown-Forsythe	0.4849	1	41	0.4901
Levene	0.2806	1	41	0.5992
Bartlett	0.1155	1	.	0.7340
F Test 2-sided	1.1650	18	23	0.7203

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
0.1979	1	37.297	0.6590

t Test
0.4448

Prep=Cold Chem, Sample Type=SRAT, Analyte=Cr
Oneway Analysis of Batch Average Value By ICP

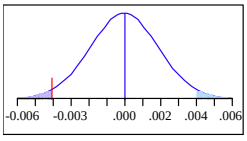


Oneway Anova
Summary of Fit

Rsquare	0.084455
Adj Rsquare	0.065771
Root Mean Square Error	0.006791
Mean of Response	0.086477
Observations (or Sum Wgts)	51

t Test
M-13-M-14
Assuming equal variances

Difference	-0.00406	t Ratio	-2.12604
Std Err Dif	0.00191	DF	49
Upper CL Dif	-0.00022	Prob > |t|	0.0386
Lower CL Dif	-0.00790	Prob > t	0.9807
Confidence	0.95	Prob < t	0.0193



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
ICP	1	0.00020847	0.000208	4.5201	0.0386
Error	49	0.00225992	0.000046		
C. Total	50	0.00246839			

Means for Oneway Anova

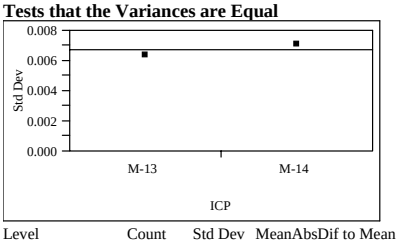
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
M-13	23	0.084246	0.00142	0.08140	0.08709
M-14	28	0.088310	0.00128	0.08573	0.09089

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
M-13	23	0.084246	0.006392	0.00133	0.08148	0.08701
M-14	28	0.088310	0.007100	0.00134	0.08556	0.09106

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
M-13	23	0.0063922	0.0053737	0.0052609
M-14	28	0.0070998	0.0057925	0.0055119

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.3435	1	49	0.5605
Brown-Forsythe	0.0385	1	49	0.8452
Levene	0.1654	1	49	0.6860
Bartlett	0.2594	1	.	0.6105
F Test 2-sided	1.2336	27	22	0.6203

Welch Anova testing Means Equal, allowing Std Devs Not Equal

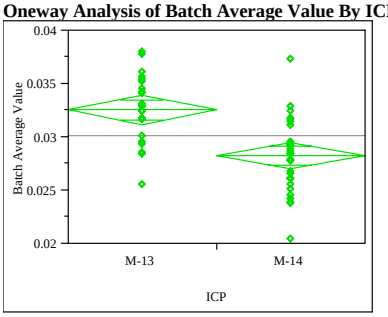
F Ratio	DFNum	DFDen	Prob > F
4.6156	1	48.553	0.0367

t Test
2.1484

Exhibit A4. ICP Comparisons Using Cold Chem Batch Averages of Process Samples by Analyte

(continued)

Prep=Cold Chem, Sample Type=SRAT, Analyte=Cu
Oneway Analysis of Batch Average Value By ICP

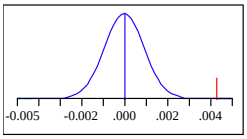


Oneway Anova
Summary of Fit

Rsquare	0.304455
Adj Rsquare	0.290817
Root Mean Square Error	0.00331
Mean of Response	0.030201
Observations (or Sum Wgts)	53

t Test
M-13-M-14
Assuming equal variances

Difference	0.004315	t Ratio	4.724811
Std Err Dif	0.000913	DF	51
Upper CL Dif	0.006149	Prob > |t|	<.0001
Lower CL Dif	0.002482	Prob > t	<.0001
Confidence	0.95	Prob < t	1.0000



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
ICP	1	0.00024455	0.000245	22.3238	<.0001
Error	51	0.00055869	0.000011		
C. Total	52	0.00080324			

Means for Oneway Anova

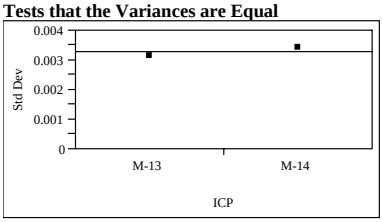
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
M-13	24	0.032563	0.00068	0.03121	0.03392
M-14	29	0.028247	0.00061	0.02701	0.02948

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
M-13	24	0.032563	0.003160	0.00064	0.03123	0.03390
M-14	29	0.028247	0.003428	0.00064	0.02694	0.02955

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
M-13	24	0.0031595	0.0025069	0.0025069
M-14	29	0.0034283	0.0026064	0.0025977

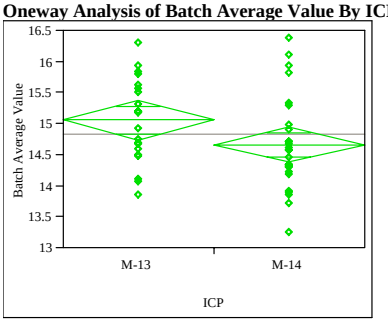
Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.1508	1	51	0.6993
Brown-Forsythe	0.0257	1	51	0.8733
Levene	0.0314	1	51	0.8600
Bartlett	0.1640	1	.	0.6855
F Test 2-sided	1.1774	28	23	0.6951

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
22.6764	1	50.373	<.0001

t Test
4.7620

Prep=Cold Chem, Sample Type=SRAT, Analyte=Fe
Oneway Analysis of Batch Average Value By ICP

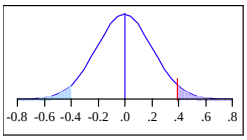


Oneway Anova
Summary of Fit

Rsquare	0.072283
Adj Rsquare	0.052115
Root Mean Square Error	0.718466
Mean of Response	14.83997
Observations (or Sum Wgts)	48

t Test
M-13-M-14
Assuming equal variances

Difference	0.39575	t Ratio	1.893164
Std Err Dif	0.20904	DF	46
Upper CL Dif	0.81653	Prob > |t|	0.0646
Lower CL Dif	-0.02503	Prob > t	0.0323
Confidence	0.95	Prob < t	0.9677



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
ICP	1	1.850071	1.85007	3.5841	0.0646
Error	46	23.744885	0.51619		
C. Total	47	25.594957			

Means for Oneway Anova

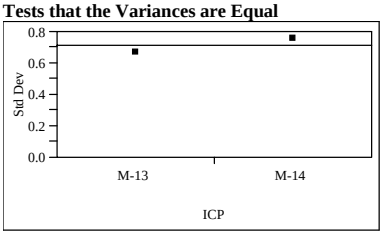
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
M-13	21	15.0626	0.15678	14.747	15.378
M-14	27	14.6668	0.13827	14.389	14.945

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
M-13	21	15.0626	0.670804	0.14638	14.757	15.368
M-14	27	14.6668	0.753079	0.14493	14.369	14.965

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
M-13	21	0.6708043	0.5617581	0.5572063
M-14	27	0.7530788	0.5648198	0.5523951

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.3275	1	46	0.5699
Brown-Forsythe	0.0013	1	46	0.9711
Levene	0.0006	1	46	0.9806
Bartlett	0.2924	1	.	0.5887
F Test 2-sided	1.2603	26	20	0.6014

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
3.6911	1	45.096	0.0610

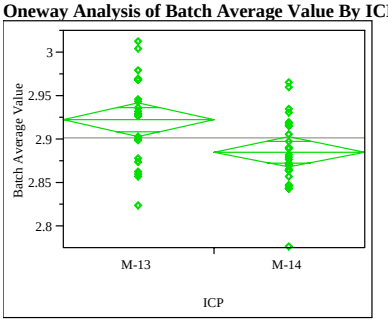
t Test
1.9212

Exhibit A4. ICP Comparisons Using Cold Chem Batch Averages of Process Samples by Analyte

(continued)

Prep=Cold Chem, Sample Type=SRAT, Analyte=Fe/Al

Oneway Analysis of Batch Average Value By ICP



Oneway Anova

Summary of Fit

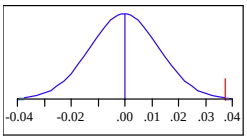
Rsquare	0.153284
Adj Rsquare	0.135269
Root Mean Square Error	0.045009
Mean of Response	2.9025
Observations (or Sum Wgts)	49

t Test

M-13-M-14

Assuming equal variances

Difference	0.037708	t Ratio	2.916949
Std Err Dif	0.012927	DF	47
Upper CL Dif	0.063714	Prob > |t|	0.0054
Lower CL Dif	0.011702	Prob > t	0.0027
Confidence	0.95	Prob < t	0.9973



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
ICP	1	0.01723669	0.017237	8.5086	0.0054
Error	47	0.09521258	0.002026		
C. Total	48	0.11244927			

Means for Oneway Anova

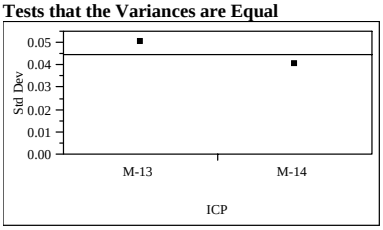
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
M-13	22	2.92328	0.00960	2.9040	2.9426
M-14	27	2.88557	0.00866	2.8681	2.9030

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
M-13	22	2.92328	0.050257	0.01071	2.9010	2.9456
M-14	27	2.88557	0.040274	0.00775	2.8696	2.9015

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
M-13	22	0.0502566	0.0406452	0.0398514
M-14	27	0.0402742	0.0310697	0.0307220

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	1.2481	1	47	0.2696
Brown-Forsythe	1.2952	1	47	0.2609
Levene	1.5925	1	47	0.2132
Bartlett	1.1236	1	.	0.2891
F Test 2-sided	1.5572	21	26	0.2825

Welch Anova testing Means Equal, allowing Std Devs Not Equal

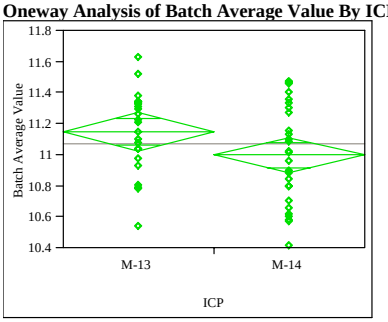
F Ratio	DFNum	DFDen	Prob > F
8.1306	1	39.903	0.0069

t Test

2.8514

Prep=Cold Chem, Sample Type=SRAT, Analyte=Fe/Ca

Oneway Analysis of Batch Average Value By ICP



Oneway Anova

Summary of Fit

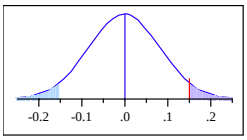
Rsquare	0.065618
Adj Rsquare	0.046152
Root Mean Square Error	0.293108
Mean of Response	11.06972
Observations (or Sum Wgts)	50

t Test

M-13-M-14

Assuming equal variances

Difference	0.15270	t Ratio	1.835994
Std Err Dif	0.08317	DF	48
Upper CL Dif	0.31992	Prob > |t|	0.0726
Lower CL Dif	-0.01452	Prob > t	0.0363
Confidence	0.95	Prob < t	0.9637



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
ICP	1	0.2895996	0.289600	3.3709	0.0726
Error	48	4.1237918	0.085912		
C. Total	49	4.4133913			

Means for Oneway Anova

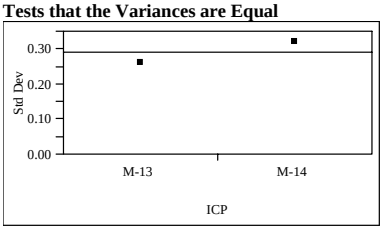
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
M-13	23	11.1522	0.06112	11.029	11.275
M-14	27	10.9995	0.05641	10.886	11.113

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
M-13	23	11.1522	0.259899	0.05419	11.040	11.265
M-14	27	10.9995	0.318515	0.06130	10.873	11.125

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
M-13	23	0.2598989	0.2082312	0.2060782
M-14	27	0.3185151	0.2694813	0.2688790

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	1.5729	1	48	0.2159
Brown-Forsythe	1.8153	1	48	0.1842
Levene	1.9185	1	48	0.1724
Bartlett	0.9483	1	.	0.3301
F Test 2-sided	1.5019	26	22	0.3359

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
3.4831	1	47.926	0.0681

t Test

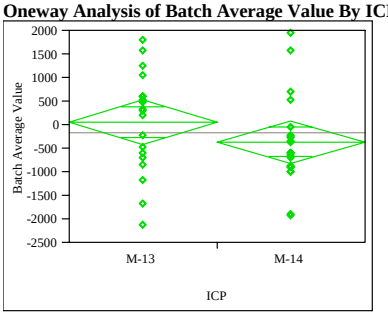
1.8663

Exhibit A4. ICP Comparisons Using Cold Chem Batch Averages of Process Samples by Analyte

(continued)

Prep=Cold Chem, Sample Type=SRAT, Analyte=Fe/Li

Oneway Analysis of Batch Average Value By ICP



Oneway Anova

Summary of Fit

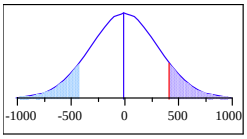
Rsquare	0.044185
Adj Rsquare	0.019032
Root Mean Square Error	1001.517
Mean of Response	-160.672
Observations (or Sum Wgts)	40

t Test

M-13-M-14

Assuming equal variances

Difference	420.3	t Ratio	1.325388
Std Err Dif	317.1	DF	38
Upper CL Dif	1062.2	Prob > |t|	0.1930
Lower CL Dif	-221.7	Prob > t	0.0965
Confidence	0.95	Prob < t	0.9035



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
ICP	1	1761988	1761988	1.7567	0.1930
Error	38	38115389	1003037		
C. Total	39	39877377			

Means for Oneway Anova

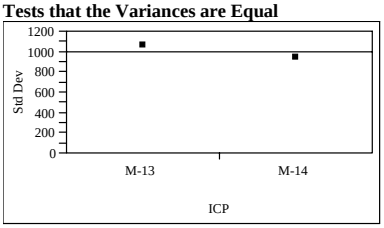
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
M-13	19	59.98	229.76	-405.2	525.11
M-14	21	-360.31	218.55	-802.7	82.12

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
M-13	19	59.98	1062.38	243.73	-452.1	572.03
M-14	21	-360.31	943.39	205.87	-789.7	69.12

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
M-13	19	1062.376	862.0514	835.0301
M-14	21	943.394	659.0551	649.1279

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.2548	1	38	0.6166
Brown-Forsythe	0.7195	1	38	0.4016
Levene	1.0501	1	38	0.3120
Bartlett	0.2609	1	.	0.6095
F Test 2-sided	1.2681	18	20	0.6039

Welch Anova testing Means Equal, allowing Std Devs Not Equal

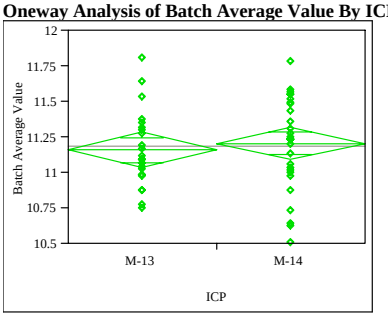
F Ratio	DFNum	DFDen	Prob > F
1.7355	1	36.243	0.1960

t Test

1.3174

Prep=Cold Chem, Sample Type=SRAT, Analyte=Fe/Mg

Oneway Analysis of Batch Average Value By ICP



Oneway Anova

Summary of Fit

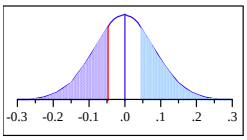
Rsquare	0.005753
Adj Rsquare	-0.01454
Root Mean Square Error	0.299563
Mean of Response	11.18569
Observations (or Sum Wgts)	51

t Test

M-13-M-14

Assuming equal variances

Difference	-0.04489	t Ratio	-0.53246
Std Err Dif	0.08430	DF	49
Upper CL Dif	0.12452	Prob > |t|	0.5968
Lower CL Dif	-0.21430	Prob > t	0.7016
Confidence	0.95	Prob < t	0.2984



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
ICP	1	0.0254423	0.025442	0.2835	0.5968
Error	49	4.3971711	0.089738		
C. Total	50	4.4226135			

Means for Oneway Anova

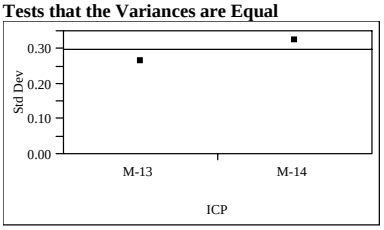
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
M-13	23	11.1610	0.06246	11.036	11.287
M-14	28	11.2059	0.05661	11.092	11.320

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
M-13	23	11.1610	0.265902	0.05544	11.046	11.276
M-14	28	11.2059	0.324419	0.06131	11.080	11.332

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
M-13	23	0.2659017	0.2076847	0.2011053
M-14	28	0.3244191	0.2582882	0.2535557

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	1.0239	1	49	0.3166
Brown-Forsythe	0.9469	1	49	0.3353
Levene	1.0308	1	49	0.3150
Bartlett	0.9213	1	.	0.3371
F Test 2-sided	1.4886	27	22	0.3441

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
0.2949	1	49	0.5896

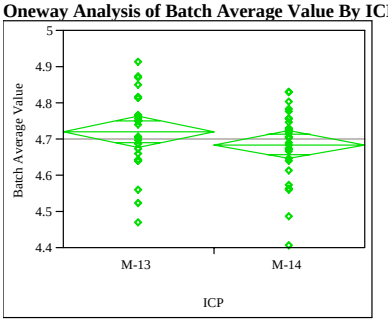
t Test

0.5430

Exhibit A4. ICP Comparisons Using Cold Chem Batch Averages of Process Samples by Analyte

(continued)

Prep=Cold Chem, Sample Type=SRAT, Analyte=Fe/Mn
Oneway Analysis of Batch Average Value By ICP

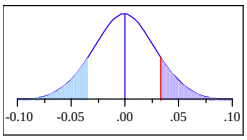


Oneway Anova
Summary of Fit

Rsquare	0.027454
Adj Rsquare	0.008003
Root Mean Square Error	0.10401
Mean of Response	4.702427
Observations (or Sum Wgts)	52

t Test
M-13-M-14
Assuming equal variances

Difference	0.03437	t Ratio	1.188046
Std Err Dif	0.02893	DF	50
Upper CL Dif	0.09249	Prob > |t|	0.2404
Lower CL Dif	-0.02374	Prob > t	0.1202
Confidence	0.95	Prob < t	0.8798



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
ICP	1	0.01526911	0.015269	1.4115	0.2404
Error	50	0.54090018	0.010818		
C. Total	51	0.55616929			

Means for Oneway Anova

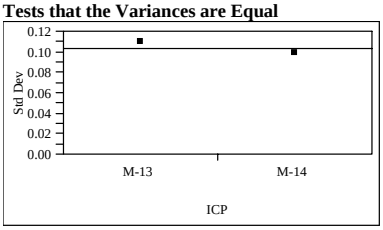
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
M-13	24	4.72094	0.02123	4.6783	4.7636
M-14	28	4.68656	0.01966	4.6471	4.7260

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
M-13	24	4.72094	0.109934	0.02244	4.6745	4.7674
M-14	28	4.68656	0.098683	0.01865	4.6483	4.7248

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
M-13	24	0.1099338	0.0855679	0.0855679
M-14	28	0.0986830	0.0733228	0.0717078

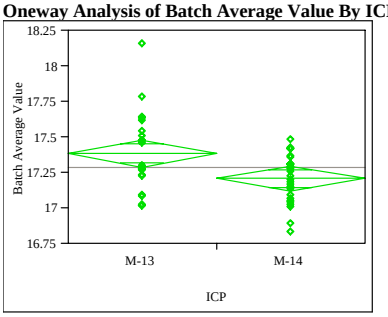
Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.2499	1	50	0.6194
Brown-Forsythe	0.5370	1	50	0.4671
Levene	0.4514	1	50	0.5048
Bartlett	0.2849	1	.	0.5935
F Test 2-sided	1.2410	23	27	0.5861

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
1.3878	1	46.747	0.2447

t Test
1.1781

Prep=Cold Chem, Sample Type=SRAT, Analyte=Fe/Ni
Oneway Analysis of Batch Average Value By ICP

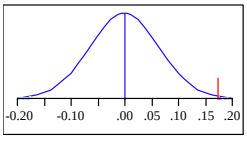


Oneway Anova
Summary of Fit

Rsquare	0.133626
Adj Rsquare	0.115193
Root Mean Square Error	0.225726
Mean of Response	17.28929
Observations (or Sum Wgts)	49

t Test
M-13-M-14
Assuming equal variances

Difference	0.174553	t Ratio	2.692414
Std Err Dif	0.064831	DF	47
Upper CL Dif	0.304977	Prob > |t|	0.0098
Lower CL Dif	0.044129	Prob > t	0.0049
Confidence	0.95	Prob < t	0.9951



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
ICP	1	0.3693558	0.369356	7.2491	0.0098
Error	47	2.3947441	0.050952		
C. Total	48	2.7640999			

Means for Oneway Anova

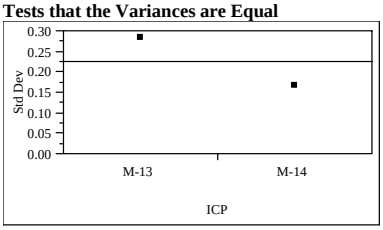
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
M-13	22	17.3855	0.04812	17.289	17.482
M-14	27	17.2109	0.04344	17.124	17.298

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
M-13	22	17.3855	0.282699	0.06027	17.260	17.511
M-14	27	17.2109	0.165999	0.03195	17.145	17.277

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
M-13	22	0.2826992	0.2248208	0.2177904
M-14	27	0.1659991	0.1361127	0.1363641

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	3.6519	1	47	0.0621
Brown-Forsythe	3.7590	1	47	0.0585
Levene	5.7293	1	47	0.0207
Bartlett	6.3908	1	.	0.0115
F Test 2-sided	2.9003	21	26	0.0110

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
6.5478	1	32.392	0.0154

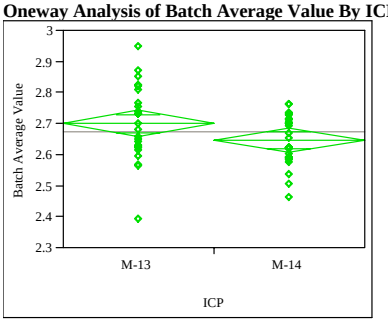
t Test
2.5589

Exhibit A4. ICP Comparisons Using Cold Chem Batch Averages of Process Samples by Analyte

(continued)

Prep=Cold Chem, Sample Type=SRAT, Analyte=Fe/U

Oneway Analysis of Batch Average Value By ICP



Oneway Anova

Summary of Fit

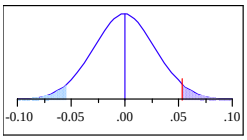
Rsquare	0.067336
Adj Rsquare	0.047906
Root Mean Square Error	0.101789
Mean of Response	2.674002
Observations (or Sum Wgts)	50

t Test

M-13-M-14

Assuming equal variances

Difference	0.05364	t Ratio	1.861582
Std Err Dif	0.02881	DF	48
Upper CL Dif	0.11157	Prob > |t|	0.0688
Lower CL Dif	-0.00429	Prob > t	0.0344
Confidence	0.95	Prob < t	0.9656



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
ICP	1	0.03590563	0.035906	3.4655	0.0688
Error	48	0.49732409	0.010361		
C. Total	49	0.53322972			

Means for Oneway Anova

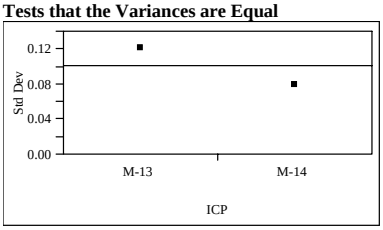
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
M-13	24	2.70189	0.02078	2.6601	2.7437
M-14	26	2.64826	0.01996	2.6081	2.6884

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
M-13	24	2.70189	0.121289	0.02476	2.6507	2.7531
M-14	26	2.64826	0.079742	0.01564	2.6160	2.6805

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
M-13	24	0.1212890	0.0957519	0.0957519
M-14	26	0.0797422	0.0673209	0.0673209

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	3.0260	1	48	0.0883
Brown-Forsythe	2.9871	1	48	0.0904
Levene	3.0369	1	48	0.0878
Bartlett	4.0574	1	.	0.0440
F Test 2-sided	2.3135	23	25	0.0434

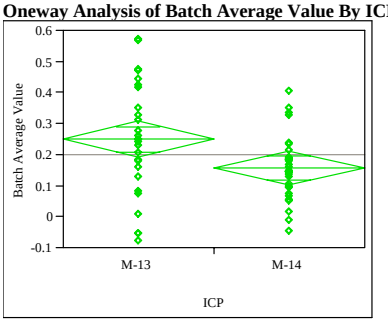
Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
3.3551	1	39.265	0.0746

t Test
1.8317

Prep=Cold Chem, Sample Type=SRAT, Analyte=K

Oneway Analysis of Batch Average Value By ICP



Oneway Anova

Summary of Fit

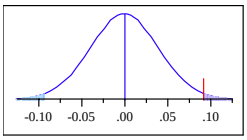
Rsquare	0.09051
Adj Rsquare	0.073667
Root Mean Square Error	0.147824
Mean of Response	0.202125
Observations (or Sum Wgts)	56

t Test

M-13-M-14

Assuming equal variances

Difference	0.091820	t Ratio	2.31817
Std Err Dif	0.039609	DF	54
Upper CL Dif	0.171230	Prob > |t|	0.0243
Lower CL Dif	0.012409	Prob > t	0.0121
Confidence	0.95	Prob < t	0.9879



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
ICP	1	0.1174297	0.117430	5.3739	0.0243
Error	54	1.1799979	0.021852		
C. Total	55	1.2974276			

Means for Oneway Anova

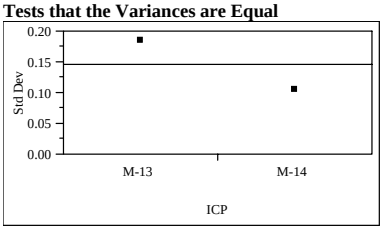
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
M-13	26	0.251314	0.02899	0.19319	0.30944
M-14	30	0.159494	0.02699	0.10539	0.21360

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
M-13	26	0.251314	0.185914	0.03646	0.17622	0.32641
M-14	30	0.159494	0.104369	0.01906	0.12052	0.19847

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
M-13	26	0.1859142	0.1478269	0.1478269
M-14	30	0.1043694	0.0771719	0.0766833

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	9.0931	1	54	0.0039
Brown-Forsythe	8.6814	1	54	0.0047
Levene	8.6684	1	54	0.0048
Bartlett	8.5658	1	.	0.0034
F Test 2-sided	3.1731	25	29	0.0033

Welch Anova testing Means Equal, allowing Std Devs Not Equal

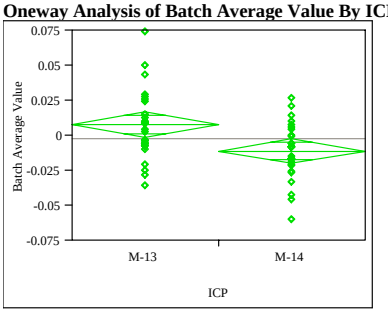
F Ratio	DFNum	DFDen	Prob > F
4.9813	1	38.073	0.0316

t Test
2.2319

Exhibit A4. ICP Comparisons Using Cold Chem Batch Averages of Process Samples by Analyte

(continued)

Prep=Cold Chem, Sample Type=SRAT, Analyte=Li
Oneway Analysis of Batch Average Value By ICP

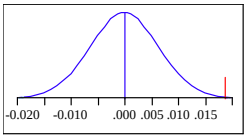


Oneway Anova
Summary of Fit

Rsquare	0.149354
Adj Rsquare	0.132341
Root Mean Square Error	0.022839
Mean of Response	-0.00203
Observations (or Sum Wgts)	52

t Test
M-13-M-14
Assuming equal variances

Difference	0.018782	t Ratio	2.962915
Std Err Dif	0.006339	DF	50
Upper CL Dif	0.031515	Prob > |t|	0.0047
Lower CL Dif	0.006050	Prob > t	0.0023
Confidence	0.95	Prob < t	0.9977



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
ICP	1	0.00457925	0.004579	8.7789	0.0047
Error	50	0.02608110	0.000522		
C. Total	51	0.03066035			

Means for Oneway Anova

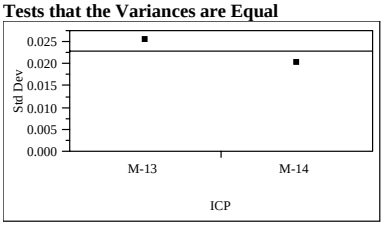
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
M-13	25	0.00773	0.00457	-0.0014	0.0169
M-14	27	-0.01106	0.00440	-0.0199	-0.0022

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
M-13	25	0.00773	0.025393	0.00508	-0.0028	0.0182
M-14	27	-0.01106	0.020197	0.00389	-0.0190	-0.0031

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
M-13	25	0.0253928	0.0193824	0.0193267
M-14	27	0.0201971	0.0157490	0.0156543

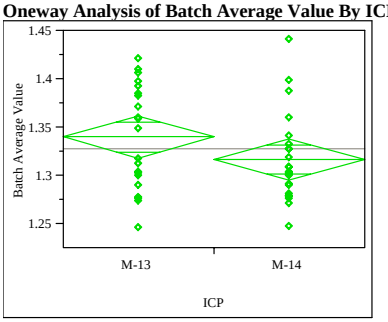
Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	1.0481	1	50	0.3109
Brown-Forsythe	0.8245	1	50	0.3682
Levene	0.8575	1	50	0.3589
Bartlett	1.2791	1	.	0.2581
F Test 2-sided	1.5807	24	26	0.2558

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
8.6252	1	45.835	0.0052

t Test
2.9369

Prep=Cold Chem, Sample Type=SRAT, Analyte=Mg
Oneway Analysis of Batch Average Value By ICP

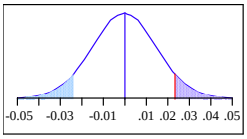


Oneway Anova
Summary of Fit

Rsquare	0.055596
Adj Rsquare	0.03311
Root Mean Square Error	0.049361
Mean of Response	1.328072
Observations (or Sum Wgts)	44

t Test
M-13-M-14
Assuming equal variances

Difference	0.02343	t Ratio	1.572411
Std Err Dif	0.01490	DF	42
Upper CL Dif	0.05349	Prob > |t|	0.1234
Lower CL Dif	-0.00664	Prob > t	0.0617
Confidence	0.95	Prob < t	0.9383



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
ICP	1	0.00602416	0.006024	2.4725	0.1234
Error	42	0.10233253	0.002436		
C. Total	43	0.10835669			

Means for Oneway Anova

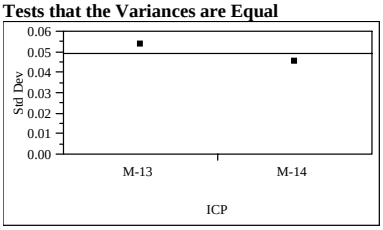
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
M-13	21	1.34032	0.01077	1.3186	1.3621
M-14	23	1.31689	0.01029	1.2961	1.3377

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
M-13	21	1.34032	0.053426	0.01166	1.3160	1.3646
M-14	23	1.31689	0.045350	0.00946	1.2973	1.3365

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
M-13	21	0.0534261	0.0474293	0.0474762
M-14	23	0.0453499	0.0337083	0.0318623

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.6888	1	42	0.4113
Brown-Forsythe	3.0205	1	42	0.0895
Levene	2.9974	1	42	0.0907
Bartlett	0.5501	1	.	0.4583
F Test 2-sided	1.3879	20	22	0.4541

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
2.4354	1	39.449	0.1266

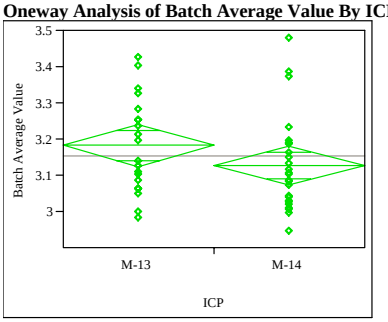
t Test
1.5606

Exhibit A4. ICP Comparisons Using Cold Chem Batch Averages of Process Samples by Analyte

(continued)

Prep=Cold Chem, Sample Type=SRAT, Analyte=Mn

Oneway Analysis of Batch Average Value By ICP



Oneway Anova

Summary of Fit

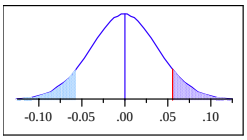
Rsquare	0.045133
Adj Rsquare	0.022926
Root Mean Square Error	0.13018
Mean of Response	3.153385
Observations (or Sum Wgts)	45

t Test

M-13-M-14

Assuming equal variances

Difference	0.05568	t Ratio	1.425632
Std Err Dif	0.03905	DF	43
Upper CL Dif	0.13444	Prob > |t|	0.1612
Lower CL Dif	-0.02308	Prob > t	0.0806
Confidence	0.95	Prob < t	0.9194



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
ICP	1	0.03444324	0.034443	2.0324	0.1612
Error	43	0.72871431	0.016947		
C. Total	44	0.76315755			

Means for Oneway Anova

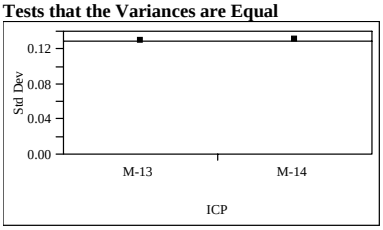
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
M-13	20	3.18432	0.02911	3.1256	3.2430
M-14	25	3.12864	0.02604	3.0761	3.1811

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
M-13	20	3.18432	0.130004	0.02907	3.1235	3.2452
M-14	25	3.12864	0.130320	0.02606	3.0748	3.1824

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
M-13	20	0.1300036	0.1099667	0.1099667
M-14	25	0.1303195	0.0973947	0.0939400

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.0001	1	43	0.9915
Brown-Forsythe	0.4301	1	43	0.5155
Levene	0.3024	1	43	0.5852
Bartlett	0.0001	1	.	0.9912
F Test 2-sided	1.0049	24	19	1.0047

Welch Anova testing Means Equal, allowing Std Devs Not Equal

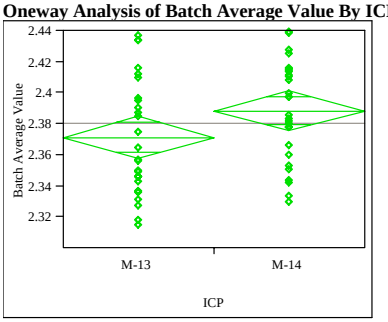
F Ratio	DFNum	DFDen	Prob > F
2.0335	1	40.901	0.1614

t Test

1.4260

Prep=Cold Chem, Sample Type=SRAT, Analyte=Mn/Mg

Oneway Analysis of Batch Average Value By ICP



Oneway Anova

Summary of Fit

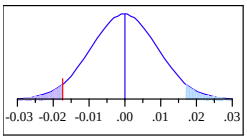
Rsquare	0.060316
Adj Rsquare	0.042586
Root Mean Square Error	0.034319
Mean of Response	2.38038
Observations (or Sum Wgts)	55

t Test

M-13-M-14

Assuming equal variances

Difference	-0.01710	t Ratio	-1.84443
Std Err Dif	0.00927	DF	53
Upper CL Dif	0.00150	Prob > |t|	0.0707
Lower CL Dif	-0.03569	Prob > t	0.9646
Confidence	0.95	Prob < t	0.0354



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
ICP	1	0.00400668	0.004007	3.4019	0.0707
Error	53	0.06242151	0.001178		
C. Total	54	0.06642818			

Means for Oneway Anova

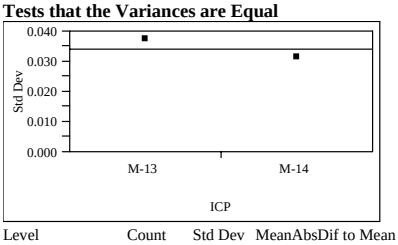
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
M-13	26	2.37137	0.00673	2.3579	2.3849
M-14	29	2.38846	0.00637	2.3757	2.4012

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
M-13	26	2.37137	0.037387	0.00733	2.3563	2.3865
M-14	29	2.38846	0.031326	0.00582	2.3765	2.4004

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
M-13	26	0.0373868	0.0322418	0.0317715
M-14	29	0.0313261	0.0261697	0.0261417

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	1.5992	1	53	0.2116
Brown-Forsythe	1.2008	1	53	0.2781
Levene	1.7247	1	53	0.1948
Bartlett	0.8121	1	.	0.3675
F Test 2-sided	1.4244	25	28	0.3636

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
3.3364	1	49.032	0.0739

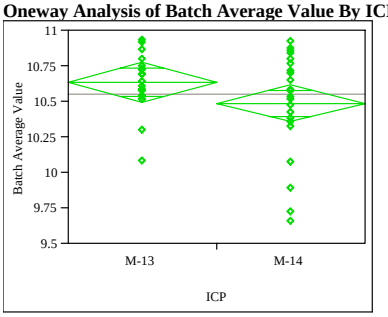
t Test

1.8266

Exhibit A4. ICP Comparisons Using Cold Chem Batch Averages of Process Samples by Analyte

(continued)

Prep=Cold Chem, Sample Type=SRAT, Analyte=Na
Oneway Analysis of Batch Average Value By ICP

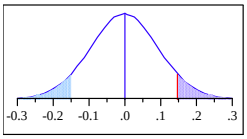


Oneway Anova
Summary of Fit

Rsquare	0.059997
Adj Rsquare	0.035894
Root Mean Square Error	0.301355
Mean of Response	10.55791
Observations (or Sum Wgts)	41

t Test
M-13-M-14
Assuming equal variances

Difference	0.14891	t Ratio	1.57773
Std Err Dif	0.09438	DF	39
Upper CL Dif	0.33981	Prob > |t|	0.1227
Lower CL Dif	-0.04200	Prob > t	0.0614
Confidence	0.95	Prob < t	0.9386



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
ICP	1	0.2260585	0.226059	2.4892	0.1227
Error	39	3.5417688	0.090815		
C. Total	40	3.7678273			

Means for Oneway Anova

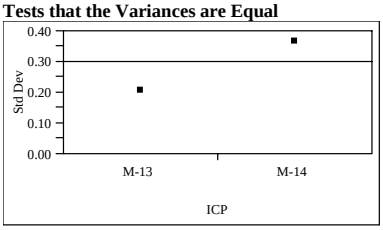
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
M-13	19	10.6378	0.06914	10.498	10.778
M-14	22	10.4889	0.06425	10.359	10.619

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
M-13	19	10.6378	0.204781	0.04698	10.539	10.737
M-14	22	10.4889	0.364295	0.07767	10.327	10.650

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
M-13	19	0.2047813	0.1472816	0.1486316
M-14	22	0.3642953	0.2773953	0.2702273

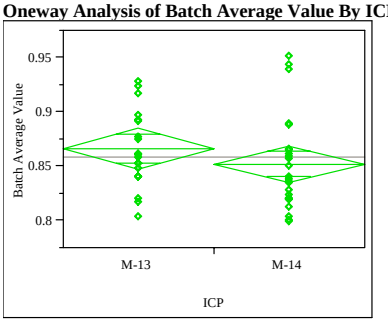
Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	3.4460	1	39	0.0710
Brown-Forsythe	3.6452	1	39	0.0636
Levene	4.6851	1	39	0.0366
Bartlett	5.7923	1	.	0.0161
F Test 2-sided	3.1647	21	18	0.0166

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
2.6911	1	33.886	0.1102

t Test
1.6405

Prep=Cold Chem, Sample Type=SRAT, Analyte=Ni
Oneway Analysis of Batch Average Value By ICP

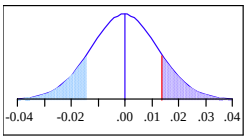


Oneway Anova
Summary of Fit

Rsquare	0.030879
Adj Rsquare	0.007242
Root Mean Square Error	0.040359
Mean of Response	0.858988
Observations (or Sum Wgts)	43

t Test
M-13-M-14
Assuming equal variances

Difference	0.01417	t Ratio	1.142979
Std Err Dif	0.01239	DF	41
Upper CL Dif	0.03919	Prob > |t|	0.2597
Lower CL Dif	-0.01086	Prob > t	0.1298
Confidence	0.95	Prob < t	0.8702



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
ICP	1	0.00212797	0.002128	1.3064	0.2597
Error	41	0.06678395	0.001629		
C. Total	42	0.06891191			

Means for Oneway Anova

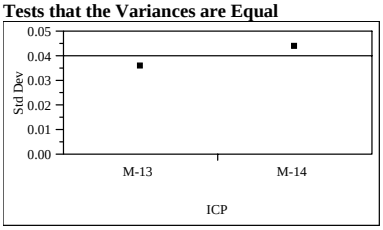
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
M-13	19	0.866895	0.00926	0.84820	0.88559
M-14	24	0.852729	0.00824	0.83609	0.86937

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
M-13	19	0.866895	0.035721	0.00819	0.84968	0.88411
M-14	24	0.852729	0.043647	0.00891	0.83430	0.87116

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
M-13	19	0.0357209	0.0287904	0.0280965
M-14	24	0.0436469	0.0333924	0.0322847

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.7109	1	41	0.4040
Brown-Forsythe	0.2432	1	41	0.6245
Levene	0.3793	1	41	0.5414
Bartlett	0.7736	1	.	0.3791
F Test 2-sided	1.4930	23	18	0.3890

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
1.3694	1	40.938	0.2487

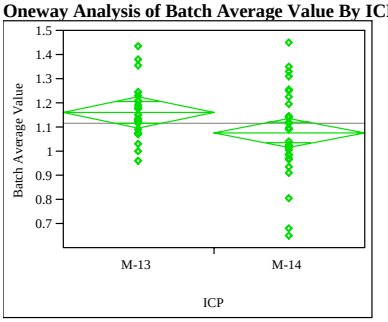
t Test
1.1702

Exhibit A4. ICP Comparisons Using Cold Chem Batch Averages of Process Samples by Analyte

(continued)

Prep=Cold Chem, Sample Type=SRAT, Analyte=Si

Oneway Analysis of Batch Average Value By ICP



Oneway Anova

Summary of Fit

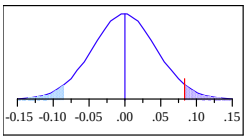
Rsquare	0.067296
Adj Rsquare	0.048642
Root Mean Square Error	0.159072
Mean of Response	1.115474
Observations (or Sum Wgts)	52

t Test

M-13-M-14

Assuming equal variances

Difference	0.08436	t Ratio	1.899363
Std Err Dif	0.04442	DF	50
Upper CL Dif	0.17357	Prob > |t|	0.0633
Lower CL Dif	-0.00485	Prob > t	0.0316
Confidence	0.95	Prob < t	0.9684



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
ICP	1	0.0912860	0.091286	3.6076	0.0633
Error	50	1.2651967	0.025304		
C. Total	51	1.3564827			

Means for Oneway Anova

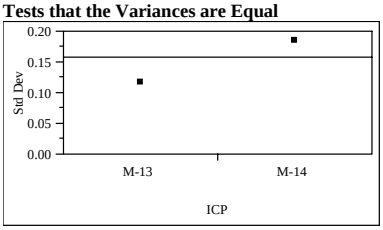
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
M-13	23	1.16252	0.03317	1.0959	1.2291
M-14	29	1.07816	0.02954	1.0188	1.1375

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
M-13	23	1.16252	0.116255	0.02424	1.1122	1.2128
M-14	29	1.07816	0.185921	0.03452	1.0074	1.1489

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
M-13	23	0.1162547	0.0875173	0.0858841
M-14	29	0.1859208	0.1430634	0.1427414

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	3.3522	1	50	0.0731
Brown-Forsythe	3.9605	1	50	0.0521
Levene	3.9936	1	50	0.0511
Bartlett	4.9621	1	.	0.0259
F Test 2-sided	2.5576	28	22	0.0270

Welch Anova testing Means Equal, allowing Std Devs Not Equal

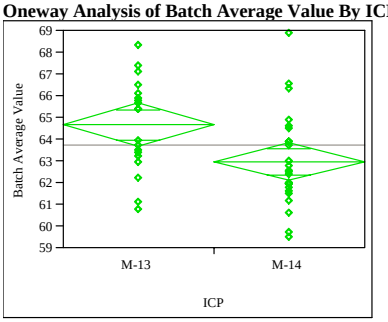
F Ratio	DFNum	DFDen	Prob > F
3.9991	1	47.668	0.0512

t Test

1.9998

Prep=Cold Chem, Sample Type=SRAT, Analyte=Sum of Oxides

Oneway Analysis of Batch Average Value By ICP



Oneway Anova

Summary of Fit

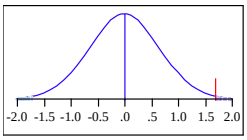
Rsquare	0.138324
Adj Rsquare	0.117808
Root Mean Square Error	2.138665
Mean of Response	63.72328
Observations (or Sum Wgts)	44

t Test

M-13-M-14

Assuming equal variances

Difference	1.69015	t Ratio	2.596583
Std Err Dif	0.65091	DF	42
Upper CL Dif	3.00374	Prob > |t|	0.0129
Lower CL Dif	0.37655	Prob > t	0.0065
Confidence	0.95	Prob < t	0.9935



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
ICP	1	30.83826	30.8383	6.7422	0.0129
Error	42	192.10323	4.5739		
C. Total	43	222.94149			

Means for Oneway Anova

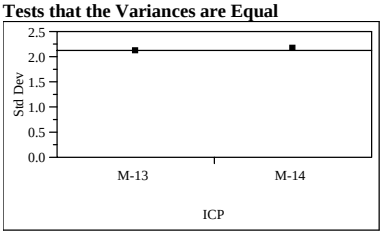
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
M-13	19	64.6836	0.49064	63.693	65.674
M-14	25	62.9934	0.42773	62.130	63.857

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
M-13	19	64.6836	2.11025	0.48412	63.666	65.701
M-14	25	62.9934	2.15973	0.43195	62.102	63.885

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
M-13	19	2.110249	1.792336	1.756144
M-14	25	2.159731	1.649126	1.580350

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.0101	1	42	0.9206
Brown-Forsythe	0.1624	1	42	0.6890
Levene	0.1474	1	42	0.7029
Bartlett	0.0108	1	.	0.9174
F Test 2-sided	1.0474	24	18	0.9342

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
6.7860	1	39.358	0.0129

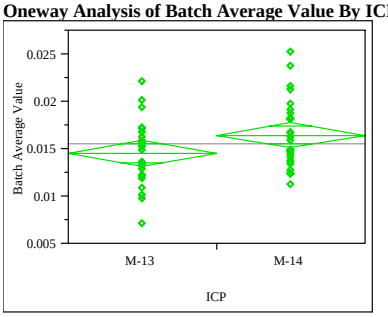
t Test

2.6050

Exhibit A4. ICP Comparisons Using Cold Chem Batch Averages of Process Samples by Analyte

(continued)

Prep=Cold Chem, Sample Type=SRAT, Analyte=Ti
Oneway Analysis of Batch Average Value By ICP

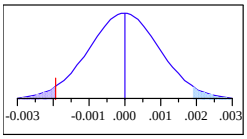


Oneway Anova
Summary of Fit

Rsquare	0.071691
Adj Rsquare	0.053488
Root Mean Square Error	0.003497
Mean of Response	0.015575
Observations (or Sum Wgts)	53

t Test
M-13-M-14
Assuming equal variances

Difference	-0.00191	t Ratio	-1.98459
Std Err Dif	0.00096	DF	51
Upper CL Dif	0.000022	Prob > |t|	0.0526
Lower CL Dif	-0.00384	Prob > t	0.9737
Confidence	0.95	Prob < t	0.0263



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
ICP	1	0.00004816	0.000048	3.9386	0.0526
Error	51	0.00062360	0.000012		
C. Total	52	0.00067175			

Means for Oneway Anova

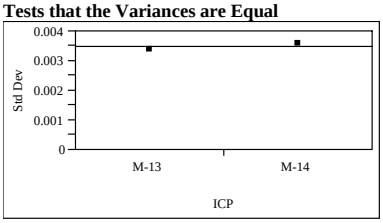
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
M-13	25	0.014567	0.00070	0.01316	0.01597
M-14	28	0.016476	0.00066	0.01515	0.01780

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
M-13	25	0.014567	0.003394	0.00068	0.01317	0.01597
M-14	28	0.016476	0.003586	0.00068	0.01509	0.01787

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
M-13	25	0.0033936	0.0026640	0.0026600
M-14	28	0.0035860	0.0028895	0.0028452

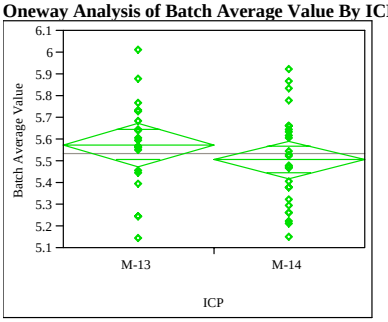
Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.0754	1	51	0.7847
Brown-Forsythe	0.0919	1	51	0.7630
Levene	0.1612	1	51	0.6897
Bartlett	0.0756	1	.	0.7833
F Test 2-sided	1.1166	27	24	0.7893

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
3.9637	1	50.814	0.0519

t Test
1.9909

Prep=Cold Chem, Sample Type=SRAT, Analyte=U
Oneway Analysis of Batch Average Value By ICP

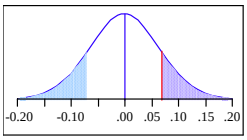


Oneway Anova
Summary of Fit

Rsquare	0.025827
Adj Rsquare	0.003172
Root Mean Square Error	0.21497
Mean of Response	5.536115
Observations (or Sum Wgts)	45

t Test
M-13-M-14
Assuming equal variances

Difference	0.06927	t Ratio	1.067718
Std Err Dif	0.06488	DF	43
Upper CL Dif	0.20012	Prob > |t|	0.2916
Lower CL Dif	-0.06157	Prob > t	0.1458
Confidence	0.95	Prob < t	0.8542



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
ICP	1	0.0526826	0.052683	1.1400	0.2916
Error	43	1.9871141	0.046212		
C. Total	44	2.0397967			

Means for Oneway Anova

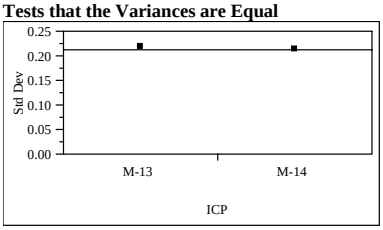
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
M-13	19	5.57614	0.04932	5.4767	5.6756
M-14	26	5.50687	0.04216	5.4218	5.5919

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
M-13	19	5.57614	0.217610	0.04992	5.4713	5.6810
M-14	26	5.50687	0.213049	0.04178	5.4208	5.5929

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
M-13	19	0.2176095	0.1628873	0.1621228
M-14	26	0.2130487	0.1737885	0.1737885

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.0125	1	43	0.9114
Brown-Forsythe	0.0901	1	43	0.7655
Levene	0.0804	1	43	0.7781
Bartlett	0.0092	1	.	0.9236
F Test 2-sided	1.0433	18	25	0.9047

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
1.1324	1	38.461	0.2939

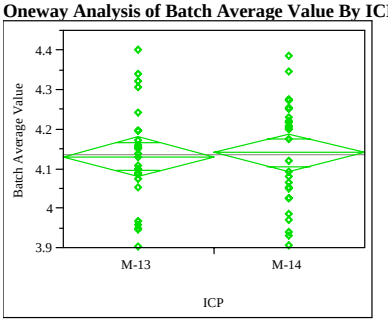
t Test
1.0641

Exhibit A4. ICP Comparisons Using Cold Chem Batch Averages of Process Samples by Analyte

(continued)

Prep=Cold Chem, Sample Type=SRAT, Analyte=U/Ca

Oneway Analysis of Batch Average Value By ICP



Oneway Anova

Summary of Fit

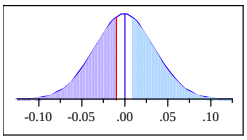
Rsquare	0.001377
Adj Rsquare	-0.01783
Root Mean Square Error	0.128295
Mean of Response	4.136885
Observations (or Sum Wgts)	54

t Test

M-13-M-14

Assuming equal variances

Difference	-0.00936	t Ratio	-0.26782
Std Err Dif	0.03494	DF	52
Upper CL Dif	0.06076	Prob > |t|	0.7899
Lower CL Dif	-0.07947	Prob > t	0.6051
Confidence	0.95	Prob < t	0.3949



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
ICP	1	0.00118060	0.001181	0.0717	0.7899
Error	52	0.85589310	0.016459		
C. Total	53	0.85707370			

Means for Oneway Anova

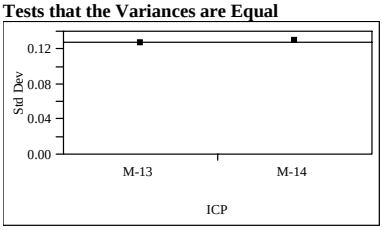
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
M-13	26	4.13203	0.02516	4.0815	4.1825
M-14	28	4.14139	0.02425	4.0927	4.1900

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
M-13	26	4.13203	0.126668	0.02484	4.0809	4.1832
M-14	28	4.14139	0.129782	0.02453	4.0911	4.1917

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
M-13	26	0.1266682	0.0951156	0.0951156
M-14	28	0.1297822	0.1121464	0.1096008

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.0220	1	52	0.8826
Brown-Forsythe	0.4206	1	52	0.5195
Levene	0.7572	1	52	0.3882
Bartlett	0.0150	1	.	0.9025
F Test 2-sided	1.0498	27	25	0.9065

Welch Anova testing Means Equal, allowing Std Devs Not Equal

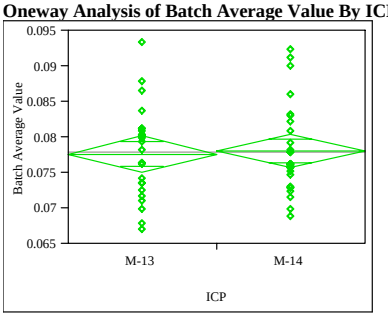
F Ratio	DFNum	DFDen	Prob > F
0.0719	1	51.864	0.7897

t Test

0.2681

Prep=Cold Chem, Sample Type=SRAT, Analyte=Zr

Oneway Analysis of Batch Average Value By ICP



Oneway Anova

Summary of Fit

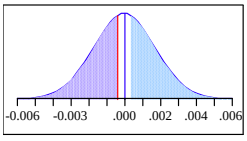
Rsquare	0.000927
Adj Rsquare	-0.01866
Root Mean Square Error	0.006222
Mean of Response	0.077871
Observations (or Sum Wgts)	53

t Test

M-13-M-14

Assuming equal variances

Difference	-0.00037	t Ratio	-0.21757
Std Err Dif	0.00172	DF	51
Upper CL Dif	0.00307	Prob > |t|	0.8286
Lower CL Dif	-0.00382	Prob > t	0.5857
Confidence	0.95	Prob < t	0.4143



Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
ICP	1	0.00000183	0.000002	0.0473	0.8286
Error	51	0.00197448	0.000039		
C. Total	52	0.00197631			

Means for Oneway Anova

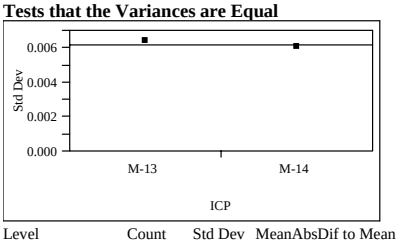
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
M-13	24	0.077667	0.00127	0.07512	0.08022
M-14	29	0.078040	0.00116	0.07572	0.08036

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
M-13	24	0.077667	0.006429	0.00131	0.07495	0.08038
M-14	29	0.078040	0.006047	0.00112	0.07574	0.08034

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
M-13	24	0.0064287	0.0050972	0.0050972
M-14	29	0.0060472	0.0045815	0.0042816

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.0879	1	51	0.7680
Brown-Forsythe	0.4823	1	51	0.4905
Levene	0.2400	1	51	0.6263
Bartlett	0.0930	1	.	0.7604
F Test 2-sided	1.1302	23	28	0.7505

Welch Anova testing Means Equal, allowing Std Devs Not Equal

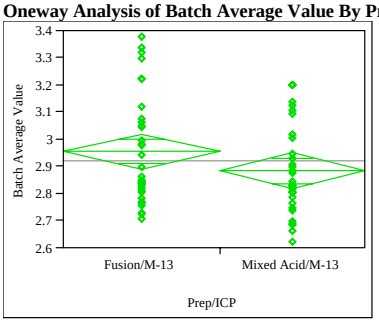
F Ratio	DFNum	DFDen	Prob > F
0.0468	1	47.913	0.8297

t Test

0.2163

Exhibit A5. Prep Comparisons Using SME Batch Averages by Analyte for each ICP

Sample Type=SME, Analyte=Al, ICP=M-13
Oneway Analysis of Batch Average Value By Prep/ICP

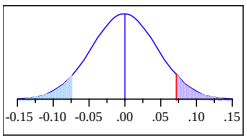


Oneway Anova
Summary of Fit

Rsquare	0.038353
Adj Rsquare	0.022588
Root Mean Square Error	0.182434
Mean of Response	2.922444
Observations (or Sum Wgts)	63

t Test
Fusion/M-13-Mixed Acid/M-13
Assuming equal variances

Difference	0.07178	t Ratio	1.559757
Std Err Dif	0.04602	DF	61
Upper CL Dif	0.16381	Prob > |t|	0.1240
Lower CL Dif	-0.02024	Prob > t	0.0620
Confidence	0.95	Prob < t	0.9380



Analysis of Variance

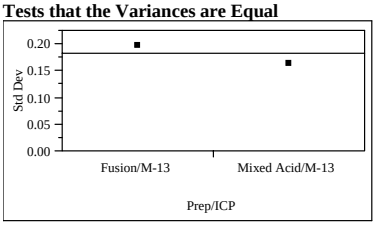
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.0809699	0.080970	2.4328	0.1240
Error	61	2.0302020	0.033282		
C. Total	62	2.1111719			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-13	33	2.95663	0.03176	2.8931	3.0201
Mixed Acid/M-13	30	2.88484	0.03331	2.8182	2.9514

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-13	33	0.1978801	0.1653373	0.1588384
Mixed Acid/M-13	30	0.1637063	0.1320459	0.1287778

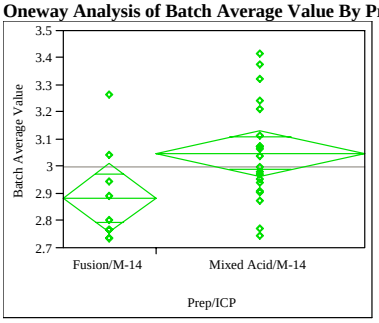
Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	1.4589	1	61	0.2318
Brown-Forsythe	0.8278	1	61	0.3665
Levene	1.7560	1	61	0.1901
Bartlett	1.0630	1	.	0.3025
F Test 2-sided	1.4611	32	29	0.3053

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
2.4774	1	60.489	0.1207

t Test
1.5740

Sample Type=SME, Analyte=Al, ICP=M-14
Oneway Analysis of Batch Average Value By Prep/ICP

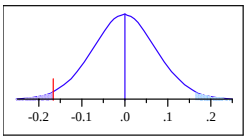


Oneway Anova
Summary of Fit

Rsquare	0.156768
Adj Rsquare	0.125537
Root Mean Square Error	0.183954
Mean of Response	2.999477
Observations (or Sum Wgts)	29

t Test
Fusion/M-14-Mixed Acid/M-14
Assuming equal variances

Difference	-0.16543	t Ratio	-2.24046
Std Err Dif	0.07384	DF	27
Upper CL Dif	-0.01393	Prob > |t|	0.0335
Lower CL Dif	-0.31693	Prob > t	0.9833
Confidence	0.95	Prob < t	0.0167



Analysis of Variance

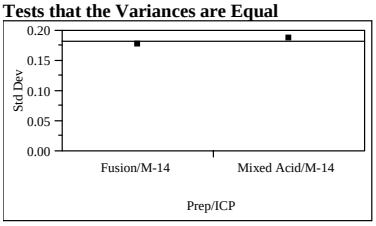
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.1698601	0.169860	5.0196	0.0335
Error	27	0.9136543	0.033839		
C. Total	28	1.0835144			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-14	9	2.88539	0.06132	2.7596	3.0112
Mixed Acid/M-14	20	3.05082	0.04113	2.9664	3.1352

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-14	9	0.1772116	0.1354321	0.1307407
Mixed Acid/M-14	20	0.1867200	0.1454483	0.1442833

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.0330	1	27	0.8572
Brown-Forsythe	0.0734	1	27	0.7885
Levene	0.0517	1	27	0.8219
Bartlett	0.0290	1	.	0.8649
F Test 2-sided	1.1102	19	8	0.9292

Welch Anova testing Means Equal, allowing Std Devs Not Equal

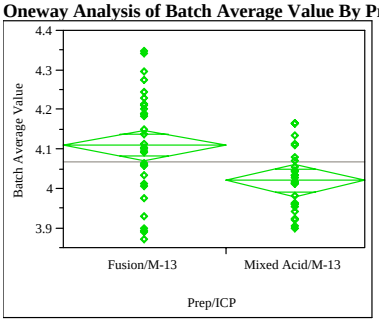
F Ratio	DFNum	DFDen	Prob > F
5.2300	1	16.279	0.0359

t Test
2.2869

Exhibit A5. Prep Comparisons Using SME Batch Averages by Analyte for each ICP

(continued)

Sample Type=SME, Analyte=Al/Ca, ICP=M-13
Oneway Analysis of Batch Average Value By Prep/ICP

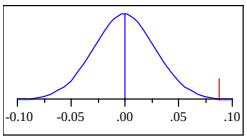


Oneway Anova
Summary of Fit

Rsquare	0.14255
Adj Rsquare	0.127507
Root Mean Square Error	0.109961
Mean of Response	4.069299
Observations (or Sum Wgts)	59

t Test
Fusion/M-13-Mixed Acid/M-13
Assuming equal variances

Difference	0.088455	t Ratio	3.078339
Std Err Dif	0.028735	DF	57
Upper CL Dif	0.145995	Prob > |t|	0.0032
Lower CL Dif	0.030915	Prob > t	0.0016
Confidence	0.95	Prob < t	0.9984



Analysis of Variance

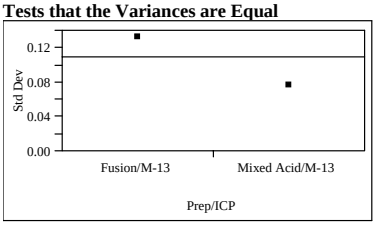
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.11457950	0.114580	9.4762	0.0032
Error	57	0.68920584	0.012091		
C. Total	58	0.80378534			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-13	32	4.10978	0.01944	4.0709	4.1487
Mixed Acid/M-13	27	4.02132	0.02116	3.9789	4.0637

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-13	32	0.1318011	0.1062113	0.1059285
Mixed Acid/M-13	27	0.0761296	0.0603961	0.0605615

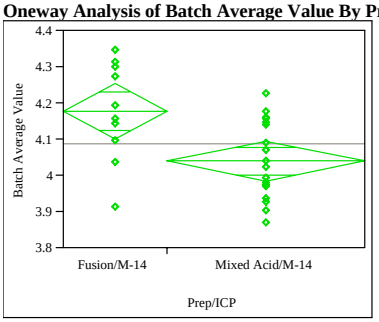
Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	8.1784	1	57	0.0059
Brown-Forsythe	7.3850	1	57	0.0087
Levene	7.6267	1	57	0.0077
Bartlett	7.7496	1	.	0.0054
F Test 2-sided	2.9973	31	26	0.0055

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
10.3289	1	50.878	0.0023

t Test
3.2139

Sample Type=SME, Analyte=Al/Ca, ICP=M-14
Oneway Analysis of Batch Average Value By Prep/ICP

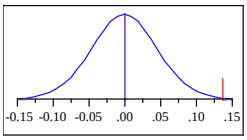


Oneway Anova
Summary of Fit

Rsquare	0.252257
Adj Rsquare	0.224562
Root Mean Square Error	0.116338
Mean of Response	4.088522
Observations (or Sum Wgts)	29

t Test
Fusion/M-14-Mixed Acid/M-14
Assuming equal variances

Difference	0.137174	t Ratio	3.018052
Std Err Dif	0.045451	DF	27
Upper CL Dif	0.230432	Prob > |t|	0.0055
Lower CL Dif	0.043916	Prob > t	0.0027
Confidence	0.95	Prob < t	0.9973



Analysis of Variance

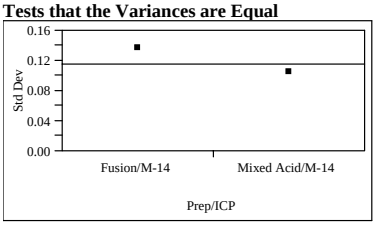
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.12328212	0.123282	9.1086	0.0055
Error	27	0.36543517	0.013535		
C. Total	28	0.48871729			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-14	10	4.17839	0.03679	4.1029	4.2539
Mixed Acid/M-14	19	4.04122	0.02669	3.9865	4.0960

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-14	10	0.1369363	0.1077499	0.1077499
Mixed Acid/M-14	19	0.1045284	0.0891671	0.0892608

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	1.4545	1	27	0.2383
Brown-Forsythe	0.5844	1	27	0.4512
Levene	0.6216	1	27	0.4373
Bartlett	0.8813	1	.	0.3478
F Test 2-sided	1.7162	9	18	0.3149

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
7.6796	1	14.676	0.0145

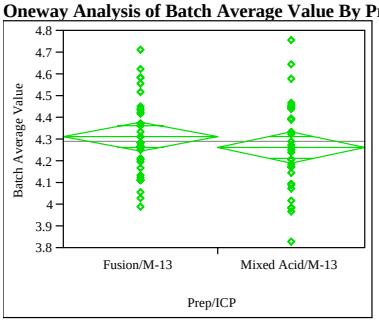
t Test
2.7712

Exhibit A5. Prep Comparisons Using SME Batch Averages by Analyte for each ICP

(continued)

Sample Type=SME, Analyte=Al/Mg, ICP=M-13

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

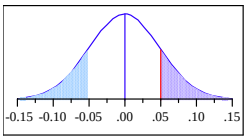
Rsquare	0.016866
Adj Rsquare	0.001009
Root Mean Square Error	0.196551
Mean of Response	4.290373
Observations (or Sum Wgts)	64

t Test

Fusion/M-13-Mixed Acid/M-13

Assuming equal variances

Difference	0.05070	t Ratio	1.031333
Std Err Dif	0.04916	DF	62
Upper CL Dif	0.14897	Prob > |t|	0.3064
Lower CL Dif	-0.04757	Prob > t	0.1532
Confidence	0.95	Prob < t	0.8468



Analysis of Variance

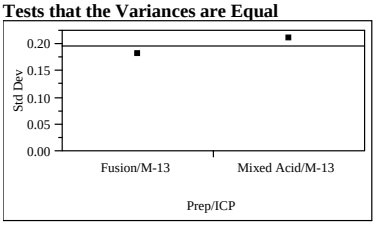
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.0410911	0.041091	1.0636	0.3064
Error	62	2.3951995	0.038632		
C. Total	63	2.4362906			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-13	33	4.31493	0.03422	4.2465	4.3833
Mixed Acid/M-13	31	4.26423	0.03530	4.1937	4.3348

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-13	33	0.1816712	0.1469595	0.1445382
Mixed Acid/M-13	31	0.2112706	0.1660928	0.1659547

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.8213	1	62	0.3683
Brown-Forsythe	0.5162	1	62	0.4752
Levene	0.4385	1	62	0.5103
Bartlett	0.6940	1	.	0.4048
F Test 2-sided	1.3524	30	32	0.4027

Welch Anova testing Means Equal, allowing Std Devs Not Equal

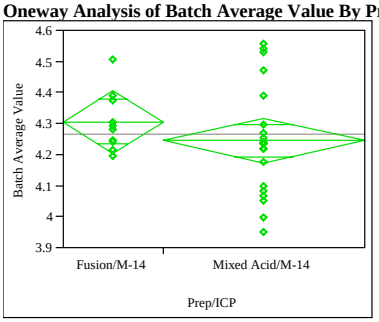
F Ratio	DFNum	DFDen	Prob > F
1.0536	1	59.319	0.3089

t Test

1.0264

Sample Type=SME, Analyte=Al/Mg, ICP=M-14

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

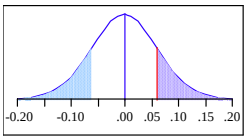
Rsquare	0.034094
Adj Rsquare	-0.0004
Root Mean Square Error	0.157508
Mean of Response	4.266741
Observations (or Sum Wgts)	30

t Test

Fusion/M-14-Mixed Acid/M-14

Assuming equal variances

Difference	0.06065	t Ratio	0.994144
Std Err Dif	0.06100	DF	28
Upper CL Dif	0.18560	Prob > |t|	0.3287
Lower CL Dif	-0.06431	Prob > t	0.1643
Confidence	0.95	Prob < t	0.8357



Analysis of Variance

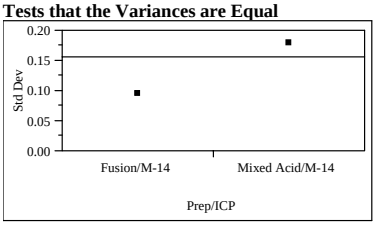
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.02451898	0.024519	0.9883	0.3287
Error	28	0.69464311	0.024809		
C. Total	29	0.71916210			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-14	10	4.30717	0.04981	4.2051	4.4092
Mixed Acid/M-14	20	4.24653	0.03522	4.1744	4.3187

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-14	10	0.0952088	0.0715208	0.0688280
Mixed Acid/M-14	20	0.1796284	0.1356999	0.1346623

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	3.4905	1	28	0.0722
Brown-Forsythe	2.7977	1	28	0.1055
Levene	2.7938	1	28	0.1058
Bartlett	3.9010	1	.	0.0483
F Test 2-sided	3.5596	19	9	0.0558

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
1.4596	1	27.813	0.2372

t Test

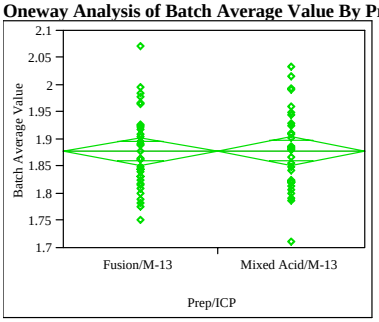
1.2081

Exhibit A5. Prep Comparisons Using SME Batch Averages by Analyte for each ICP

(continued)

Sample Type=SME, Analyte=Al/Mn, ICP=M-13

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

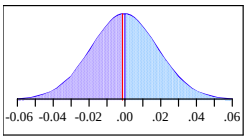
Rsquare	0.00003
Adj Rsquare	-0.0161
Root Mean Square Error	0.074381
Mean of Response	1.878727
Observations (or Sum Wgts)	64

t Test

Fusion/M-13-Mixed Acid/M-13

Assuming equal variances

Difference	-0.00081	t Ratio	-0.04343
Std Err Dif	0.01860	DF	62
Upper CL Dif	0.03638	Prob > |t|	0.9655
Lower CL Dif	-0.03800	Prob > t	0.5173
Confidence	0.95	Prob < t	0.4827



Analysis of Variance

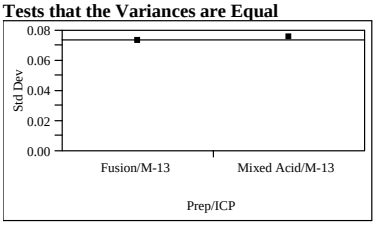
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.00001044	0.000010	0.0019	0.9655
Error	62	0.34301569	0.005533		
C. Total	63	0.34302612			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-13	33	1.87834	0.01295	1.8525	1.9042
Mixed Acid/M-13	31	1.87914	0.01336	1.8524	1.9058

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-13	33	0.0733151	0.0595393	0.0592094
Mixed Acid/M-13	31	0.0755010	0.0609041	0.0608731

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.0299	1	62	0.8633
Brown-Forsythe	0.0232	1	62	0.8795
Levene	0.0166	1	62	0.8978
Bartlett	0.0263	1	.	0.8711
F Test 2-sided	1.0605	30	32	0.8681

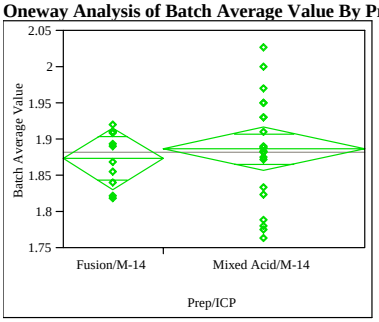
Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
0.0019	1	61.47	0.9655

t Test
0.0434

Sample Type=SME, Analyte=Al/Mn, ICP=M-14

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

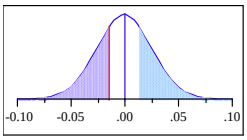
Rsquare	0.009733
Adj Rsquare	-0.02563
Root Mean Square Error	0.06563
Mean of Response	1.88242
Observations (or Sum Wgts)	30

t Test

Fusion/M-14-Mixed Acid/M-14

Assuming equal variances

Difference	-0.01333	t Ratio	-0.52459
Std Err Dif	0.02542	DF	28
Upper CL Dif	0.03873	Prob > |t|	0.6040
Lower CL Dif	-0.06540	Prob > t	0.6980
Confidence	0.95	Prob < t	0.3020



Analysis of Variance

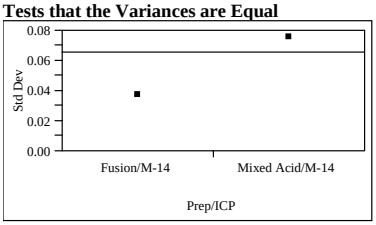
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.00118536	0.001185	0.2752	0.6040
Error	28	0.12060597	0.004307		
C. Total	29	0.12179133			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-14	10	1.87353	0.02075	1.8310	1.9160
Mixed Acid/M-14	20	1.88687	0.01468	1.8568	1.9169

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-14	10	0.0371546	0.0316282	0.0316282
Mixed Acid/M-14	20	0.0754571	0.0587624	0.0587624

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	4.2135	1	28	0.0496
Brown-Forsythe	3.2775	1	28	0.0810
Levene	3.3084	1	28	0.0796
Bartlett	4.7370	1	.	0.0295
F Test 2-sided	4.1245	19	9	0.0344

Welch Anova testing Means Equal, allowing Std Devs Not Equal

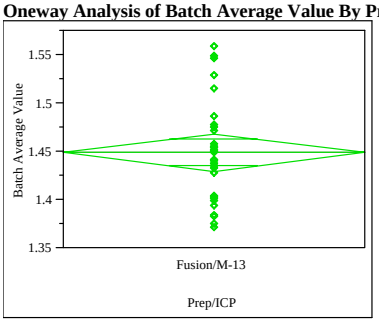
F Ratio	DFNum	DFDen	Prob > F
0.4206	1	27.997	0.5219

t Test
0.6485

Exhibit A5. Prep Comparisons Using SME Batch Averages by Analyte for each ICP

(continued)

Sample Type=SME, Analyte=B, ICP=M-13
Oneway Analysis of Batch Average Value By Prep/ICP



Missing Rows
32**Oneway Anova**
Summary of Fit

Rsquare	0
Adj Rsquare	0
Root Mean Square Error	0.05207
Mean of Response	1.448972
Observations (or Sum Wgts)	30

Analysis of Variance

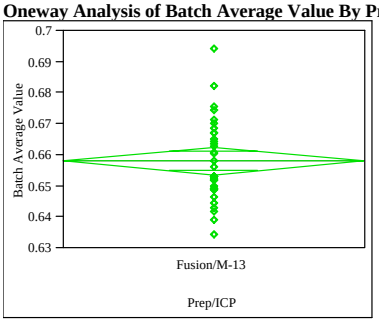
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	0	0.00000000	.	.	.
Error	29	0.07862767	0.002711		
C. Total	29	0.07862767			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-13	30	1.44897	0.00951	1.4295	1.4684

Std Error uses a pooled estimate of error variance

Sample Type=SME, Analyte=B/Li, ICP=M-13
Oneway Analysis of Batch Average Value By Prep/ICP



Missing Rows
32**Oneway Anova**
Summary of Fit

Rsquare	0
Adj Rsquare	0
Root Mean Square Error	0.012936
Mean of Response	0.658095
Observations (or Sum Wgts)	34

Analysis of Variance

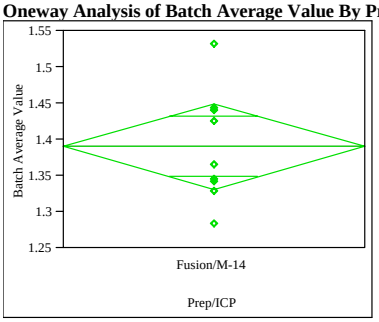
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	0	0.00000000	.	.	.
Error	33	0.00552209	0.000167		
C. Total	33	0.00552209			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-13	34	0.658095	0.00222	0.65358	0.66261

Std Error uses a pooled estimate of error variance

Sample Type=SME, Analyte=B, ICP=M-14
Oneway Analysis of Batch Average Value By Prep/ICP



Missing Rows
20**Oneway Anova**
Summary of Fit

Rsquare	0
Adj Rsquare	0
Root Mean Square Error	0.076507
Mean of Response	1.390241
Observations (or Sum Wgts)	9

Analysis of Variance

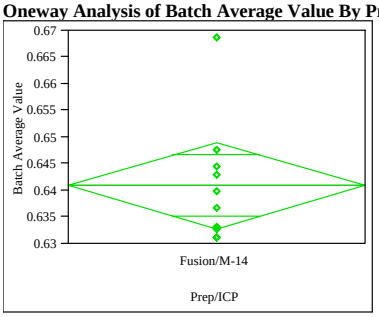
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	0	0.00000000	.	.	.
Error	8	0.04682651	0.005853		
C. Total	8	0.04682651			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-14	9	1.39024	0.02550	1.3314	1.4490

Std Error uses a pooled estimate of error variance

Sample Type=SME, Analyte=B/Li, ICP=M-14
Oneway Analysis of Batch Average Value By Prep/ICP



Missing Rows
20**Oneway Anova**
Summary of Fit

Rsquare	0
Adj Rsquare	0
Root Mean Square Error	0.01138
Mean of Response	0.640935
Observations (or Sum Wgts)	10

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	0	0.00000000	.	.	.
Error	9	0.00116561	0.000130		
C. Total	9	0.00116561			

Means for Oneway Anova

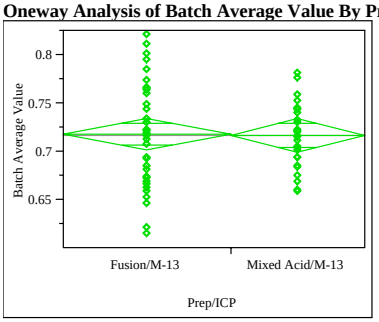
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-14	10	0.640935	0.00360	0.63279	0.64908

Std Error uses a pooled estimate of error variance

Exhibit A5. Prep Comparisons Using SME Batch Averages by Analyte for each ICP

(continued)

Sample Type=SME, Analyte=Ca, ICP=M-13
Oneway Analysis of Batch Average Value By Prep/ICP

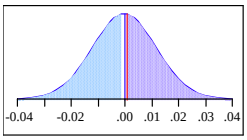


Oneway Anova
Summary of Fit

Rsquare	0.00015
Adj Rsquare	-0.0168
Root Mean Square Error	0.046507
Mean of Response	0.717481
Observations (or Sum Wgts)	61

t Test
Fusion/M-13-Mixed Acid/M-13
Assuming equal variances

Difference	0.00113	t Ratio	0.094137
Std Err Dif	0.01199	DF	59
Upper CL Dif	0.02512	Prob > |t|	0.9253
Lower CL Dif	-0.02286	Prob > t	0.4627
Confidence	0.95	Prob < t	0.5373



Analysis of Variance

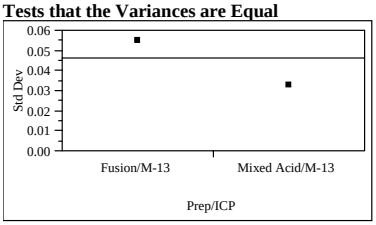
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.00001917	0.000019	0.0089	0.9253
Error	59	0.12760867	0.002163		
C. Total	60	0.12762784			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-13	34	0.717980	0.00798	0.70202	0.73394
Mixed Acid/M-13	27	0.716852	0.00895	0.69894	0.73476

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-13	34	0.0548795	0.0451569	0.0451569
Mixed Acid/M-13	27	0.0329455	0.0263759	0.0264136

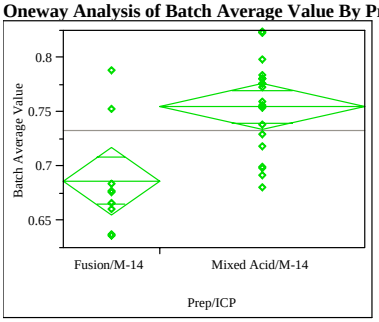
Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	8.2089	1	59	0.0058
Brown-Forsythe	7.9063	1	59	0.0067
Levene	7.9299	1	59	0.0066
Bartlett	6.8815	1	.	0.0087
F Test 2-sided	2.7748	33	26	0.0091

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
0.0099	1	55.295	0.9211

t Test
0.0994

Sample Type=SME, Analyte=Ca, ICP=M-14
Oneway Analysis of Batch Average Value By Prep/ICP

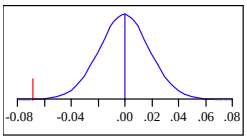


Oneway Anova
Summary of Fit

Rsquare	0.346894
Adj Rsquare	0.321775
Root Mean Square Error	0.045406
Mean of Response	0.733369
Observations (or Sum Wgts)	28

t Test
Fusion/M-14-Mixed Acid/M-14
Assuming equal variances

Difference	-0.06828	t Ratio	-3.71615
Std Err Dif	0.01837	DF	26
Upper CL Dif	-0.03051	Prob > |t|	0.0010
Lower CL Dif	-0.10605	Prob > t	0.9995
Confidence	0.95	Prob < t	0.0005



Analysis of Variance

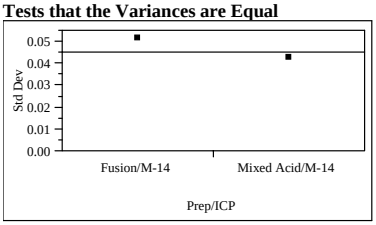
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.02847143	0.028471	13.8098	0.0010
Error	26	0.05360376	0.002062		
C. Total	27	0.08207519			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-14	9	0.687037	0.01514	0.65593	0.71815
Mixed Acid/M-14	19	0.755316	0.01042	0.73390	0.77673

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-14	9	0.0512759	0.0373169	0.0339630
Mixed Acid/M-14	19	0.0425376	0.0344238	0.0341316

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.5268	1	26	0.4745
Brown-Forsythe	0.0002	1	26	0.9888
Levene	0.0716	1	26	0.7911
Bartlett	0.3855	1	.	0.5347
F Test 2-sided	1.4531	8	18	0.4838

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
12.0350	1	13.432	0.0040

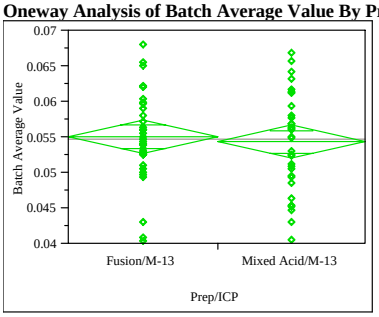
t Test
3.4691

Exhibit A5. Prep Comparisons Using SME Batch Averages by Analyte for each ICP

(continued)

Sample Type=SME, Analyte=Cr, ICP=M-13

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

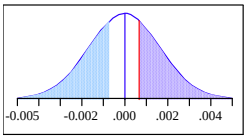
Rsquare	0.002948
Adj Rsquare	-0.01288
Root Mean Square Error	0.006602
Mean of Response	0.054697
Observations (or Sum Wgts)	65

t Test

Fusion/M-13-Mixed Acid/M-13

Assuming equal variances

Difference	0.00071	t Ratio	0.431598
Std Err Dif	0.00164	DF	63
Upper CL Dif	0.00398	Prob > |t|	0.6675
Lower CL Dif	-0.00257	Prob > t	0.3338
Confidence	0.95	Prob < t	0.6662



Analysis of Variance

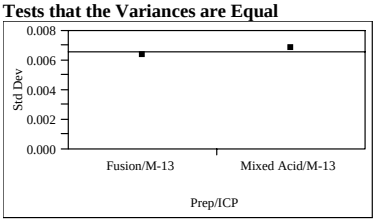
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.00000812	0.000008	0.1863	0.6675
Error	63	0.00274576	0.000044		
C. Total	64	0.00275388			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-13	33	0.055045	0.00115	0.05275	0.05734
Mixed Acid/M-13	32	0.054339	0.00117	0.05201	0.05667

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-13	33	0.0063632	0.0046933	0.0046970
Mixed Acid/M-13	32	0.0068394	0.0056195	0.0055781

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.1865	1	63	0.6673
Brown-Forsythe	0.7631	1	63	0.3857
Levene	0.8707	1	63	0.3543
Bartlett	0.1614	1	.	0.6878
F Test 2-sided	1.1553	31	32	0.6865

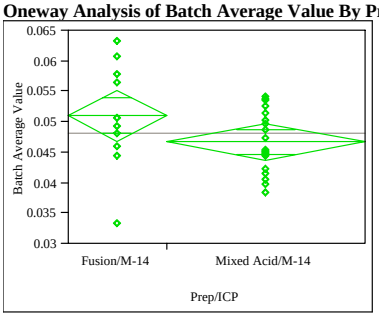
Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
0.1859	1	62.336	0.6679

t Test
0.4311

Sample Type=SME, Analyte=Cr, ICP=M-14

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

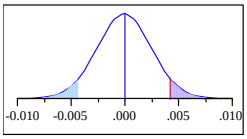
Rsquare	0.095347
Adj Rsquare	0.063038
Root Mean Square Error	0.006475
Mean of Response	0.048194
Observations (or Sum Wgts)	30

t Test

Fusion/M-14-Mixed Acid/M-14

Assuming equal variances

Difference	0.00431	t Ratio	1.717874
Std Err Dif	0.00251	DF	28
Upper CL Dif	0.00945	Prob > |t|	0.0969
Lower CL Dif	-0.00083	Prob > t	0.0484
Confidence	0.95	Prob < t	0.9516



Analysis of Variance

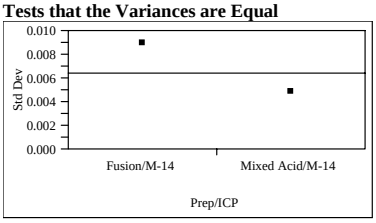
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.00012374	0.000124	2.9511	0.0969
Error	28	0.00117409	0.000042		
C. Total	29	0.00129784			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-14	10	0.051067	0.00205	0.04687	0.05526
Mixed Acid/M-14	20	0.046758	0.00145	0.04379	0.04972

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-14	10	0.0089336	0.0068800	0.0068000
Mixed Acid/M-14	20	0.0048979	0.0041508	0.0040250

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	4.5233	1	28	0.0424
Brown-Forsythe	3.3040	1	28	0.0798
Levene	3.9037	1	28	0.0581
Bartlett	4.6204	1	.	0.0316
F Test 2-sided	3.3268	9	19	0.0262

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
2.0219	1	11.782	0.1810

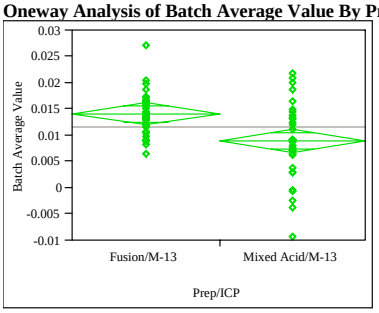
t Test
1.4219

Exhibit A5. Prep Comparisons Using SME Batch Averages by Analyte for each ICP

(continued)

Sample Type=SME, Analyte=Cu, ICP=M-13

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

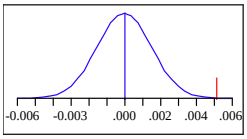
Rsquare	0.159957
Adj Rsquare	0.146185
Root Mean Square Error	0.006016
Mean of Response	0.011603
Observations (or Sum Wgts)	63

t Test

Fusion/M-13-Mixed Acid/M-13

Assuming equal variances

Difference	0.005167	t Ratio	3.408122
Std Err Dif	0.001516	DF	61
Upper CL Dif	0.008199	Prob > |t|	0.0012
Lower CL Dif	0.002136	Prob > t	0.0006
Confidence	0.95	Prob < t	0.9994



Analysis of Variance

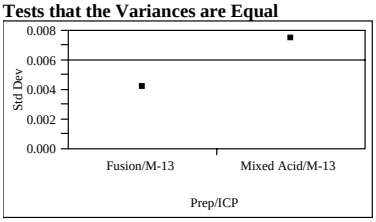
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.00042044	0.000420	11.6153	0.0012
Error	61	0.00220803	0.000036		
C. Total	62	0.00262847			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-13	32	0.014146	0.00106	0.01202	0.01627
Mixed Acid/M-13	31	0.008978	0.00108	0.00682	0.01114

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-13	32	0.0041963	0.0031862	0.0031771
Mixed Acid/M-13	31	0.0074435	0.0057211	0.0057204

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	6.4669	1	61	0.0135
Brown-Forsythe	7.1020	1	61	0.0098
Levene	7.1066	1	61	0.0098
Bartlett	9.4128	1	.	0.0022
F Test 2-sided	3.1464	30	31	0.0021

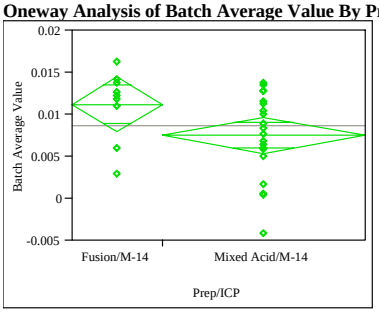
Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
11.4229	1	47.005	0.0015

t Test
3.3798

Sample Type=SME, Analyte=Cu, ICP=M-14

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

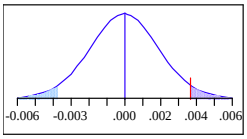
Rsquare	0.125094
Adj Rsquare	0.09269
Root Mean Square Error	0.004722
Mean of Response	0.008672
Observations (or Sum Wgts)	29

t Test

Fusion/M-14-Mixed Acid/M-14

Assuming equal variances

Difference	0.00372	t Ratio	1.964803
Std Err Dif	0.00190	DF	27
Upper CL Dif	0.00761	Prob > |t|	0.0598
Lower CL Dif	-0.00016	Prob > t	0.0299
Confidence	0.95	Prob < t	0.9701



Analysis of Variance

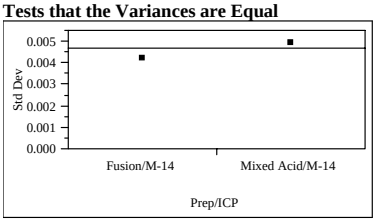
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.00008608	0.000086	3.8604	0.0598
Error	27	0.00060206	0.000022		
C. Total	28	0.00068814			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-14	9	0.011241	0.00157	0.00801	0.01447
Mixed Acid/M-14	20	0.007517	0.00106	0.00535	0.00968

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-14	9	0.0041867	0.0030494	0.0028333
Mixed Acid/M-14	20	0.0049302	0.0038817	0.0038667

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.2757	1	27	0.6038
Brown-Forsythe	0.7265	1	27	0.4015
Levene	0.5349	1	27	0.4709
Bartlett	0.2741	1	.	0.6006
F Test 2-sided	1.3867	19	8	0.6575

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
4.3847	1	18.127	0.0506

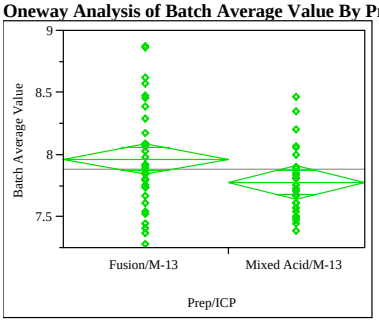
t Test
2.0940

Exhibit A5. Prep Comparisons Using SME Batch Averages by Analyte for each ICP

(continued)

Sample Type=SME, Analyte=Fe, ICP=M-13

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

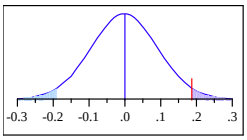
Rsquare	0.064715
Adj Rsquare	0.048589
Root Mean Square Error	0.359795
Mean of Response	7.884872
Observations (or Sum Wgts)	60

t Test

Fusion/M-13-Mixed Acid/M-13

Assuming equal variances

Difference	0.187040	t Ratio	2.003289
Std Err Dif	0.093367	DF	58
Upper CL Dif	0.373934	Prob > |t|	0.0498
Lower CL Dif	0.000147	Prob > t	0.0249
Confidence	0.95	Prob < t	0.9751



Analysis of Variance

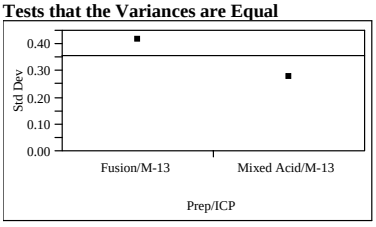
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.5195141	0.519514	4.0132	0.0498
Error	58	7.5082383	0.129452		
C. Total	59	8.0277524			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-13	33	7.96904	0.06263	7.8437	8.0944
Mixed Acid/M-13	27	7.78200	0.06924	7.6434	7.9206

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-13	33	0.4160152	0.3297738	0.3221919
Mixed Acid/M-13	27	0.2752649	0.2154815	0.2122840

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	4.1273	1	58	0.0468
Brown-Forsythe	3.3220	1	58	0.0735
Levene	4.2205	1	58	0.0445
Bartlett	4.5539	1	.	0.0328
F Test 2-sided	2.2841	32	26	0.0339

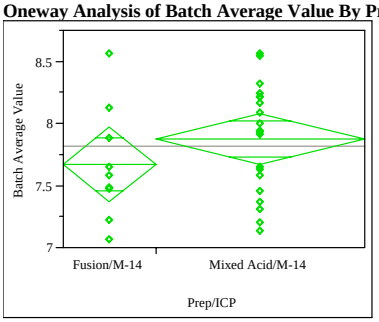
Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
4.3454	1	55.759	0.0417

t Test
2.0846

Sample Type=SME, Analyte=Fe, ICP=M-14

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

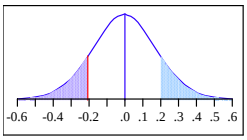
Rsquare	0.045762
Adj Rsquare	0.01042
Root Mean Square Error	0.441819
Mean of Response	7.817948
Observations (or Sum Wgts)	29

t Test

Fusion/M-14-Mixed Acid/M-14

Assuming equal variances

Difference	-0.20180	t Ratio	-1.13791
Std Err Dif	0.17734	DF	27
Upper CL Dif	0.16207	Prob > |t|	0.2652
Lower CL Dif	-0.56567	Prob > t	0.8674
Confidence	0.95	Prob < t	0.1326



Analysis of Variance

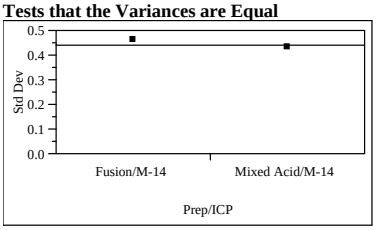
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.2527580	0.252758	1.2948	0.2652
Error	27	5.2705089	0.195204		
C. Total	28	5.5232669			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-14	9	7.67878	0.14727	7.3766	7.9810
Mixed Acid/M-14	20	7.88058	0.09879	7.6779	8.0833

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-14	9	0.4602346	0.3460000	0.3373519
Mixed Acid/M-14	20	0.4338313	0.3648600	0.3551917

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.0640	1	27	0.8022
Brown-Forsythe	0.0283	1	27	0.8677
Levene	0.0389	1	27	0.8450
Bartlett	0.0381	1	.	0.8452
F Test 2-sided	1.1254	8	19	0.7813

Welch Anova testing Means Equal, allowing Std Devs Not Equal

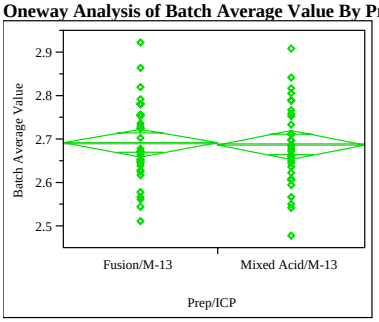
F Ratio	DFNum	DFDen	Prob > F
1.2360	1	14.688	0.2841

t Test
1.1118

Exhibit A5. Prep Comparisons Using SME Batch Averages by Analyte for each ICP

(continued)

Sample Type=SME, Analyte=Fe/Al, ICP=M-13
Oneway Analysis of Batch Average Value By Prep/ICP

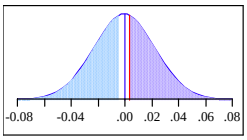


Oneway Anova
Summary of Fit

Rsquare	0.000553
Adj Rsquare	-0.01506
Root Mean Square Error	0.092969
Mean of Response	2.690322
Observations (or Sum Wgts)	66

t Test
Fusion/M-13-Mixed Acid/M-13
Assuming equal variances

Difference	0.00431	t Ratio	0.188212
Std Err Dif	0.02290	DF	64
Upper CL Dif	0.05005	Prob > |t|	0.8513
Lower CL Dif	-0.04143	Prob > t	0.4257
Confidence	0.95	Prob < t	0.5743



Analysis of Variance

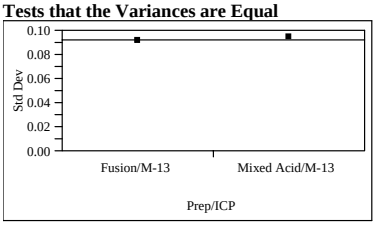
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.00030617	0.000306	0.0354	0.8513
Error	64	0.55316229	0.008643		
C. Total	65	0.55346846			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-13	34	2.69241	0.01594	2.6606	2.7243
Mixed Acid/M-13	32	2.68810	0.01643	2.6553	2.7209

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-13	34	0.0917131	0.0738047	0.0719316
Mixed Acid/M-13	32	0.0942868	0.0726272	0.0723163

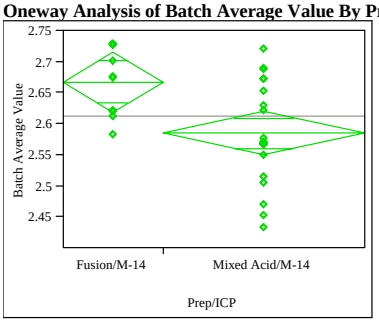
Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.0248	1	64	0.8753
Brown-Forsythe	0.0007	1	64	0.9790
Levene	0.0073	1	64	0.9320
Bartlett	0.0241	1	.	0.8766
F Test 2-sided	1.0569	31	33	0.8737

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
0.0354	1	63.495	0.8514

t Test
0.1881

Sample Type=SME, Analyte=Fe/Al, ICP=M-14
Oneway Analysis of Batch Average Value By Prep/ICP

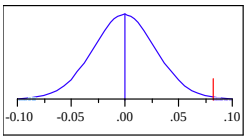


Oneway Anova
Summary of Fit

Rsquare	0.225063
Adj Rsquare	0.197387
Root Mean Square Error	0.075054
Mean of Response	2.612993
Observations (or Sum Wgts)	30

t Test
Fusion/M-14-Mixed Acid/M-14
Assuming equal variances

Difference	0.082893	t Ratio	2.85166
Std Err Dif	0.029068	DF	28
Upper CL Dif	0.142437	Prob > |t|	0.0081
Lower CL Dif	0.023349	Prob > t	0.0040
Confidence	0.95	Prob < t	0.9960



Analysis of Variance

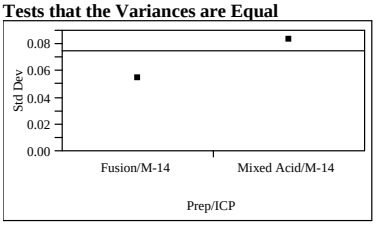
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.04580872	0.045809	8.1320	0.0081
Error	28	0.15772869	0.005633		
C. Total	29	0.20353740			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-14	10	2.66826	0.02373	2.6196	2.7169
Mixed Acid/M-14	20	2.58536	0.01678	2.5510	2.6197

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-14	10	0.0545285	0.0463375	0.0451411
Mixed Acid/M-14	20	0.0830246	0.0670892	0.0649917

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	2.4845	1	28	0.1262
Brown-Forsythe	1.2719	1	28	0.2690
Levene	1.7385	1	28	0.1980
Bartlett	1.8373	1	.	0.1753
F Test 2-sided	2.3183	19	9	0.1970

Welch Anova testing Means Equal, allowing Std Devs Not Equal

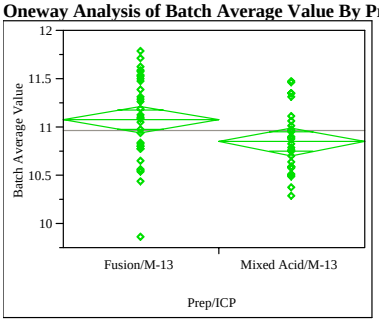
F Ratio	DFNum	DFDen	Prob > F
10.7031	1	25.639	0.0031

t Test
3.2716

Exhibit A5. Prep Comparisons Using SME Batch Averages by Analyte for each ICP

(continued)

Sample Type=SME, Analyte=Fe/Ca, ICP=M-13
Oneway Analysis of Batch Average Value By Prep/ICP

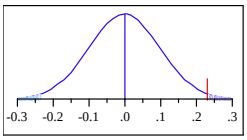


Oneway Anova
Summary of Fit

Rsquare	0.083176
Adj Rsquare	0.067895
Root Mean Square Error	0.388801
Mean of Response	10.9718
Observations (or Sum Wgts)	62

t Test
Fusion/M-13-Mixed Acid/M-13
Assuming equal variances

Difference	0.230525	t Ratio	2.333087
Std Err Dif	0.098807	DF	60
Upper CL Dif	0.428169	Prob > |t|	0.0230
Lower CL Dif	0.032882	Prob > t	0.0115
Confidence	0.95	Prob < t	0.9885



Analysis of Variance

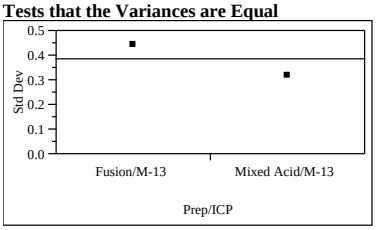
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.8228422	0.822842	5.4433	0.0230
Error	60	9.0699714	0.151166		
C. Total	61	9.8928136			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-13	32	11.0833	0.06873	10.946	11.221
Mixed Acid/M-13	30	10.8528	0.07099	10.711	10.995

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-13	32	0.4438665	0.3608579	0.3602947
Mixed Acid/M-13	30	0.3196135	0.2556178	0.2540773

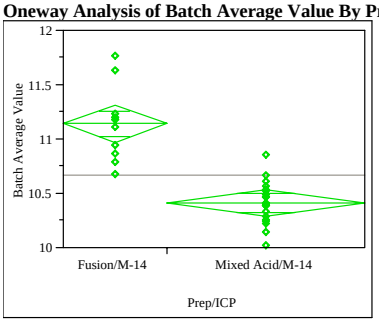
Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	2.8416	1	60	0.0970
Brown-Forsythe	3.4523	1	60	0.0681
Levene	3.4965	1	60	0.0664
Bartlett	3.1013	1	.	0.0782
F Test 2-sided	1.9287	31	29	0.0789

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
5.5577	1	56.348	0.0219

t Test
2.3575

Sample Type=SME, Analyte=Fe/Ca, ICP=M-14
Oneway Analysis of Batch Average Value By Prep/ICP

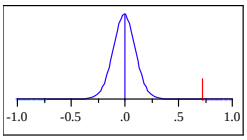


Oneway Anova
Summary of Fit

Rsquare	0.656566
Adj Rsquare	0.643846
Root Mean Square Error	0.258696
Mean of Response	10.66927
Observations (or Sum Wgts)	29

t Test
Fusion/M-14-Mixed Acid/M-14
Assuming equal variances

Difference	0.726125	t Ratio	7.184548
Std Err Dif	0.101068	DF	27
Upper CL Dif	0.933498	Prob > |t|	<.0001
Lower CL Dif	0.518751	Prob > t	<.0001
Confidence	0.95	Prob < t	1.0000



Analysis of Variance

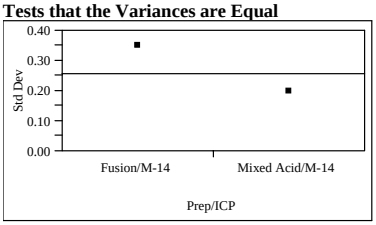
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	3.4544427	3.45444	51.6177	<.0001
Error	27	1.8069365	0.06692		
C. Total	28	5.2613792			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-14	10	11.1450	0.08181	10.977	11.313
Mixed Acid/M-14	19	10.4189	0.05935	10.297	10.541

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-14	10	0.3500611	0.2618308	0.2618308
Mixed Acid/M-14	19	0.1977725	0.1521156	0.1531570

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	4.2555	1	27	0.0489
Brown-Forsythe	3.0899	1	27	0.0901
Levene	3.1235	1	27	0.0885
Bartlett	4.0482	1	.	0.0442
F Test 2-sided	3.1330	9	18	0.0375

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
36.8379	1	12.107	<.0001

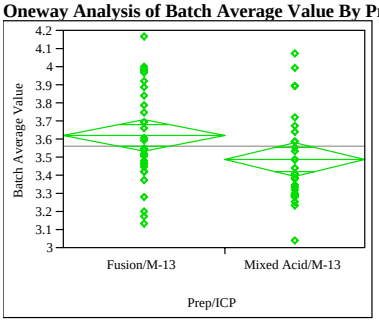
t Test
6.0694

Exhibit A5. Prep Comparisons Using SME Batch Averages by Analyte for each ICP

(continued)

Sample Type=SME, Analyte=Fe/Li, ICP=M-13

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

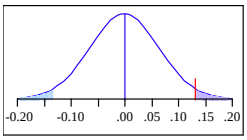
Rsquare	0.065865
Adj Rsquare	0.050551
Root Mean Square Error	0.254321
Mean of Response	3.561458
Observations (or Sum Wgts)	63

t Test

Fusion/M-13-Mixed Acid/M-13

Assuming equal variances

Difference	0.133322	t Ratio	2.073894
Std Err Dif	0.064286	DF	61
Upper CL Dif	0.261869	Prob > |t|	0.0423
Lower CL Dif	0.004775	Prob > t	0.0212
Confidence	0.95	Prob < t	0.9788



Analysis of Variance

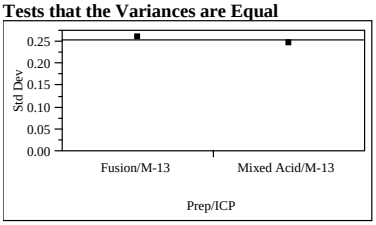
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.2781884	0.278188	4.3010	0.0423
Error	61	3.9454409	0.064679		
C. Total	62	4.2236293			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-13	34	3.62283	0.04362	3.5356	3.7100
Mixed Acid/M-13	29	3.48951	0.04723	3.3951	3.5839

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-13	34	0.2609543	0.2133614	0.2068247
Mixed Acid/M-13	29	0.2462747	0.1930729	0.1867964

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.1205	1	61	0.7297
Brown-Forsythe	0.2074	1	61	0.6504
Levene	0.2985	1	61	0.5868
Bartlett	0.0995	1	.	0.7524
F Test 2-sided	1.1228	33	28	0.7600

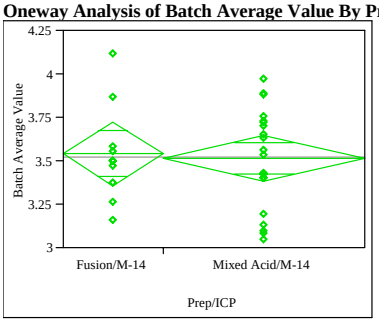
Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
4.3414	1	60.348	0.0414

t Test
2.0836

Sample Type=SME, Analyte=Fe/Li, ICP=M-14

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

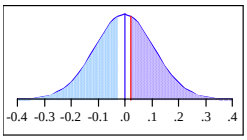
Rsquare	0.002043
Adj Rsquare	-0.0336
Root Mean Square Error	0.285182
Mean of Response	3.52564
Observations (or Sum Wgts)	30

t Test

Fusion/M-14-Mixed Acid/M-14

Assuming equal variances

Difference	0.02644	t Ratio	0.239402
Std Err Dif	0.11045	DF	28
Upper CL Dif	0.25269	Prob > |t|	0.8125
Lower CL Dif	-0.19981	Prob > t	0.4063
Confidence	0.95	Prob < t	0.5937



Analysis of Variance

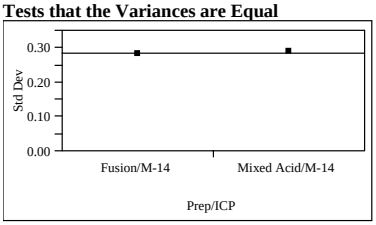
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.0046612	0.004661	0.0573	0.8125
Error	28	2.2772026	0.081329		
C. Total	29	2.2818638			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-14	10	3.54327	0.09018	3.3585	3.7280
Mixed Acid/M-14	20	3.51683	0.06377	3.3862	3.6474

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-14	10	0.2801446	0.1943889	0.1863862
Mixed Acid/M-14	20	0.2875371	0.2397590	0.2375555

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.0119	1	28	0.9139
Brown-Forsythe	0.5783	1	28	0.4533
Levene	0.5126	1	28	0.4800
Bartlett	0.0079	1	.	0.9292
F Test 2-sided	1.0535	19	9	0.9839

Welch Anova testing Means Equal, allowing Std Devs Not Equal

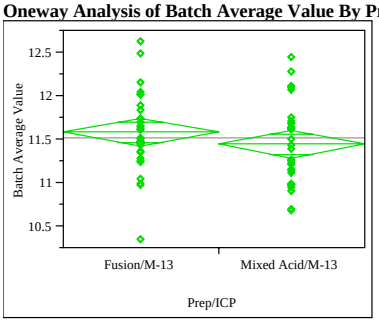
F Ratio	DFNum	DFDen	Prob > F
0.0584	1	18.542	0.8118

t Test
0.2416

Exhibit A5. Prep Comparisons Using SME Batch Averages by Analyte for each ICP

(continued)

Sample Type=SME, Analyte=Fe/Mg, ICP=M-13
Oneway Analysis of Batch Average Value By Prep/ICP

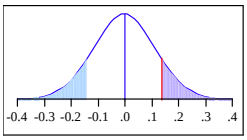


Oneway Anova
Summary of Fit

Rsquare	0.023647
Adj Rsquare	0.007374
Root Mean Square Error	0.452441
Mean of Response	11.51645
Observations (or Sum Wgts)	62

t Test
Fusion/M-13-Mixed Acid/M-13
Assuming equal variances

Difference	0.13861	t Ratio	1.205474
Std Err Dif	0.11498	DF	60
Upper CL Dif	0.36860	Prob > |t|	0.2328
Lower CL Dif	-0.09139	Prob > t	0.1164
Confidence	0.95	Prob < t	0.8836



Analysis of Variance

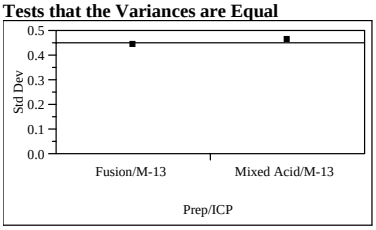
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.297468	0.297468	1.4532	0.2328
Error	60	12.282172	0.204703		
C. Total	61	12.579640			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-13	32	11.5835	0.07998	11.424	11.744
Mixed Acid/M-13	30	11.4449	0.08260	11.280	11.610

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-13	32	0.4448137	0.3207451	0.3207451
Mixed Acid/M-13	30	0.4604547	0.3780585	0.3774143

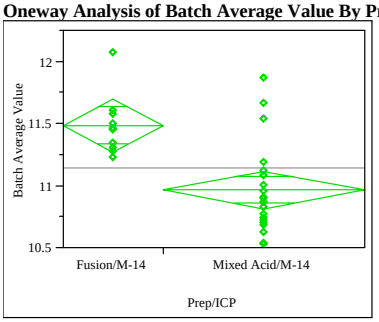
Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.0309	1	60	0.8610
Brown-Forsythe	0.6281	1	60	0.4312
Levene	0.6490	1	60	0.4237
Bartlett	0.0352	1	.	0.8511
F Test 2-sided	1.0716	29	31	0.8479

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
1.4499	1	59.405	0.2333

t Test
1.2041

Sample Type=SME, Analyte=Fe/Mg, ICP=M-14
Oneway Analysis of Batch Average Value By Prep/ICP

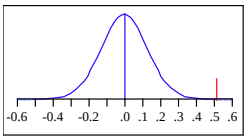


Oneway Anova
Summary of Fit

Rsquare	0.369356
Adj Rsquare	0.346833
Root Mean Square Error	0.331447
Mean of Response	11.14224
Observations (or Sum Wgts)	30

t Test
Fusion/M-14-Mixed Acid/M-14
Assuming equal variances

Difference	0.519840	t Ratio	4.049575
Std Err Dif	0.128369	DF	28
Upper CL Dif	0.782792	Prob > |t|	0.0004
Lower CL Dif	0.256888	Prob > t	0.0002
Confidence	0.95	Prob < t	0.9998



Analysis of Variance

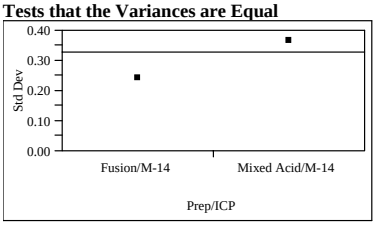
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	1.8015581	1.80156	16.3991	0.0004
Error	28	3.0760077	0.10986		
C. Total	29	4.8775658			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-14	10	11.4888	0.10481	11.274	11.703
Mixed Acid/M-14	20	10.9690	0.07411	10.817	11.121

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-14	10	0.2418262	0.1645601	0.1604654
Mixed Acid/M-14	20	0.3663252	0.2733708	0.2617220

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.9791	1	28	0.3309
Brown-Forsythe	1.2182	1	28	0.2791
Levene	1.6863	1	28	0.2047
Bartlett	1.7959	1	.	0.1802
F Test 2-sided	2.2947	19	9	0.2024

Welch Anova testing Means Equal, allowing Std Devs Not Equal

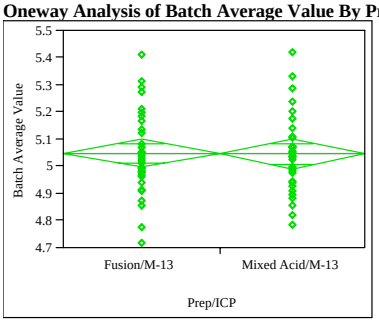
F Ratio	DFNum	DFDen	Prob > F
21.5194	1	25.561	<.0001

t Test
4.6389

Exhibit A5. Prep Comparisons Using SME Batch Averages by Analyte for each ICP

(continued)

Sample Type=SME, Analyte=Fe/Mn, ICP=M-13
Oneway Analysis of Batch Average Value By Prep/ICP

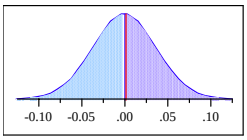


Oneway Anova
Summary of Fit

Rsquare	0.000062
Adj Rsquare	-0.01581
Root Mean Square Error	0.149067
Mean of Response	5.047899
Observations (or Sum Wgts)	65

t Test
Fusion/M-13-Mixed Acid/M-13
Assuming equal variances

Difference	0.00230	t Ratio	0.062255
Std Err Dif	0.03702	DF	63
Upper CL Dif	0.07628	Prob > |t|	0.9506
Lower CL Dif	-0.07167	Prob > t	0.4753
Confidence	0.95	Prob < t	0.5247



Analysis of Variance

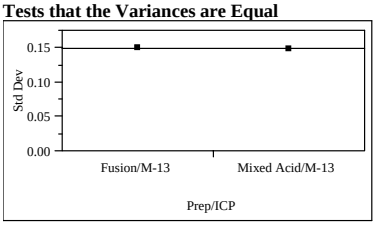
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.0000861	0.000086	0.0039	0.9506
Error	63	1.3999160	0.022221		
C. Total	64	1.4000021			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-13	34	5.04900	0.02556	4.9979	5.1001
Mixed Acid/M-13	31	5.04669	0.02677	4.9932	5.1002

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-13	34	0.1503960	0.1120515	0.1113097
Mixed Acid/M-13	31	0.1475907	0.1099826	0.1100087

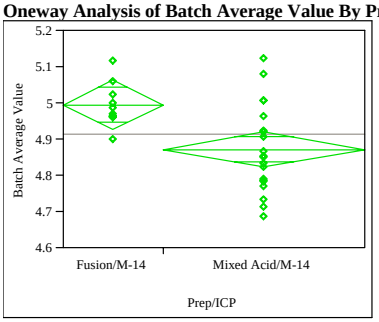
Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.0100	1	63	0.9207
Brown-Forsythe	0.0028	1	63	0.9577
Levene	0.0073	1	63	0.9321
Bartlett	0.0110	1	.	0.9166
F Test 2-sided	1.0384	33	30	0.9211

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
0.0039	1	62.647	0.9505

t Test
0.0623

Sample Type=SME, Analyte=Fe/Mn, ICP=M-14
Oneway Analysis of Batch Average Value By Prep/ICP

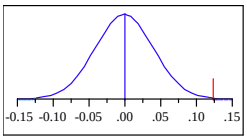


Oneway Anova
Summary of Fit

Rsquare	0.249505
Adj Rsquare	0.222701
Root Mean Square Error	0.104664
Mean of Response	4.914152
Observations (or Sum Wgts)	30

t Test
Fusion/M-14-Mixed Acid/M-14
Assuming equal variances

Difference	0.123677	t Ratio	3.051016
Std Err Dif	0.040536	DF	28
Upper CL Dif	0.206711	Prob > |t|	0.0049
Lower CL Dif	0.040642	Prob > t	0.0025
Confidence	0.95	Prob < t	0.9975



Analysis of Variance

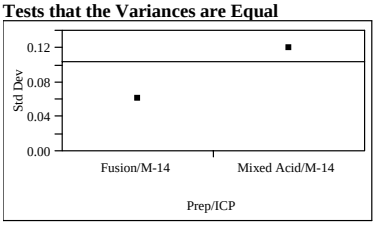
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.10197271	0.101973	9.3087	0.0049
Error	28	0.30672772	0.010955		
C. Total	29	0.40870043			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-14	10	4.99660	0.03310	4.9288	5.0644
Mixed Acid/M-14	20	4.87293	0.02340	4.8250	4.9209

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-14	10	0.0607093	0.0448562	0.0434392
Mixed Acid/M-14	20	0.1199906	0.0964859	0.0943202

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	3.2529	1	28	0.0821
Brown-Forsythe	4.0303	1	28	0.0544
Levene	4.9552	1	28	0.0342
Bartlett	4.4221	1	.	0.0355
F Test 2-sided	3.9065	19	9	0.0413

Welch Anova testing Means Equal, allowing Std Devs Not Equal

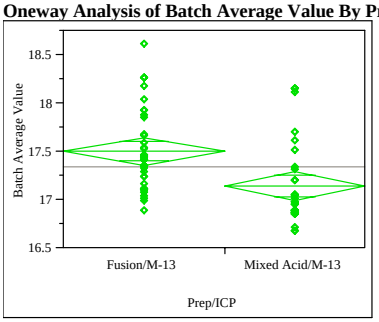
F Ratio	DFNum	DFDen	Prob > F
14.0529	1	27.962	0.0008

t Test
3.7487

Exhibit A5. Prep Comparisons Using SME Batch Averages by Analyte for each ICP

(continued)

Sample Type=SME, Analyte=Fe/Ni, ICP=M-13
Oneway Analysis of Batch Average Value By Prep/ICP

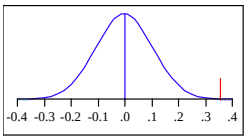


Oneway Anova
Summary of Fit

Rsquare	0.155171
Adj Rsquare	0.141761
Root Mean Square Error	0.424219
Mean of Response	17.33854
Observations (or Sum Wgts)	65

t Test
Fusion/M-13-Mixed Acid/M-13
Assuming equal variances

Difference	0.359040	t Ratio	3.40166
Std Err Dif	0.105549	DF	63
Upper CL Dif	0.569962	Prob > |t|	0.0012
Lower CL Dif	0.148118	Prob > t	0.0006
Confidence	0.95	Prob < t	0.9994



Analysis of Variance

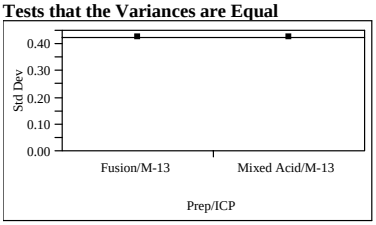
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	2.082390	2.08239	11.5713	0.0012
Error	63	11.337593	0.17996		
C. Total	64	13.419983			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-13	35	17.5043	0.07171	17.361	17.648
Mixed Acid/M-13	30	17.1452	0.07745	16.990	17.300

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-13	35	0.4248532	0.3393461	0.3285242
Mixed Acid/M-13	30	0.4234743	0.3272101	0.2884355

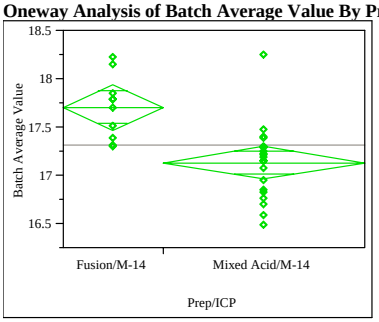
Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.0003	1	63	0.9866
Brown-Forsythe	0.2690	1	63	0.6058
Levene	0.0366	1	63	0.8489
Bartlett	0.0003	1	.	0.9856
F Test 2-sided	1.0065	34	29	0.9932

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
11.5772	1	61.549	0.0012

t Test
3.4025

Sample Type=SME, Analyte=Fe/Ni, ICP=M-14
Oneway Analysis of Batch Average Value By Prep/ICP

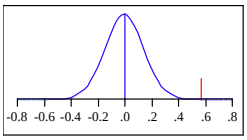


Oneway Anova
Summary of Fit

Rsquare	0.367201
Adj Rsquare	0.344601
Root Mean Square Error	0.367958
Mean of Response	17.32412
Observations (or Sum Wgts)	30

t Test
Fusion/M-14-Mixed Acid/M-14
Assuming equal variances

Difference	0.574437	t Ratio	4.03086
Std Err Dif	0.142510	DF	28
Upper CL Dif	0.866354	Prob > |t|	0.0004
Lower CL Dif	0.282519	Prob > t	0.0002
Confidence	0.95	Prob < t	0.9998



Analysis of Variance

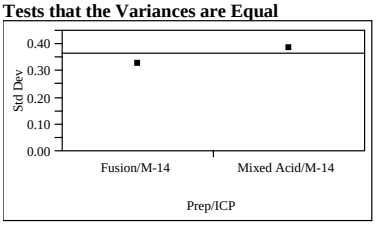
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	2.1998488	2.19985	16.2478	0.0004
Error	28	3.7910141	0.13539		
C. Total	29	5.9908628			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-14	10	17.7071	0.11636	17.469	17.945
Mixed Acid/M-14	20	17.1326	0.08228	16.964	17.301

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-14	10	0.3270145	0.2601255	0.2594667
Mixed Acid/M-14	20	0.3858393	0.2758369	0.2709035

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.1702	1	28	0.6831
Brown-Forsythe	0.0143	1	28	0.9055
Levene	0.0289	1	28	0.8662
Bartlett	0.3071	1	.	0.5795
F Test 2-sided	1.3921	19	9	0.6266

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
18.1932	1	21.057	0.0003

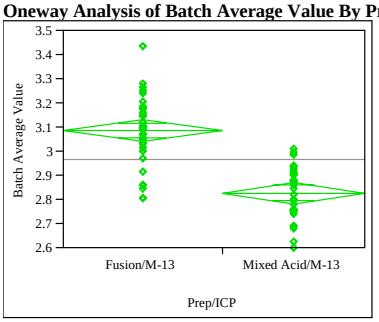
t Test
4.2653

Exhibit A5. Prep Comparisons Using SME Batch Averages by Analyte for each ICP

(continued)

Sample Type=SME, Analyte=Fe/U, ICP=M-13

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

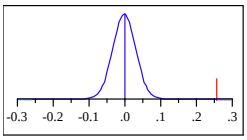
Rsquare	0.515413
Adj Rsquare	0.507841
Root Mean Square Error	0.127421
Mean of Response	2.966048
Observations (or Sum Wgts)	66

t Test

Fusion/M-13-Mixed Acid/M-13

Assuming equal variances

Difference	0.259286	t Ratio	8.25053
Std Err Dif	0.031427	DF	64
Upper CL Dif	0.322068	Prob > |t|	<.0001
Lower CL Dif	0.196505	Prob > t	<.0001
Confidence	0.95	Prob < t	1.0000



Analysis of Variance

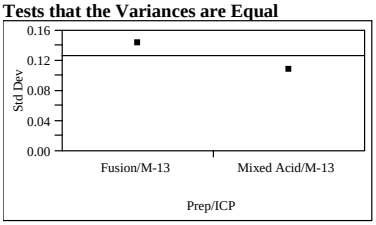
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	1.1052115	1.10521	68.0712	<.0001
Error	64	1.0391105	0.01624		
C. Total	65	2.1443220			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-13	35	3.08783	0.02154	3.0448	3.1309
Mixed Acid/M-13	31	2.82855	0.02289	2.7828	2.8743

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-13	35	0.1426491	0.1084380	0.1074335
Mixed Acid/M-13	31	0.1075876	0.0906651	0.0906278

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	2.2895	1	64	0.1352
Brown-Forsythe	0.7513	1	64	0.3893
Levene	0.8916	1	64	0.3486
Bartlett	2.4366	1	.	0.1185
F Test 2-sided	1.7580	34	30	0.1203

Welch Anova testing Means Equal, allowing Std Devs Not Equal

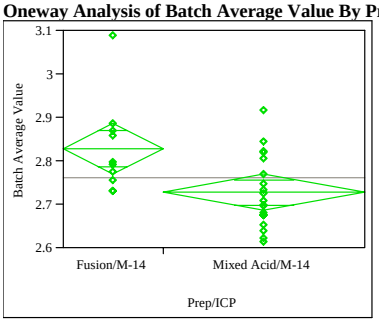
F Ratio	DFNum	DFDen	Prob > F
70.4133	1	62.486	<.0001

t Test

8.3913

Sample Type=SME, Analyte=Fe/U, ICP=M-14

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

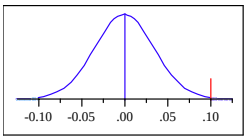
Rsquare	0.231846
Adj Rsquare	0.204412
Root Mean Square Error	0.089922
Mean of Response	2.762169
Observations (or Sum Wgts)	30

t Test

Fusion/M-14-Mixed Acid/M-14

Assuming equal variances

Difference	0.101243	t Ratio	2.907066
Std Err Dif	0.034826	DF	28
Upper CL Dif	0.172582	Prob > |t|	0.0071
Lower CL Dif	0.029904	Prob > t	0.0035
Confidence	0.95	Prob < t	0.9965



Analysis of Variance

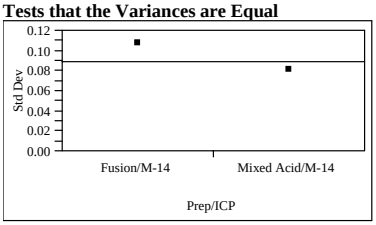
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.06833421	0.068334	8.4510	0.0071
Error	28	0.22640519	0.008086		
C. Total	29	0.29473940			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-14	10	2.82966	0.02844	2.7714	2.8879
Mixed Acid/M-14	20	2.72842	0.02011	2.6872	2.7696

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-14	10	0.1070507	0.0778166	0.0714630
Mixed Acid/M-14	20	0.0805464	0.0639822	0.0619301

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.6813	1	28	0.4161
Brown-Forsythe	0.1396	1	28	0.7115
Levene	0.4254	1	28	0.5196
Bartlett	1.0027	1	.	0.3167
F Test 2-sided	1.7664	9	19	0.2837

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
6.9711	1	14.274	0.0191

t Test

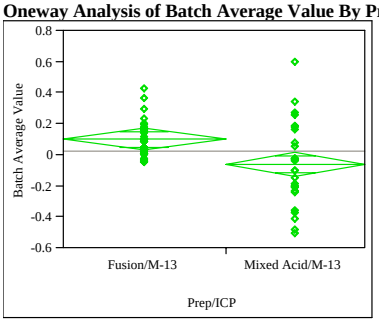
2.6403

Exhibit A5. Prep Comparisons Using SME Batch Averages by Analyte for each ICP

(continued)

Sample Type=SME, Analyte=K, ICP=M-13

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

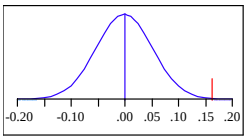
Rsquare	0.145399
Adj Rsquare	0.130406
Root Mean Square Error	0.200298
Mean of Response	0.027251
Observations (or Sum Wgts)	59

t Test

Fusion/M-13-Mixed Acid/M-13

Assuming equal variances

Difference	0.162998	t Ratio	3.114124
Std Err Dif	0.052342	DF	57
Upper CL Dif	0.267810	Prob > |t|	0.0029
Lower CL Dif	0.058186	Prob > t	0.0014
Confidence	0.95	Prob < t	0.9986



Analysis of Variance

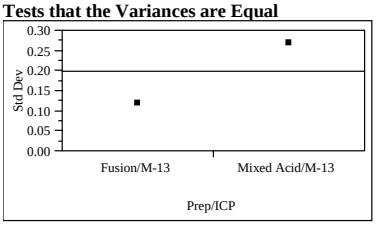
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.3890690	0.389069	9.6978	0.0029
Error	57	2.2868088	0.040119		
C. Total	58	2.6758778			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-13	32	0.10184	0.03541	0.0309	0.17275
Mixed Acid/M-13	27	-0.06115	0.03855	-0.1383	0.01604

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-13	32	0.1172553	0.0909290	0.0896250
Mixed Acid/M-13	27	0.2675096	0.2120251	0.2107840

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	10.0233	1	57	0.0025
Brown-Forsythe	14.1531	1	57	0.0004
Levene	15.1406	1	57	0.0003
Bartlett	17.8360	1	.	<.0001
F Test 2-sided	5.2049	26	31	<.0001

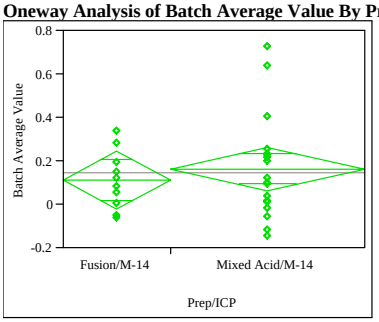
Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
8.6259	1	34.356	0.0059

t Test
2.9370

Sample Type=SME, Analyte=K, ICP=M-14

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

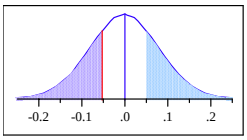
Rsquare	0.015066
Adj Rsquare	-0.02282
Root Mean Square Error	0.206064
Mean of Response	0.148149
Observations (or Sum Wgts)	28

t Test

Fusion/M-14-Mixed Acid/M-14

Assuming equal variances

Difference	-0.05125	t Ratio	-0.63064
Std Err Dif	0.08127	DF	26
Upper CL Dif	0.11581	Prob > |t|	0.5338
Lower CL Dif	-0.21831	Prob > t	0.7331
Confidence	0.95	Prob < t	0.2669



Analysis of Variance

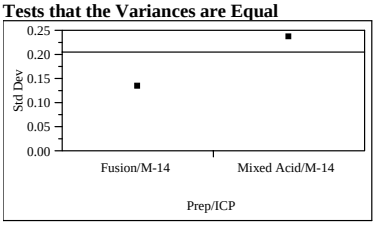
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.0168875	0.016887	0.3977	0.5338
Error	26	1.1040243	0.042462		
C. Total	27	1.1209118			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-14	10	0.115200	0.06516	-0.0187	0.24914
Mixed Acid/M-14	18	0.166454	0.04857	0.0666	0.26629

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-14	10	0.1328890	0.1050000	0.1050000
Mixed Acid/M-14	18	0.2357827	0.1763374	0.1716204

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	1.5826	1	26	0.2196
Brown-Forsythe	1.4400	1	26	0.2410
Levene	1.9596	1	26	0.1734
Bartlett	3.1764	1	.	0.0747
F Test 2-sided	3.1481	17	9	0.0843

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
0.5411	1	25.964	0.4686

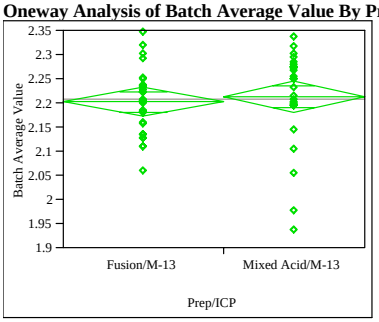
t Test
0.7356

Exhibit A5. Prep Comparisons Using SME Batch Averages by Analyte for each ICP

(continued)

Sample Type=SME, Analyte=Li, ICP=M-13

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

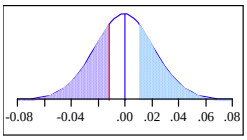
Rsquare	0.00449
Adj Rsquare	-0.01395
Root Mean Square Error	0.082737
Mean of Response	2.207985
Observations (or Sum Wgts)	56

t Test

Fusion/M-13-Mixed Acid/M-13

Assuming equal variances

Difference	-0.01094	t Ratio	-0.49351
Std Err Dif	0.02217	DF	54
Upper CL Dif	0.03351	Prob > |t|	0.6237
Lower CL Dif	-0.05539	Prob > t	0.6882
Confidence	0.95	Prob < t	0.3118



Analysis of Variance

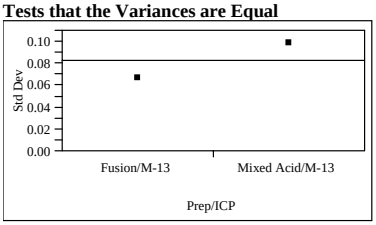
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.00166720	0.001667	0.2435	0.6237
Error	54	0.36965531	0.006845		
C. Total	55	0.37132252			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-13	30	2.20291	0.01511	2.1726	2.2332
Mixed Acid/M-13	26	2.21385	0.01623	2.1813	2.2464

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-13	30	0.0660342	0.0512007	0.0510500
Mixed Acid/M-13	26	0.0986307	0.0707673	0.0689744

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	2.2007	1	54	0.1438
Brown-Forsythe	1.2706	1	54	0.2646
Levene	1.7908	1	54	0.1864
Bartlett	4.2147	1	.	0.0401
F Test 2-sided	2.2309	25	29	0.0391

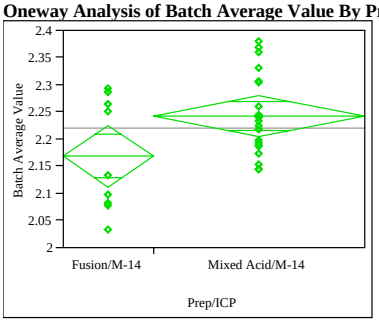
Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
0.2304	1	42.648	0.6337

t Test
0.4800

Sample Type=SME, Analyte=Li, ICP=M-14

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

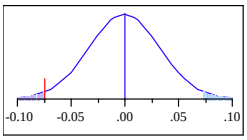
Rsquare	0.150795
Adj Rsquare	0.120466
Root Mean Square Error	0.08317
Mean of Response	2.221517
Observations (or Sum Wgts)	30

t Test

Fusion/M-14-Mixed Acid/M-14

Assuming equal variances

Difference	-0.07389	t Ratio	-2.2298
Std Err Dif	0.03314	DF	28
Upper CL Dif	-0.00601	Prob > |t|	0.0340
Lower CL Dif	-0.14176	Prob > t	0.9830
Confidence	0.95	Prob < t	0.0170



Analysis of Variance

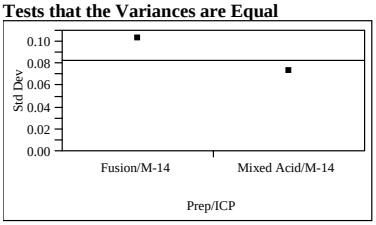
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.03439281	0.034393	4.9720	0.0340
Error	28	0.19368393	0.006917		
C. Total	29	0.22807674			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-14	9	2.16980	0.02772	2.1130	2.2266
Mixed Acid/M-14	21	2.24368	0.01815	2.2065	2.2809

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-14	9	0.1031898	0.0930700	0.0932037
Mixed Acid/M-14	21	0.0736542	0.0585896	0.0583254

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	4.5024	1	28	0.0428
Brown-Forsythe	3.6465	1	28	0.0665
Levene	4.8059	1	28	0.0368
Bartlett	1.3469	1	.	0.2458
F Test 2-sided	1.9628	8	20	0.2115

Welch Anova testing Means Equal, allowing Std Devs Not Equal

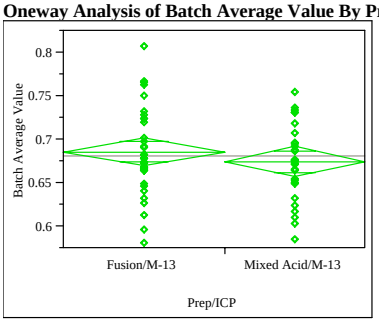
F Ratio	DFNum	DFDen	Prob > F
3.7873	1	11.653	0.0762

t Test
1.9461

Exhibit A5. Prep Comparisons Using SME Batch Averages by Analyte for each ICP

(continued)

Sample Type=SME, Analyte=Mg, ICP=M-13
Oneway Analysis of Batch Average Value By Prep/ICP

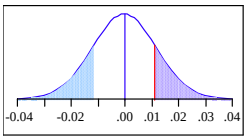


Oneway Anova
Summary of Fit

Rsquare	0.014633
Adj Rsquare	-0.00152
Root Mean Square Error	0.0473
Mean of Response	0.680728
Observations (or Sum Wgts)	63

t Test
Fusion/M-13-Mixed Acid/M-13
Assuming equal variances

Difference	0.01138	t Ratio	0.951774
Std Err Dif	0.01196	DF	61
Upper CL Dif	0.03529	Prob > |t|	0.3450
Lower CL Dif	-0.01253	Prob > t	0.1725
Confidence	0.95	Prob < t	0.8275



Analysis of Variance

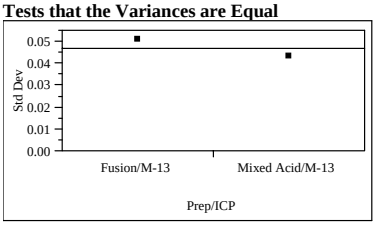
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.00202666	0.002027	0.9059	0.3450
Error	61	0.13647197	0.002237		
C. Total	62	0.13849863			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-13	34	0.685966	0.00811	0.66975	0.70219
Mixed Acid/M-13	29	0.674586	0.00878	0.65702	0.69215

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-13	34	0.0507328	0.0390675	0.0382010
Mixed Acid/M-13	29	0.0429019	0.0333936	0.0333736

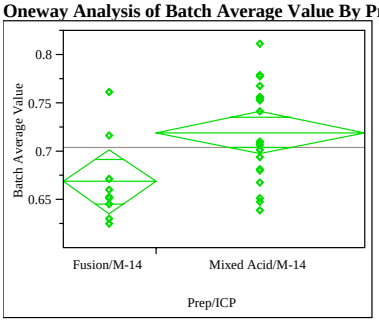
Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.8801	1	61	0.3519
Brown-Forsythe	0.3940	1	61	0.5326
Levene	0.5883	1	61	0.4460
Bartlett	0.8263	1	.	0.3633
F Test 2-sided	1.3984	33	28	0.3686

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
0.9305	1	60.998	0.3385

t Test
0.9646

Sample Type=SME, Analyte=Mg, ICP=M-14
Oneway Analysis of Batch Average Value By Prep/ICP

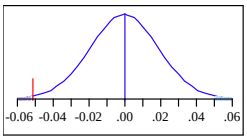


Oneway Anova
Summary of Fit

Rsquare	0.20609
Adj Rsquare	0.176686
Root Mean Square Error	0.047852
Mean of Response	0.703902
Observations (or Sum Wgts)	29

t Test
Fusion/M-14-Mixed Acid/M-14
Assuming equal variances

Difference	-0.05085	t Ratio	-2.64743
Std Err Dif	0.01921	DF	27
Upper CL Dif	-0.01144	Prob > |t|	0.0134
Lower CL Dif	-0.09026	Prob > t	0.9933
Confidence	0.95	Prob < t	0.0067



Analysis of Variance

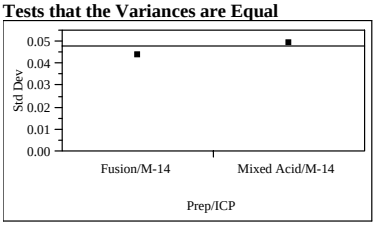
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.01604931	0.016049	7.0089	0.0134
Error	27	0.06182588	0.002290		
C. Total	28	0.07787520			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-14	9	0.668833	0.01595	0.63611	0.70156
Mixed Acid/M-14	20	0.719683	0.01070	0.69773	0.74164

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-14	9	0.0439838	0.0321481	0.0288333
Mixed Acid/M-14	20	0.0493906	0.0422350	0.0413833

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.2059	1	27	0.6536
Brown-Forsythe	1.1009	1	27	0.3034
Levene	1.0120	1	27	0.3234
Bartlett	0.1399	1	.	0.7084
F Test 2-sided	1.2610	19	8	0.7693

Welch Anova testing Means Equal, allowing Std Devs Not Equal

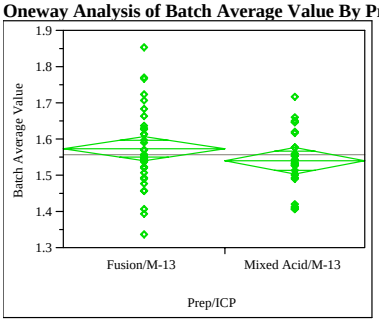
F Ratio	DFNum	DFDen	Prob > F
7.6745	1	17.308	0.0129

t Test
2.7703

Exhibit A5. Prep Comparisons Using SME Batch Averages by Analyte for each ICP

(continued)

Sample Type=SME, Analyte=Mn, ICP=M-13
Oneway Analysis of Batch Average Value By Prep/ICP

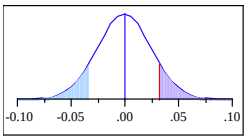


Oneway Anova
Summary of Fit

Rsquare	0.028205
Adj Rsquare	0.012274
Root Mean Square Error	0.099082
Mean of Response	1.55991
Observations (or Sum Wgts)	63

t Test
Fusion/M-13-Mixed Acid/M-13
Assuming equal variances

Difference	0.03332	t Ratio	1.33057
Std Err Dif	0.02505	DF	61
Upper CL Dif	0.08341	Prob > |t|	0.1883
Lower CL Dif	-0.01676	Prob > t	0.0941
Confidence	0.95	Prob < t	0.9059



Analysis of Variance

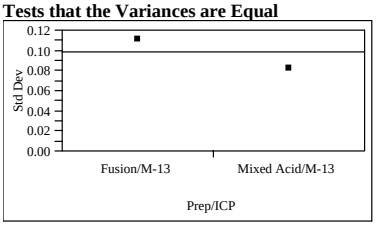
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.01738078	0.017381	1.7704	0.1883
Error	61	0.59885732	0.009817		
C. Total	62	0.61623810			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-13	34	1.57525	0.01699	1.5413	1.6092
Mixed Acid/M-13	29	1.54193	0.01840	1.5051	1.5787

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-13	34	0.1115083	0.0847353	0.0833971
Mixed Acid/M-13	29	0.0820566	0.0618767	0.0617816

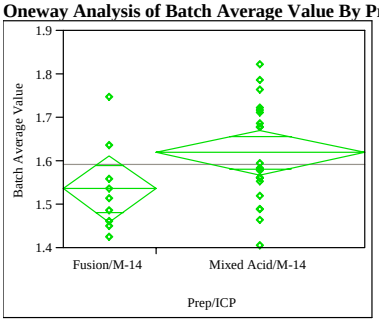
Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	2.2431	1	61	0.1394
Brown-Forsythe	1.7031	1	61	0.1968
Levene	2.0469	1	61	0.1576
Bartlett	2.7158	1	.	0.0994
F Test 2-sided	1.8467	33	28	0.1014

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
1.8574	1	59.797	0.1780

t Test
1.3629

Sample Type=SME, Analyte=Mn, ICP=M-14
Oneway Analysis of Batch Average Value By Prep/ICP

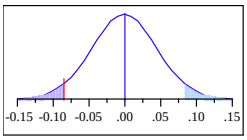


Oneway Anova
Summary of Fit

Rsquare	0.111662
Adj Rsquare	0.07876
Root Mean Square Error	0.112757
Mean of Response	1.593724
Observations (or Sum Wgts)	29

t Test
Fusion/M-14-Mixed Acid/M-14
Assuming equal variances

Difference	-0.08338	t Ratio	-1.84223
Std Err Dif	0.04526	DF	27
Upper CL Dif	0.00949	Prob > |t|	0.0764
Lower CL Dif	-0.17624	Prob > t	0.9618
Confidence	0.95	Prob < t	0.0382



Analysis of Variance

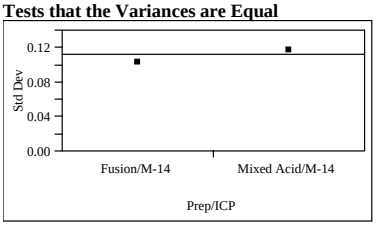
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.04314944	0.043149	3.3938	0.0764
Error	27	0.34328119	0.012714		
C. Total	28	0.38643063			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-14	9	1.53622	0.03759	1.4591	1.6133
Mixed Acid/M-14	20	1.61960	0.02521	1.5679	1.6713

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-14	9	0.1022824	0.0753580	0.0756111
Mixed Acid/M-14	20	0.1168868	0.1002600	0.0977667

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.2760	1	27	0.6036
Brown-Forsythe	0.6721	1	27	0.4195
Levene	1.1404	1	27	0.2950
Bartlett	0.1844	1	.	0.6676
F Test 2-sided	1.3060	19	8	0.7272

Welch Anova testing Means Equal, allowing Std Devs Not Equal

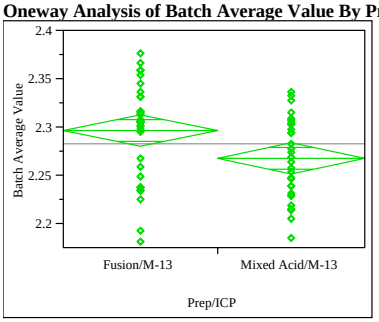
F Ratio	DFNum	DFDen	Prob > F
3.7669	1	17.606	0.0685

t Test
1.9408

Exhibit A5. Prep Comparisons Using SME Batch Averages by Analyte for each ICP

(continued)

Sample Type=SME, Analyte=Mn/Mg, ICP=M-13
Oneway Analysis of Batch Average Value By Prep/ICP

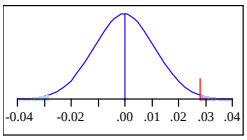


Oneway Anova
Summary of Fit

Rsquare	0.089477
Adj Rsquare	0.074791
Root Mean Square Error	0.045764
Mean of Response	2.282918
Observations (or Sum Wgts)	64

t Test
Fusion/M-13-Mixed Acid/M-13
Assuming equal variances

Difference	0.028254	t Ratio	2.468341
Std Err Dif	0.011447	DF	62
Upper CL Dif	0.051136	Prob > |t|	0.0163
Lower CL Dif	0.005373	Prob > t	0.0082
Confidence	0.95	Prob < t	0.9918



Analysis of Variance

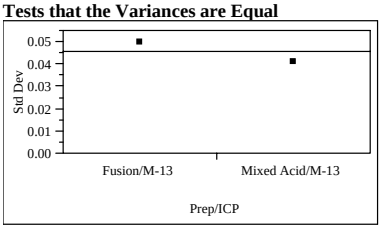
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.01276032	0.012760	6.0927	0.0163
Error	62	0.12985031	0.002094		
C. Total	63	0.14261063			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-13	33	2.29660	0.00797	2.2807	2.3125
Mixed Acid/M-13	31	2.26835	0.00822	2.2519	2.2848

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-13	33	0.0497539	0.0389877	0.0372442
Mixed Acid/M-13	31	0.0410836	0.0350456	0.0351712

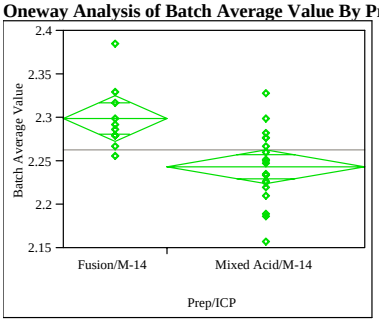
Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	1.4572	1	62	0.2320
Brown-Forsythe	0.0872	1	62	0.7688
Levene	0.3701	1	62	0.5452
Bartlett	1.1061	1	.	0.2929
F Test 2-sided	1.4666	32	30	0.2947

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
6.1663	1	61.021	0.0158

t Test
2.4832

Sample Type=SME, Analyte=Mn/Mg, ICP=M-14
Oneway Analysis of Batch Average Value By Prep/ICP

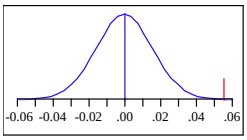


Oneway Anova
Summary of Fit

Rsquare	0.318805
Adj Rsquare	0.293575
Root Mean Square Error	0.040197
Mean of Response	2.262884
Observations (or Sum Wgts)	29

t Test
Fusion/M-14-Mixed Acid/M-14
Assuming equal variances

Difference	0.055824	t Ratio	3.554746
Std Err Dif	0.015704	DF	27
Upper CL Dif	0.088047	Prob > |t|	0.0014
Lower CL Dif	0.023602	Prob > t	0.0007
Confidence	0.95	Prob < t	0.9993



Analysis of Variance

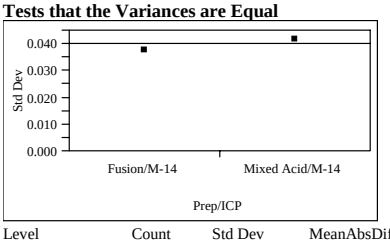
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.02041749	0.020417	12.6362	0.0014
Error	27	0.04362636	0.001616		
C. Total	28	0.06404384			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-14	10	2.29946	0.01271	2.2734	2.3255
Mixed Acid/M-14	19	2.24363	0.00922	2.2247	2.2626

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-14	10	0.0374779	0.0270839	0.0255771
Mixed Acid/M-14	19	0.0414897	0.0322328	0.0322020

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.1041	1	27	0.7494
Brown-Forsythe	0.4177	1	27	0.5235
Levene	0.2834	1	27	0.5989
Bartlett	0.1161	1	.	0.7333
F Test 2-sided	1.2255	18	9	0.7821

Welch Anova testing Means Equal, allowing Std Devs Not Equal

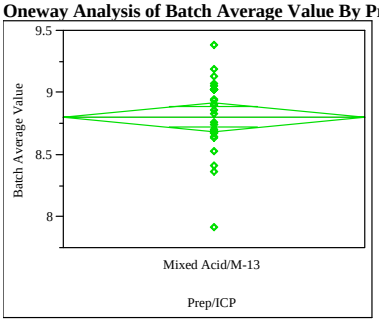
F Ratio	DFNum	DFDen	Prob > F
13.4873	1	20.161	0.0015

t Test
3.6725

Exhibit A5. Prep Comparisons Using SME Batch Averages by Analyte for each ICP

(continued)

Sample Type=SME, Analyte=Na, ICP=M-13
Oneway Analysis of Batch Average Value By Prep/ICP



Missing Rows
35**Oneway Anova**
Summary of Fit

Rsquare	0
Adj Rsquare	0
Root Mean Square Error	0.296525
Mean of Response	8.807543
Observations (or Sum Wgts)	27

Analysis of Variance

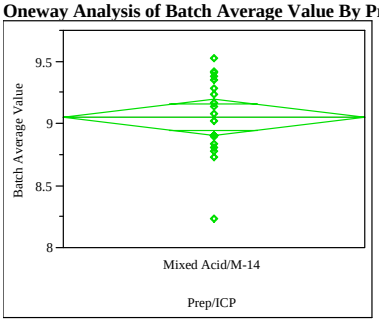
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	0	0.0000000	.	.	.
Error	26	2.2861069	0.087927		
C. Total	26	2.2861069			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Mixed Acid/M-13	27	8.80754	0.05707	8.6902	8.9248

Std Error uses a pooled estimate of error variance

Sample Type=SME, Analyte=Na, ICP=M-14
Oneway Analysis of Batch Average Value By Prep/ICP



Missing Rows
10**Oneway Anova**
Summary of Fit

Rsquare	0
Adj Rsquare	0
Root Mean Square Error	0.311382
Mean of Response	9.053983
Observations (or Sum Wgts)	20

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	0	0.0000000	.	.	.
Error	19	1.8422182	0.096959		
C. Total	19	1.8422182			

Means for Oneway Anova

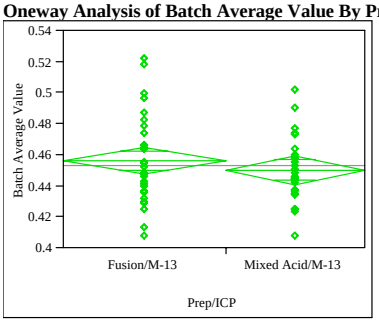
Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Mixed Acid/M-14	20	9.05398	0.06963	8.9083	9.1997

Std Error uses a pooled estimate of error variance

Exhibit A5. Prep Comparisons Using SME Batch Averages by Analyte for each ICP

(continued)

Sample Type=SME, Analyte=Ni, ICP=M-13
Oneway Analysis of Batch Average Value By Prep/ICP

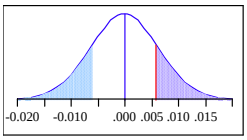


Oneway Anova
Summary of Fit

Rsquare	0.015024
Adj Rsquare	-0.00167
Root Mean Square Error	0.02457
Mean of Response	0.453514
Observations (or Sum Wgts)	61

t Test
Fusion/M-13-Mixed Acid/M-13
Assuming equal variances

Difference	0.00599	t Ratio	0.948648
Std Err Dif	0.00631	DF	59
Upper CL Dif	0.01862	Prob > |t|	0.3467
Lower CL Dif	-0.00664	Prob > t	0.1733
Confidence	0.95	Prob < t	0.8267



Analysis of Variance

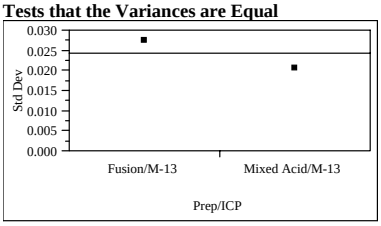
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.00054328	0.000543	0.8999	0.3467
Error	59	0.03561768	0.000604		
C. Total	60	0.03616096			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-13	33	0.456263	0.00428	0.44770	0.46482
Mixed Acid/M-13	28	0.450274	0.00464	0.44098	0.45957

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-13	33	0.0275032	0.0215810	0.0210152
Mixed Acid/M-13	28	0.0205590	0.0155153	0.0151071

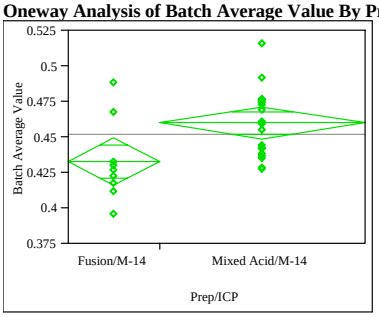
Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	1.9024	1	59	0.1730
Brown-Forsythe	1.8008	1	59	0.1848
Levene	2.4342	1	59	0.1241
Bartlett	2.3667	1	.	0.1239
F Test 2-sided	1.7896	32	27	0.1265

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
0.9434	1	58.141	0.3354

t Test
0.9713

Sample Type=SME, Analyte=Ni, ICP=M-14
Oneway Analysis of Batch Average Value By Prep/ICP

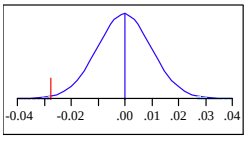


Oneway Anova
Summary of Fit

Rsquare	0.21505
Adj Rsquare	0.185977
Root Mean Square Error	0.02493
Mean of Response	0.451695
Observations (or Sum Wgts)	29

t Test
Fusion/M-14-Mixed Acid/M-14
Assuming equal variances

Difference	-0.02722	t Ratio	-2.71976
Std Err Dif	0.01001	DF	27
Upper CL Dif	-0.00668	Prob > |t|	0.0113
Lower CL Dif	-0.04775	Prob > t	0.9944
Confidence	0.95	Prob < t	0.0056



Analysis of Variance

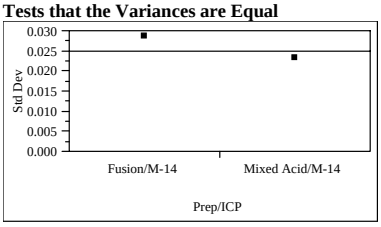
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.00459743	0.004597	7.3971	0.0113
Error	27	0.01678102	0.000622		
C. Total	28	0.02137845			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-14	9	0.432926	0.00831	0.41588	0.44998
Mixed Acid/M-14	20	0.460142	0.00557	0.44870	0.47158

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-14	9	0.0285609	0.0202551	0.0193704
Mixed Acid/M-14	20	0.0232325	0.0190083	0.0190083

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.5315	1	27	0.4723
Brown-Forsythe	0.0034	1	27	0.9542
Levene	0.0444	1	27	0.8346
Bartlett	0.4823	1	.	0.4874
F Test 2-sided	1.5113	8	19	0.4365

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
6.2972	1	12.989	0.0261

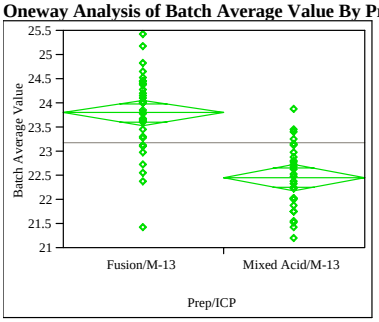
t Test
2.5094

Exhibit A5. Prep Comparisons Using SME Batch Averages by Analyte for each ICP

(continued)

Sample Type=SME, Analyte=Si, ICP=M-13

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

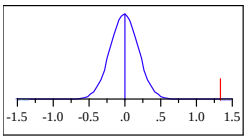
Rsquare	0.448846
Adj Rsquare	0.43966
Root Mean Square Error	0.757817
Mean of Response	23.17831
Observations (or Sum Wgts)	62

t Test

Fusion/M-13-Mixed Acid/M-13

Assuming equal variances

Difference	1.34832	t Ratio	6.990176
Std Err Dif	0.19289	DF	60
Upper CL Dif	1.73415	Prob > |t|	<.0001
Lower CL Dif	0.96249	Prob > t	<.0001
Confidence	0.95	Prob < t	1.0000



Analysis of Variance

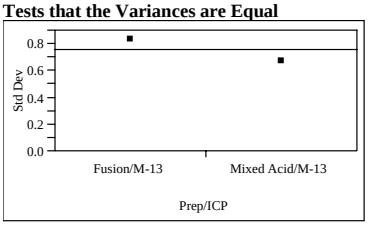
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	28.061151	28.0612	48.8626	<.0001
Error	60	34.457238	0.5743		
C. Total	61	62.518389			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-13	33	23.8090	0.13192	23.545	24.073
Mixed Acid/M-13	29	22.4607	0.14072	22.179	22.742

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-13	33	0.8280230	0.6262039	0.6255354
Mixed Acid/M-13	29	0.6686162	0.5475232	0.5491264

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	1.0246	1	60	0.3155
Brown-Forsythe	0.4190	1	60	0.5199
Levene	0.4471	1	60	0.5063
Bartlett	1.3206	1	.	0.2505
F Test 2-sided	1.5337	32	28	0.2539

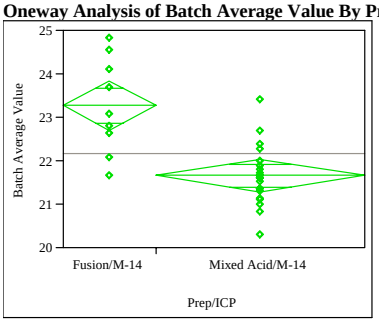
Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
50.2313	1	59.603	<.0001

t Test
7.0874

Sample Type=SME, Analyte=Si, ICP=M-14

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

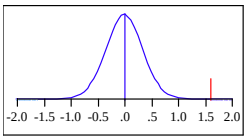
Rsquare	0.463272
Adj Rsquare	0.443393
Root Mean Square Error	0.835618
Mean of Response	22.17113
Observations (or Sum Wgts)	29

t Test

Fusion/M-14-Mixed Acid/M-14

Assuming equal variances

Difference	1.61917	t Ratio	4.827502
Std Err Dif	0.33541	DF	27
Upper CL Dif	2.30737	Prob > |t|	<.0001
Lower CL Dif	0.93098	Prob > t	<.0001
Confidence	0.95	Prob < t	1.0000



Analysis of Variance

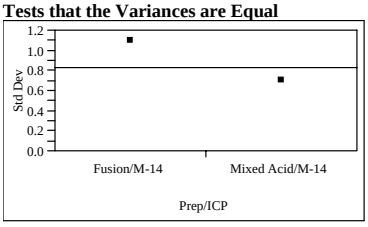
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	16.272718	16.2727	23.3048	<.0001
Error	27	18.852931	0.6983		
C. Total	28	35.125649			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-14	9	23.2878	0.27854	22.716	23.859
Mixed Acid/M-14	20	21.6686	0.18685	21.285	22.052

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-14	9	1.098223	0.9098848	0.9216111
Mixed Acid/M-14	20	0.696010	0.5030208	0.4997750

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	3.5179	1	27	0.0716
Brown-Forsythe	4.5097	1	27	0.0430
Levene	4.3748	1	27	0.0460
Bartlett	2.4590	1	.	0.1169
F Test 2-sided	2.4897	8	19	0.0981

Welch Anova testing Means Equal, allowing Std Devs Not Equal

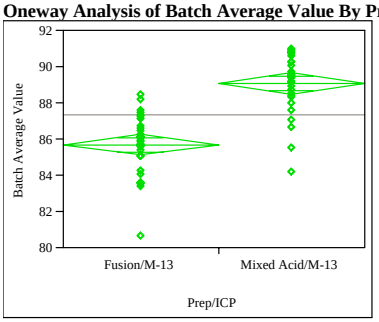
F Ratio	DFNum	DFDen	Prob > F
16.5688	1	11.002	0.0018

t Test
4.0705

Exhibit A5. Prep Comparisons Using SME Batch Averages by Analyte for each ICP

(continued)

Sample Type=SME, Analyte=Sum of Oxides, ICP=M-13
Oneway Analysis of Batch Average Value By Prep/ICP

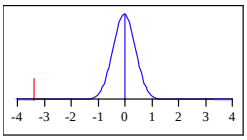


Oneway Anova
Summary of Fit

Rsquare	0.530855
Adj Rsquare	0.523036
Root Mean Square Error	1.609381
Mean of Response	87.3582
Observations (or Sum Wgts)	62

t Test
Fusion/M-13-Mixed Acid/M-13
Assuming equal variances

Difference	-3.3700	t Ratio	-8.23968
Std Err Dif	0.4090	DF	60
Upper CL Dif	-2.5519	Prob > |t|	<.0001
Lower CL Dif	-4.1881	Prob > t	1.0000
Confidence	0.95	Prob < t	<.0001



Analysis of Variance

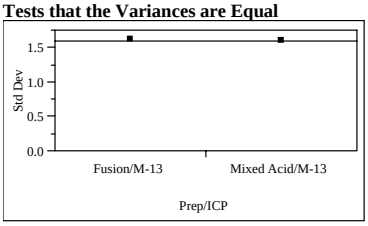
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	175.84834	175.848	67.8923	<.0001
Error	60	155.40636	2.590		
C. Total	61	331.25470			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-13	32	85.7276	0.28450	85.158	86.297
Mixed Acid/M-13	30	89.0976	0.29383	88.510	89.685

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-13	32	1.614402	1.159339	1.158511
Mixed Acid/M-13	30	1.603996	1.177732	1.118947

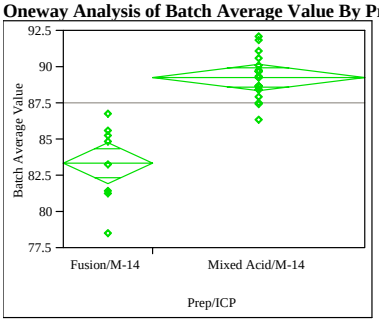
Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.0007	1	60	0.9788
Brown-Forsythe	0.0184	1	60	0.8927
Levene	0.0044	1	60	0.9471
Bartlett	0.0012	1	.	0.9720
F Test 2-sided	1.0130	31	29	0.9753

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
67.9211	1	59.791	<.0001

t Test
8.2414

Sample Type=SME, Analyte=Sum of Oxides, ICP=M-14
Oneway Analysis of Batch Average Value By Prep/ICP

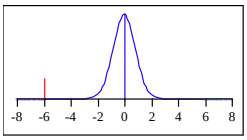


Oneway Anova
Summary of Fit

Rsquare	0.677267
Adj Rsquare	0.664358
Root Mean Square Error	1.932108
Mean of Response	87.54829
Observations (or Sum Wgts)	27

t Test
Fusion/M-14-Mixed Acid/M-14
Assuming equal variances

Difference	-5.8982	t Ratio	-7.24317
Std Err Dif	0.8143	DF	25
Upper CL Dif	-4.2211	Prob > |t|	<.0001
Lower CL Dif	-7.5753	Prob > t	1.0000
Confidence	0.95	Prob < t	<.0001



Analysis of Variance

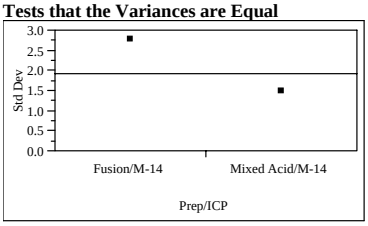
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	195.84841	195.848	52.4635	<.0001
Error	25	93.32605	3.733		
C. Total	26	289.17445			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-14	8	83.3977	0.68310	81.991	84.805
Mixed Acid/M-14	19	89.2959	0.44326	88.383	90.209

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-14	8	2.765968	2.237687	2.237687
Mixed Acid/M-14	19	1.486457	1.129869	1.125955

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	5.4631	1	25	0.0277
Brown-Forsythe	5.2841	1	25	0.0302
Levene	5.9535	1	25	0.0221
Bartlett	4.1953	1	.	0.0405
F Test 2-sided	3.4625	7	18	0.0316

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
32.4337	1	8.7556	0.0003

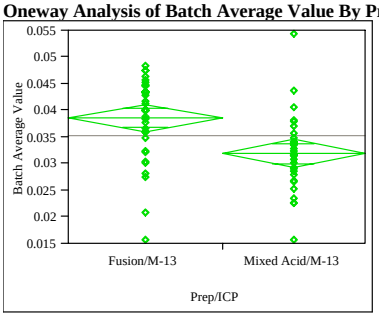
t Test
5.6951

Exhibit A5. Prep Comparisons Using SME Batch Averages by Analyte for each ICP

(continued)

Sample Type=SME, Analyte=Ti, ICP=M-13

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

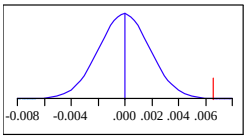
Rsquare	0.170303
Adj Rsquare	0.157133
Root Mean Square Error	0.007448
Mean of Response	0.035431
Observations (or Sum Wgts)	65

t Test

Fusion/M-13-Mixed Acid/M-13

Assuming equal variances

Difference	0.006651	t Ratio	3.596014
Std Err Dif	0.001850	DF	63
Upper CL Dif	0.010348	Prob > |t|	0.0006
Lower CL Dif	0.002955	Prob > t	0.0003
Confidence	0.95	Prob < t	0.9997



Analysis of Variance

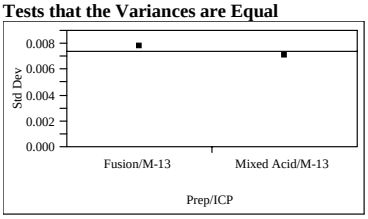
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.00071737	0.000717	12.9313	0.0006
Error	63	0.00349496	0.000055		
C. Total	64	0.00421233			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-13	34	0.038603	0.00128	0.03605	0.04116
Mixed Acid/M-13	31	0.031952	0.00134	0.02928	0.03462

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-13	34	0.0077496	0.0060358	0.0058578
Mixed Acid/M-13	31	0.0071019	0.0049285	0.0049301

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.1350	1	63	0.7145
Brown-Forsythe	0.5330	1	63	0.4681
Levene	0.8331	1	63	0.3649
Bartlett	0.2347	1	.	0.6281
F Test 2-sided	1.1907	33	30	0.6321

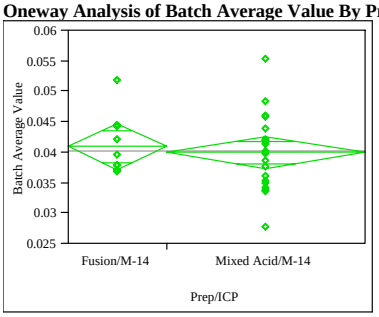
Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
13.0373	1	62.997	0.0006

t Test
3.6107

Sample Type=SME, Analyte=Ti, ICP=M-14

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

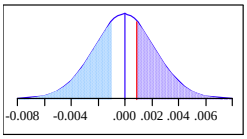
Rsquare	0.006457
Adj Rsquare	-0.02903
Root Mean Square Error	0.005851
Mean of Response	0.040322
Observations (or Sum Wgts)	30

t Test

Fusion/M-14-Mixed Acid/M-14

Assuming equal variances

Difference	0.00097	t Ratio	0.426571
Std Err Dif	0.00227	DF	28
Upper CL Dif	0.00561	Prob > |t|	0.6730
Lower CL Dif	-0.00368	Prob > t	0.3365
Confidence	0.95	Prob < t	0.6635



Analysis of Variance

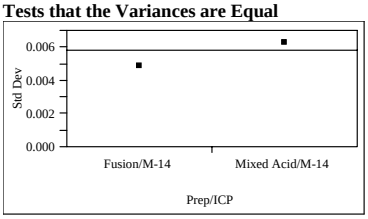
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.00000623	0.000006	0.1820	0.6730
Error	28	0.00095860	0.000034		
C. Total	29	0.00096483			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-14	10	0.040967	0.00185	0.03718	0.04476
Mixed Acid/M-14	20	0.040000	0.00131	0.03732	0.04268

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-14	10	0.0048673	0.0038267	0.0035667
Mixed Acid/M-14	20	0.0062635	0.0047833	0.0047833

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.4857	1	28	0.4916
Brown-Forsythe	0.6588	1	28	0.4238
Levene	0.4818	1	28	0.4933
Bartlett	0.6964	1	.	0.4040
F Test 2-sided	1.6560	19	9	0.4427

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
0.2158	1	22.702	0.6467

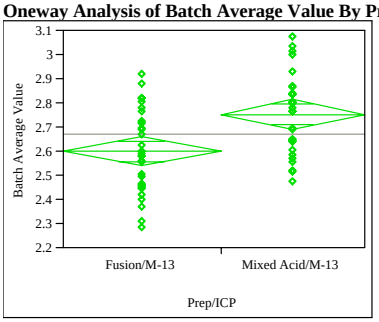
t Test
0.4645

Exhibit A5. Prep Comparisons Using SME Batch Averages by Analyte for each ICP

(continued)

Sample Type=SME, Analyte=U, ICP=M-13

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

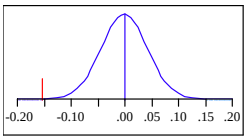
Rsquare	0.177983
Adj Rsquare	0.164051
Root Mean Square Error	0.167228
Mean of Response	2.67418
Observations (or Sum Wgts)	61

t Test

Fusion/M-13-Mixed Acid/M-13

Assuming equal variances

Difference	-0.15324	t Ratio	-3.57417
Std Err Dif	0.04287	DF	59
Upper CL Dif	-0.06745	Prob > |t|	0.0007
Lower CL Dif	-0.23903	Prob > t	0.9996
Confidence	0.95	Prob < t	0.0004



Analysis of Variance

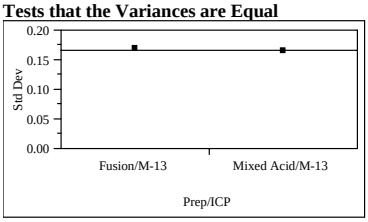
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.3572458	0.357246	12.7747	0.0007
Error	59	1.6499432	0.027965		
C. Total	60	2.0071890			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-13	32	2.60133	0.02956	2.5422	2.6605
Mixed Acid/M-13	29	2.75457	0.03105	2.6924	2.8167

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-13	32	0.1689916	0.1406715	0.1402552
Mixed Acid/M-13	29	0.1652531	0.1369124	0.1358161

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.0253	1	59	0.8743
Brown-Forsythe	0.0357	1	59	0.8508
Levene	0.0268	1	59	0.8705
Bartlett	0.0145	1	.	0.9043
F Test 2-sided	1.0458	31	28	0.9092

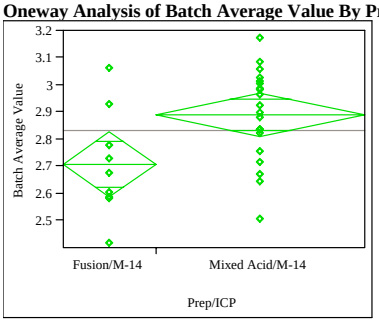
Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
12.8033	1	58.645	0.0007

t Test
3.5782

Sample Type=SME, Analyte=U, ICP=M-14

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

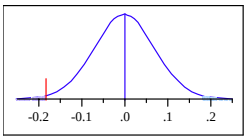
Rsquare	0.194922
Adj Rsquare	0.165104
Root Mean Square Error	0.176381
Mean of Response	2.834799
Observations (or Sum Wgts)	29

t Test

Fusion/M-14-Mixed Acid/M-14

Assuming equal variances

Difference	-0.18101	t Ratio	-2.55678
Std Err Dif	0.07080	DF	27
Upper CL Dif	-0.03575	Prob > |t|	0.0165
Lower CL Dif	-0.32628	Prob > t	0.9917
Confidence	0.95	Prob < t	0.0083



Analysis of Variance

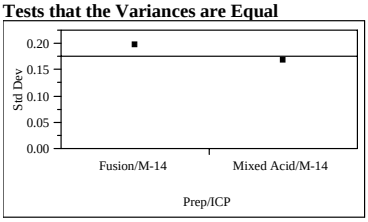
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.2033712	0.203371	6.5371	0.0165
Error	27	0.8399769	0.031110		
C. Total	28	1.0433481			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-14	9	2.70996	0.05879	2.5893	2.8306
Mixed Acid/M-14	20	2.89098	0.03944	2.8101	2.9719

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-14	9	0.1962503	0.1490700	0.1515370
Mixed Acid/M-14	20	0.1673105	0.1335442	0.1326917

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.3644	1	27	0.5511
Brown-Forsythe	0.1964	1	27	0.6612
Levene	0.1426	1	27	0.7087
Bartlett	0.2849	1	.	0.5935
F Test 2-sided	1.3759	8	19	0.5372

Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
5.7696	1	13.482	0.0314

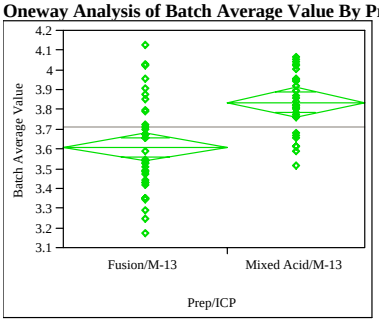
t Test
2.4020

Exhibit A5. Prep Comparisons Using SME Batch Averages by Analyte for each ICP

(continued)

Sample Type=SME, Analyte=U/Ca, ICP=M-13

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

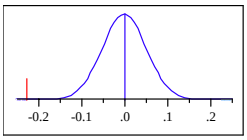
Rsquare	0.241516
Adj Rsquare	0.229282
Root Mean Square Error	0.203463
Mean of Response	3.71468
Observations (or Sum Wgts)	64

t Test

Fusion/M-13-Mixed Acid/M-13

Assuming equal variances

Difference	-0.22701	t Ratio	-4.4432
Std Err Dif	0.05109	DF	62
Upper CL Dif	-0.12488	Prob > |t|	<.0001
Lower CL Dif	-0.32913	Prob > t	1.0000
Confidence	0.95	Prob < t	<.0001



Analysis of Variance

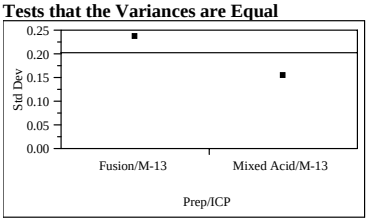
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.8172607	0.817261	19.7420	<.0001
Error	62	2.5666178	0.041397		
C. Total	63	3.3838785			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-13	35	3.61182	0.03439	3.5431	3.6806
Mixed Acid/M-13	29	3.83882	0.03778	3.7633	3.9143

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-13	35	0.2367872	0.1950319	0.1921048
Mixed Acid/M-13	29	0.1535647	0.1238851	0.1243072

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	5.8176	1	62	0.0188
Brown-Forsythe	4.6544	1	62	0.0349
Levene	6.2985	1	62	0.0147
Bartlett	5.3545	1	.	0.0207
F Test 2-sided	2.3776	34	28	0.0213

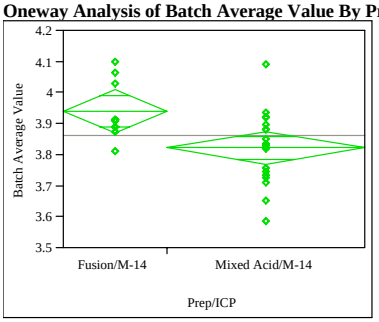
Welch Anova testing Means Equal, allowing Std Devs Not Equal

F Ratio	DFNum	DFDen	Prob > F
21.3371	1	58.862	<.0001

t Test
4.6192

Sample Type=SME, Analyte=U/Ca, ICP=M-14

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova

Summary of Fit

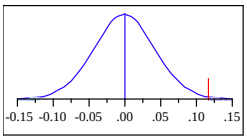
Rsquare	0.221321
Adj Rsquare	0.192481
Root Mean Square Error	0.109199
Mean of Response	3.8637
Observations (or Sum Wgts)	29

t Test

Fusion/M-14-Mixed Acid/M-14

Assuming equal variances

Difference	0.118183	t Ratio	2.770218
Std Err Dif	0.042662	DF	27
Upper CL Dif	0.205719	Prob > |t|	0.0100
Lower CL Dif	0.030648	Prob > t	0.0050
Confidence	0.95	Prob < t	0.9950



Analysis of Variance

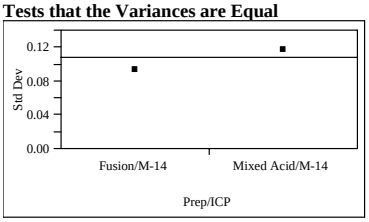
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	1	0.09150999	0.091510	7.6741	0.0100
Error	27	0.32196186	0.011925		
C. Total	28	0.41347185			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Fusion/M-14	10	3.94113	0.03453	3.8703	4.0120
Mixed Acid/M-14	19	3.82295	0.02505	3.7715	3.8743

Std Error uses a pooled estimate of error variance

Tests that the Variances are Equal



Level	Count	Std Dev	MeanAbsDif to Mean	MeanAbsDif to Median
Fusion/M-14	10	0.0934078	0.0756119	0.0650832
Mixed Acid/M-14	19	0.1162939	0.0882177	0.0874876

Test	F Ratio	DFNum	DFDen	Prob > F
O'Brien[.5]	0.4428	1	27	0.5114
Brown-Forsythe	0.6152	1	27	0.4397
Levene	0.2404	1	27	0.6279
Bartlett	0.5230	1	.	0.4696
F Test 2-sided	1.5501	18	9	0.5094

Welch Anova testing Means Equal, allowing Std Devs Not Equal

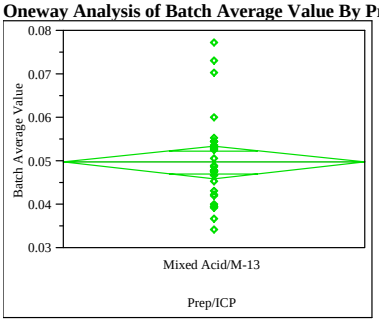
F Ratio	DFNum	DFDen	Prob > F
8.8161	1	22.265	0.0070

t Test
2.9692

Exhibit A5. Prep Comparisons Using SME Batch Averages by Analyte for each ICP

(continued)

Sample Type=SME, Analyte=Zr, ICP=M-13
Oneway Analysis of Batch Average Value By Prep/ICP



Missing Rows
35**Oneway Anova**
Summary of Fit

Rsquare	0
Adj Rsquare	0
Root Mean Square Error	0.010175
Mean of Response	0.049783
Observations (or Sum Wgts)	30

Analysis of Variance

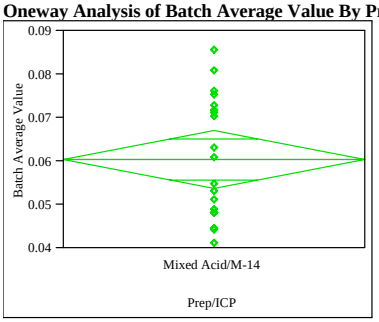
Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	0	0.00000000	.	.	.
Error	29	0.00300268	0.000104		
C. Total	29	0.00300268			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Mixed Acid/M-13	30	0.049783	0.00186	0.04598	0.05358

Std Error uses a pooled estimate of error variance

Sample Type=SME, Analyte=Zr, ICP=M-14
Oneway Analysis of Batch Average Value By Prep/ICP



Missing Rows
10**Oneway Anova**
Summary of Fit

Rsquare	0
Adj Rsquare	0
Root Mean Square Error	0.014067
Mean of Response	0.060383
Observations (or Sum Wgts)	20

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	0	0.00000000	.	.	.
Error	19	0.00375967	0.000198		
C. Total	19	0.00375967			

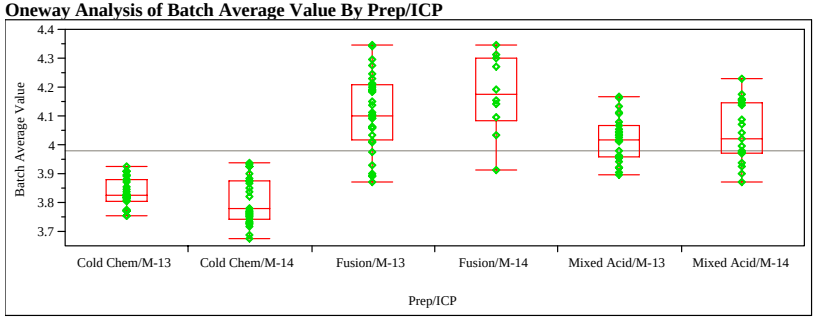
Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Mixed Acid/M-14	20	0.060383	0.00315	0.05380	0.06697

Std Error uses a pooled estimate of error variance

Exhibit A6. Prep/ICP Comparisons Using Process Batch Averages by Analyte

Standard/Process=Process, Analyte=Al/Ca
Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova -Summary of Fit

Rsquare	0.647368
Adj Rsquare	0.63421
Root Mean Square Error	0.097878
Mean of Response	3.981469
Observations (or Sum Wgts)	140

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	2.3566792	0.471336	49.1999	<.0001
Error	134	1.2837217	0.009580		
C. Total	139	3.6404009			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	25	3.83711	0.01958	3.7984	3.8758
Cold Chem/M-14	27	3.80823	0.01884	3.7710	3.8455
Fusion/M-13	32	4.10978	0.01730	4.0756	4.1440
Fusion/M-14	10	4.17839	0.03095	4.1172	4.2396
Mixed Acid/M-13	27	4.02132	0.01884	3.9841	4.0586
Mixed Acid/M-14	19	4.04122	0.02245	3.9968	4.0856

Std Error uses a pooled estimate of error variance

Means and Std Deviations

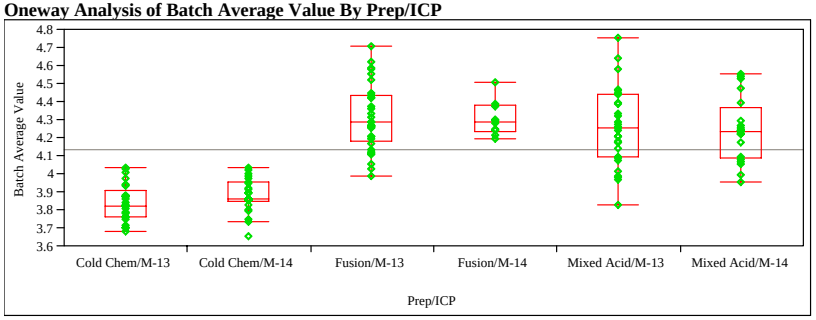
Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	25	3.83711	0.050205	0.01004	3.8164	3.8578
Cold Chem/M-14	27	3.80823	0.080524	0.01550	3.7764	3.8401
Fusion/M-13	32	4.10978	0.131801	0.02330	4.0623	4.1573
Fusion/M-14	10	4.17839	0.136936	0.04330	4.0804	4.2764
Mixed Acid/M-13	27	4.02132	0.076130	0.01465	3.9912	4.0514
Mixed Acid/M-14	19	4.04122	0.104528	0.02398	3.9908	4.0916

Means Comparisons -Comparisons for all pairs using Tukey-Kramer HSD

Level				Mean
Fusion/M-14	A			4.1783947
Fusion/M-13	A	B		4.1097784
Mixed Acid/M-14		B	C	4.0412206
Mixed Acid/M-13			C	4.0213233
Cold Chem/M-13			D	3.8371077
Cold Chem/M-14			D	3.8082285

Levels not connected by same letter are significantly different

Standard/Process=Process, Analyte=Al/Mg
Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova -Summary of Fit

Rsquare	0.626737
Adj Rsquare	0.61331
Root Mean Square Error	0.159643
Mean of Response	4.134868
Observations (or Sum Wgts)	145

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	5.9482008	1.18964	46.6783	<.0001
Error	139	3.5425457	0.02549		
C. Total	144	9.4907465			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	25	3.84187	0.03193	3.7787	3.9050
Cold Chem/M-14	26	3.88166	0.03131	3.8198	3.9436
Fusion/M-13	33	4.31493	0.02779	4.2600	4.3699
Fusion/M-14	10	4.30717	0.05048	4.2074	4.4070
Mixed Acid/M-13	31	4.26423	0.02867	4.2075	4.3209
Mixed Acid/M-14	20	4.24653	0.03570	4.1759	4.3171

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	25	3.84187	0.102146	0.02043	3.7997	3.8840
Cold Chem/M-14	26	3.88166	0.089954	0.01764	3.8453	3.9180
Fusion/M-13	33	4.31493	0.181671	0.03162	4.2505	4.3793
Fusion/M-14	10	4.30717	0.095209	0.03011	4.2391	4.3753
Mixed Acid/M-13	31	4.26423	0.211271	0.03795	4.1867	4.3417
Mixed Acid/M-14	20	4.24653	0.179628	0.04017	4.1625	4.3306

Means Comparisons- Comparisons for all pairs using Tukey-Kramer HSD

Level			Mean
Fusion/M-13	A		4.3149318
Fusion/M-14	A		4.3071714
Mixed Acid/M-13	A		4.2642297
Mixed Acid/M-14	A		4.2465261
Cold Chem/M-14		B	3.8816567
Cold Chem/M-13		B	3.8418681

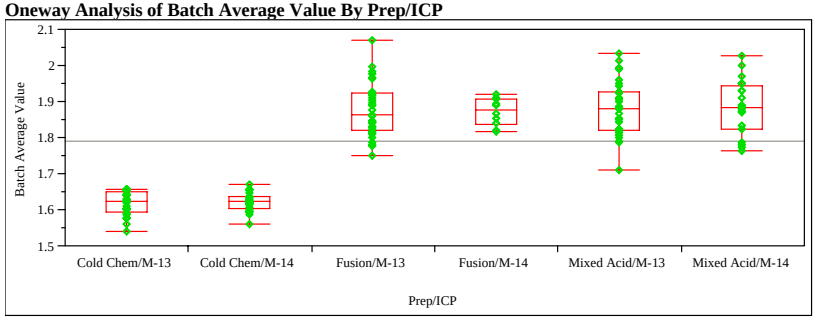
Levels not connected by same letter are significantly different

Exhibit A6. Prep/ICP Comparisons Using Process Batch Averages by Analyte

(continued)

Standard/Process=Process, Analyte=Al/Mn

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova -Summary of Fit

Rsquare	0.810463
Adj Rsquare	0.803546
Root Mean Square Error	0.060655
Mean of Response	1.791302
Observations (or Sum Wgts)	143

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	2.1552595	0.431052	117.1628	<.0001
Error	137	0.5040346	0.003679		
C. Total	142	2.6592941			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	24	1.61949	0.01238	1.5950	1.6440
Cold Chem/M-14	25	1.62309	0.01213	1.5991	1.6471
Fusion/M-13	33	1.87834	0.01056	1.8575	1.8992
Fusion/M-14	10	1.87353	0.01918	1.8356	1.9115
Mixed Acid/M-13	31	1.87914	0.01089	1.8576	1.9007
Mixed Acid/M-14	20	1.88687	0.01356	1.8600	1.9137

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	24	1.61949	0.033264	0.00679	1.6054	1.6335
Cold Chem/M-14	25	1.62309	0.024970	0.00499	1.6128	1.6334
Fusion/M-13	33	1.87834	0.073315	0.01276	1.8523	1.9043
Fusion/M-14	10	1.87353	0.037155	0.01175	1.8470	1.9001
Mixed Acid/M-13	31	1.87914	0.075501	0.01356	1.8514	1.9068
Mixed Acid/M-14	20	1.88687	0.075457	0.01687	1.8516	1.9222

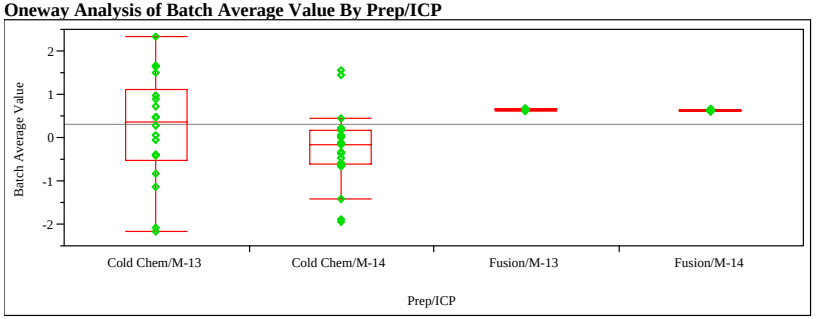
Means Comparisons - Comparisons for all pairs using Tukey-Kramer HSD

Level		Mean
Mixed Acid/M-14	A	1.8868651
Mixed Acid/M-13	A	1.8791437
Fusion/M-13	A	1.8783357
Fusion/M-14	A	1.8735308
Cold Chem/M-14	B	1.6230930
Cold Chem/M-13	B	1.6194894

Levels not connected by same letter are significantly different

Standard/Process=Process, Analyte=B/Li

Oneway Analysis of Batch Average Value By Prep/ICP



Missing Rows 52

Oneway Anova - Summary of Fit

Rsquare	0.224332
Adj Rsquare	0.195603
Root Mean Square Error	0.715619
Mean of Response	0.325772
Observations (or Sum Wgts)	85

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	3	11.996723	3.99891	7.8087	0.0001
Error	81	41.480909	0.51211		
C. Total	84	53.477632			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	18	0.23250	0.16867	-0.1031	0.5681
Cold Chem/M-14	23	-0.22952	0.14922	-0.5264	0.0674
Fusion/M-13	34	0.65809	0.12273	0.4139	0.9023
Fusion/M-14	10	0.64094	0.22630	0.1907	1.0912

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	18	0.23250	1.24484	0.29341	-0.3865	0.85154
Cold Chem/M-14	23	-0.22952	0.82930	0.17292	-0.5881	0.12910
Fusion/M-13	34	0.65809	0.01294	0.00222	0.6536	0.66261
Fusion/M-14	10	0.64094	0.01138	0.00360	0.6328	0.64908

Means Comparisons - Comparisons for all pairs using Tukey-Kramer HSD

Level			Mean
Fusion/M-13	A		0.6580946
Fusion/M-14	A		0.6409353
Cold Chem/M-13	A	B	0.2324978
Cold Chem/M-14		B	-0.2295164

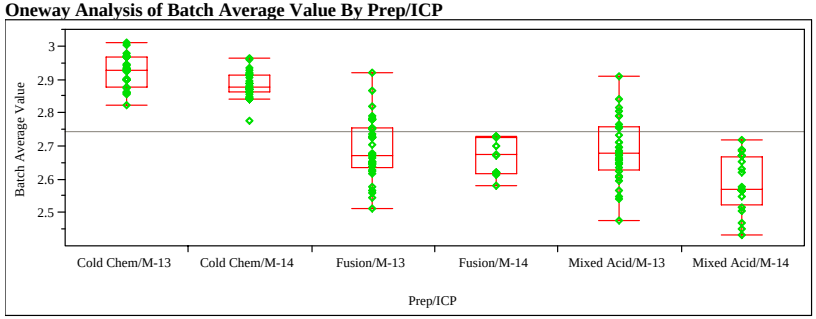
Levels not connected by same letter are significantly different

Exhibit A6. Prep/ICP Comparisons Using Process Batch Averages by Analyte

(continued)

Standard/Process=Process, Analyte=Fe/Al

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova - Summary of Fit

Rsquare	0.712609
Adj Rsquare	0.702272
Root Mean Square Error	0.076153
Mean of Response	2.746025
Observations (or Sum Wgts)	145

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	1.9988032	0.399761	68.9325	<.0001
Error	139	0.8061036	0.005799		
C. Total	144	2.8049067			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	22	2.92328	0.01624	2.8912	2.9554
Cold Chem/M-14	27	2.88557	0.01466	2.8566	2.9145
Fusion/M-13	34	2.69241	0.01306	2.6666	2.7182
Fusion/M-14	10	2.66826	0.02408	2.6206	2.7159
Mixed Acid/M-13	32	2.68810	0.01346	2.6615	2.7147
Mixed Acid/M-14	20	2.58536	0.01703	2.5517	2.6190

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	22	2.92328	0.050257	0.01071	2.9010	2.9456
Cold Chem/M-14	27	2.88557	0.040274	0.00775	2.8696	2.9015
Fusion/M-13	34	2.69241	0.091713	0.01573	2.6604	2.7244
Fusion/M-14	10	2.66826	0.054529	0.01724	2.6292	2.7073
Mixed Acid/M-13	32	2.68810	0.094287	0.01667	2.6541	2.7221
Mixed Acid/M-14	20	2.58536	0.083025	0.01856	2.5465	2.6242

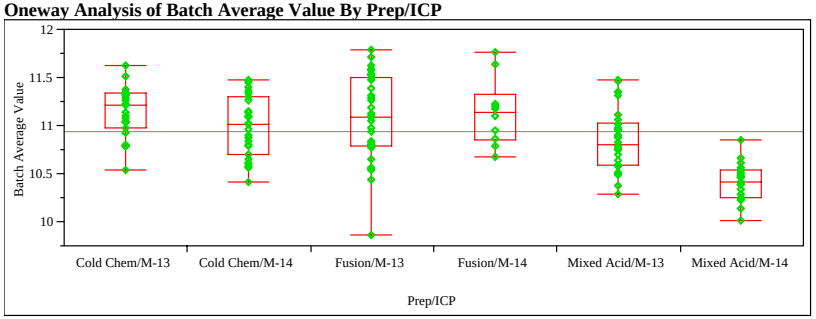
Means Comparisons - Comparisons for all pairs using Tukey-Kramer HSD

Level			Mean
Cold Chem/M-13	A		2.9232782
Cold Chem/M-14	A		2.8855703
Fusion/M-13		B	2.6924118
Mixed Acid/M-13		B	2.6881022
Fusion/M-14		B	C 2.6682553
Mixed Acid/M-14			C 2.5853620

Levels not connected by same letter are significantly different

Standard/Process=Process, Analyte=Fe/Ca

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova - Summary of Fit

Rsquare	0.336092
Adj Rsquare	0.311503
Root Mean Square Error	0.333341
Mean of Response	10.9443
Observations (or Sum Wgts)	141

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	7.593844	1.51877	13.6683	<.0001
Error	135	15.000700	0.11112		
C. Total	140	22.594543			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	23	11.1522	0.06951	11.015	11.290
Cold Chem/M-14	27	10.9995	0.06415	10.873	11.126
Fusion/M-13	32	11.0833	0.05893	10.967	11.200
Fusion/M-14	10	11.1450	0.10541	10.937	11.353
Mixed Acid/M-13	30	10.8528	0.06086	10.732	10.973
Mixed Acid/M-14	19	10.4189	0.07647	10.268	10.570

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	23	11.1522	0.259899	0.05419	11.040	11.265
Cold Chem/M-14	27	10.9995	0.318515	0.06130	10.873	11.125
Fusion/M-13	32	11.0833	0.443866	0.07847	10.923	11.243
Fusion/M-14	10	11.1450	0.350061	0.11070	10.895	11.395
Mixed Acid/M-13	30	10.8528	0.319613	0.05835	10.733	10.972
Mixed Acid/M-14	19	10.4189	0.197773	0.04537	10.324	10.514

Means Comparisons - Comparisons for all pairs using Tukey-Kramer HSD

Level			Mean
Cold Chem/M-13	A		11.152178
Fusion/M-14	A	B	11.145009
Fusion/M-13	A	B	11.083342
Cold Chem/M-14	A	B	10.999479
Mixed Acid/M-13		B	10.852817
Mixed Acid/M-14			C 10.418885

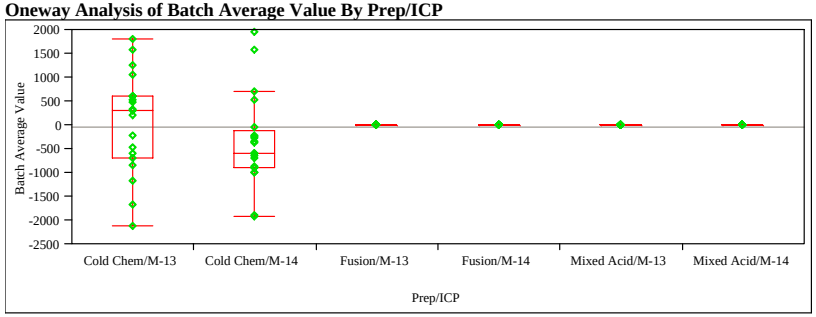
Levels not connected by same letter are significantly different

Exhibit A6. Prep/ICP Comparisons Using Process Batch Averages by Analyte

(continued)

Standard/Process=Process, Analyte=Fe/Li

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova - Summary of Fit

Rsquare	0.06193
Adj Rsquare	0.024998
Root Mean Square Error	547.8332
Mean of Response	-45.8402
Observations (or Sum Wgts)	133

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	2516308	503262	1.6769	0.1448
Error	127	38115395	300121		
C. Total	132	40631703			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	19	59.98	125.68	-188.7	308.7
Cold Chem/M-14	21	-360.31	119.55	-596.9	-123.7
Fusion/M-13	34	3.62	93.95	-182.3	189.5
Fusion/M-14	10	3.54	173.24	-339.3	346.4
Mixed Acid/M-13	29	3.49	101.73	-197.8	204.8
Mixed Acid/M-14	20	3.52	122.50	-238.9	245.9

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	19	59.98	1062.38	243.73	-452.1	572.03
Cold Chem/M-14	21	-360.31	943.39	205.87	-789.7	69.12
Fusion/M-13	34	3.62	0.26	0.04475	3.5	3.71
Fusion/M-14	10	3.54	0.28	0.08859	3.3	3.74
Mixed Acid/M-13	29	3.49	0.25	0.04573	3.4	3.58
Mixed Acid/M-14	20	3.52	0.29	0.0643	3.4	3.65

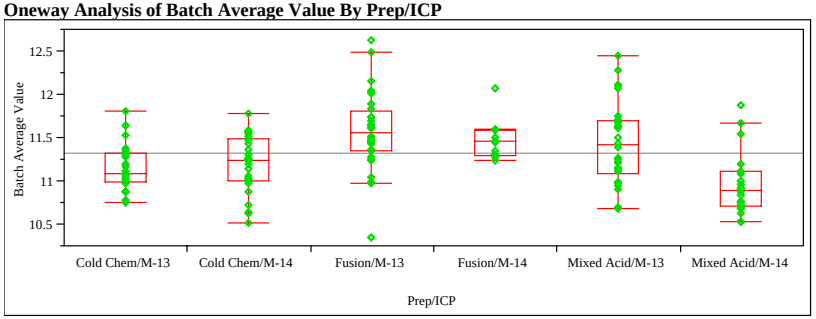
Means Comparisons - Comparisons for all pairs using Tukey-Kramer HSD

Level		Mean
Cold Chem/M-13	A	59.9779
Fusion/M-13	A	3.6228
Fusion/M-14	A	3.5433
Mixed Acid/M-14	A	3.5168
Mixed Acid/M-13	A	3.4895
Cold Chem/M-14	A	-360.3083

Levels not connected by same letter are significantly different

Standard/Process=Process, Analyte=Fe/Mg

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova - Summary of Fit

Rsquare	0.244268
Adj Rsquare	0.216687
Root Mean Square Error	0.379736
Mean of Response	11.31998
Observations (or Sum Wgts)	143

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	6.385342	1.27707	8.8563	<.0001
Error	137	19.755351	0.14420		
C. Total	142	26.140693			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	23	11.1610	0.07918	11.004	11.318
Cold Chem/M-14	28	11.2059	0.07176	11.064	11.348
Fusion/M-13	32	11.5835	0.06713	11.451	11.716
Fusion/M-14	10	11.4888	0.12008	11.251	11.726
Mixed Acid/M-13	30	11.4449	0.06933	11.308	11.582
Mixed Acid/M-14	20	10.9690	0.08491	10.801	11.137

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	23	11.1610	0.265902	0.05544	11.046	11.276
Cold Chem/M-14	28	11.2059	0.324419	0.06131	11.080	11.332
Fusion/M-13	32	11.5835	0.444814	0.07863	11.423	11.744
Fusion/M-14	10	11.4888	0.241826	0.07647	11.316	11.662
Mixed Acid/M-13	30	11.4449	0.460455	0.08407	11.273	11.617
Mixed Acid/M-14	20	10.9690	0.366325	0.08191	10.798	11.140

Means Comparisons - Comparisons for all pairs using Tukey-Kramer HSD

Level				Mean
Fusion/M-13	A			11.583522
Fusion/M-14	A	B		11.488800
Mixed Acid/M-13	A	B		11.444916
Cold Chem/M-14		B	C	11.205928
Cold Chem/M-13		B	C	11.161041
Mixed Acid/M-14			C	10.968960

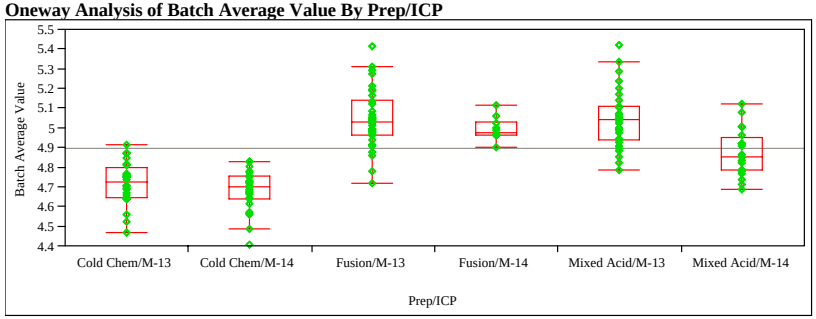
Levels not connected by same letter are significantly different

Exhibit A6. Prep/ICP Comparisons Using Process Batch Averages by Analyte

(continued)

Standard/Process=Process, Analyte=Fe/Mn

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova - Summary of Fit

Rsquare	0.613965
Adj Rsquare	0.600276
Root Mean Square Error	0.126254
Mean of Response	4.898396
Observations (or Sum Wgts)	147

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	3.5745806	0.714916	44.8504	<.0001
Error	141	2.2475439	0.015940		
C. Total	146	5.8221245			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	24	4.72094	0.02577	4.6700	4.7719
Cold Chem/M-14	28	4.68656	0.02386	4.6394	4.7337
Fusion/M-13	34	5.04900	0.02165	5.0062	5.0918
Fusion/M-14	10	4.99660	0.03992	4.9177	5.0755
Mixed Acid/M-13	31	5.04669	0.02268	5.0019	5.0915
Mixed Acid/M-14	20	4.87293	0.02823	4.8171	4.9287

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	24	4.72094	0.109934	0.02244	4.6745	4.7674
Cold Chem/M-14	28	4.68656	0.098683	0.01865	4.6483	4.7248
Fusion/M-13	34	5.04900	0.150396	0.02579	4.9965	5.1015
Fusion/M-14	10	4.99660	0.060709	0.01920	4.9532	5.0400
Mixed Acid/M-13	31	5.04669	0.147591	0.02651	4.9926	5.1008
Mixed Acid/M-14	20	4.87293	0.119991	0.02683	4.8168	4.9291

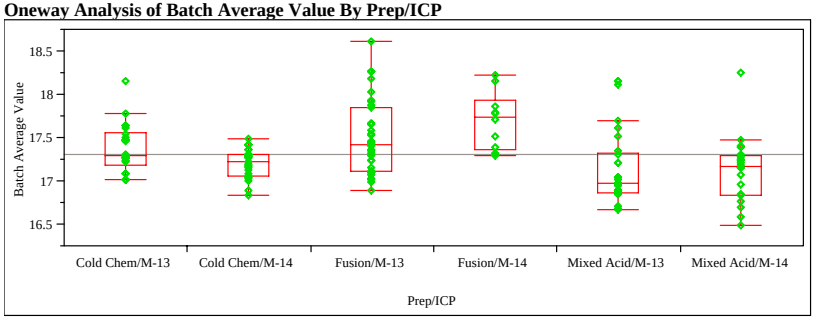
Means Comparisons - Comparisons for all pairs using Tukey-Kramer HSD

Level			Mean
Fusion/M-13	A		5.0489976
Mixed Acid/M-13	A		5.0466930
Fusion/M-14	A	B	4.9966027
Mixed Acid/M-14		B	4.8729261
Cold Chem/M-13		C	4.7209363
Cold Chem/M-14		C	4.6865628

Levels not connected by same letter are significantly different

Standard/Process=Process, Analyte=Fe/Ni

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova - Summary of Fit

Rsquare	0.212214
Adj Rsquare	0.183671
Root Mean Square Error	0.356344
Mean of Response	17.31878
Observations (or Sum Wgts)	144

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	4.720452	0.944090	7.4349	<.0001
Error	138	17.523351	0.126981		
C. Total	143	22.243803			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	22	17.3855	0.07597	17.235	17.536
Cold Chem/M-14	27	17.2109	0.06858	17.075	17.347
Fusion/M-13	35	17.5043	0.06023	17.385	17.623
Fusion/M-14	10	17.7071	0.11269	17.484	17.930
Mixed Acid/M-13	30	17.1452	0.06506	17.017	17.274
Mixed Acid/M-14	20	17.1326	0.07968	16.975	17.290

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	22	17.3855	0.282699	0.06027	17.260	17.511
Cold Chem/M-14	27	17.2109	0.165999	0.03195	17.145	17.277
Fusion/M-13	35	17.5043	0.424853	0.07181	17.358	17.650
Fusion/M-14	10	17.7071	0.327014	0.10341	17.473	17.941
Mixed Acid/M-13	30	17.1452	0.423474	0.07732	16.987	17.303
Mixed Acid/M-14	20	17.1326	0.385839	0.08628	16.952	17.313

Means Comparisons - Comparisons for all pairs using Tukey-Kramer HSD

Level			Mean
Fusion/M-14	A		17.707078
Fusion/M-13	A		17.504251
Cold Chem/M-13	A	B	17.385469
Cold Chem/M-14		B	17.210916
Mixed Acid/M-13		B	17.145210
Mixed Acid/M-14		B	17.132642

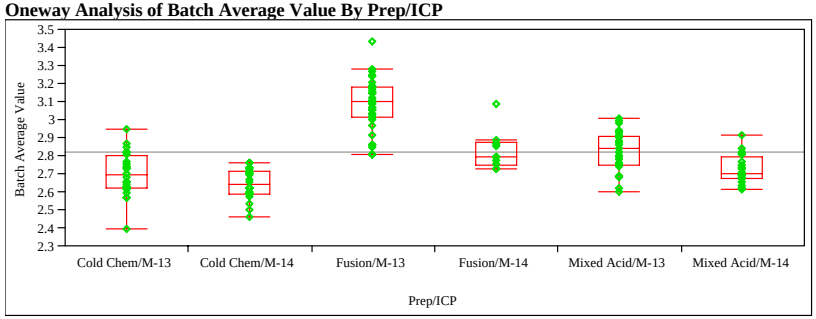
Levels not connected by same letter are significantly different

Exhibit A6. Prep/ICP Comparisons Using Process Batch Averages by Analyte

(continued)

Standard/Process=Process, Analyte=Fe/U

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova - Summary of Fit

Rsquare	0.682009
Adj Rsquare	0.670652
Root Mean Square Error	0.112213
Mean of Response	2.824139
Observations (or Sum Wgts)	146

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	3.7808343	0.756167	60.0527	<.0001
Error	140	1.7628397	0.012592		
C. Total	145	5.5436740			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	24	2.70189	0.02291	2.6566	2.7472
Cold Chem/M-14	26	2.64826	0.02201	2.6047	2.6918
Fusion/M-13	35	3.08783	0.01897	3.0503	3.1253
Fusion/M-14	10	2.82966	0.03548	2.7595	2.8998
Mixed Acid/M-13	31	2.82855	0.02015	2.7887	2.8684
Mixed Acid/M-14	20	2.72842	0.02509	2.6788	2.7780

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	24	2.70189	0.121289	0.02476	2.6507	2.7531
Cold Chem/M-14	26	2.64826	0.079742	0.01564	2.6160	2.6805
Fusion/M-13	35	3.08783	0.142649	0.02411	3.0388	3.1368
Fusion/M-14	10	2.82966	0.107051	0.03385	2.7531	2.9062
Mixed Acid/M-13	31	2.82855	0.107588	0.01932	2.7891	2.8680
Mixed Acid/M-14	20	2.72842	0.080546	0.01801	2.6907	2.7661

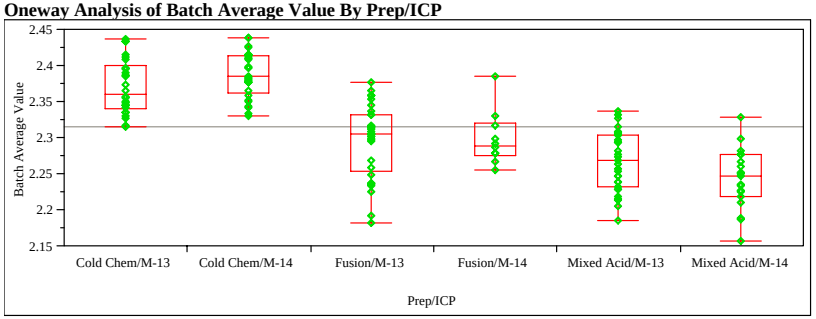
Means Comparisons - Comparisons for all pairs using Tukey-Kramer HSD

Level			Mean
Fusion/M-13	A		3.0878343
Fusion/M-14		B C	2.8296644
Mixed Acid/M-13		B	2.8285478
Mixed Acid/M-14		C D	2.7284214
Cold Chem/M-13		D	2.7018941
Cold Chem/M-14		D	2.6482559

Levels not connected by same letter are significantly different

Standard/Process=Process, Analyte=Mn/Mg

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova - Summary of Fit

Rsquare	0.638645
Adj Rsquare	0.625921
Root Mean Square Error	0.040758
Mean of Response	2.315211
Observations (or Sum Wgts)	148

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	0.41691683	0.083383	50.1930	<.0001
Error	142	0.23589817	0.001661		
C. Total	147	0.65281500			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	26	2.37137	0.00799	2.3556	2.3872
Cold Chem/M-14	29	2.38846	0.00757	2.3735	2.4034
Fusion/M-13	33	2.29660	0.00710	2.2826	2.3106
Fusion/M-14	10	2.29946	0.01289	2.2740	2.3249
Mixed Acid/M-13	31	2.26835	0.00732	2.2539	2.2828
Mixed Acid/M-14	19	2.24363	0.00935	2.2251	2.2621

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	26	2.37137	0.037387	0.00733	2.3563	2.3865
Cold Chem/M-14	29	2.38846	0.031326	0.00582	2.3765	2.4004
Fusion/M-13	33	2.29660	0.049754	0.00866	2.2790	2.3142
Fusion/M-14	10	2.29946	0.037478	0.01185	2.2726	2.3263
Mixed Acid/M-13	31	2.26835	0.041084	0.00738	2.2533	2.2834
Mixed Acid/M-14	19	2.24363	0.041490	0.00952	2.2236	2.2636

Means Comparisons - Comparisons for all pairs using Tukey-Kramer HSD

Level			Mean
Cold Chem/M-14	A		2.3884616
Cold Chem/M-13	A		2.3713659
Fusion/M-14		B	2.2994587
Fusion/M-13		B	2.2966034
Mixed Acid/M-13		B C	2.2683492
Mixed Acid/M-14		C	2.2436343

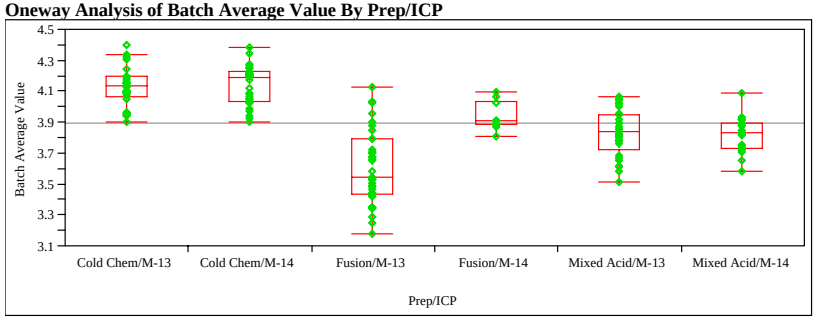
Levels not connected by same letter are significantly different

Exhibit A6. Prep/ICP Comparisons Using Process Batch Averages by Analyte

(continued)

Standard/Process=Process, Analyte=U/Ca

Oneway Analysis of Batch Average Value By Prep/ICP



Oneway Anova - Summary of Fit

Rsquare	0.622559
Adj Rsquare	0.609175
Root Mean Square Error	0.162962
Mean of Response	3.899174
Observations (or Sum Wgts)	147

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio	Prob > F
Prep/ICP	5	6.1762188	1.23524	46.5137	<.0001
Error	141	3.7444728	0.02656		
C. Total	146	9.9206915			

Means for Oneway Anova

Level	Number	Mean	Std Error	Lower 95%	Upper 95%
Cold Chem/M-13	26	4.13203	0.03196	4.0689	4.1952
Cold Chem/M-14	28	4.14139	0.03080	4.0805	4.2023
Fusion/M-13	35	3.61182	0.02755	3.5574	3.6663
Fusion/M-14	10	3.94113	0.05153	3.8393	4.0430
Mixed Acid/M-13	29	3.83882	0.03026	3.7790	3.8986
Mixed Acid/M-14	19	3.82295	0.03739	3.7490	3.8969

Std Error uses a pooled estimate of error variance

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
Cold Chem/M-13	26	4.13203	0.126668	0.02484	4.0809	4.1832
Cold Chem/M-14	28	4.14139	0.129782	0.02453	4.0911	4.1917
Fusion/M-13	35	3.61182	0.236787	0.04002	3.5305	3.6932
Fusion/M-14	10	3.94113	0.093408	0.02954	3.8743	4.0079
Mixed Acid/M-13	29	3.83882	0.153565	0.02852	3.7804	3.8972
Mixed Acid/M-14	19	3.82295	0.116294	0.02668	3.7669	3.8790

Means Comparisons - Comparisons for all pairs using Tukey-Kramer HSD

Level		Mean
Cold Chem/M-14	A	4.1413906
Cold Chem/M-13	A	4.1320326
Fusion/M-14	B	3.9411301
Mixed Acid/M-13	B	3.8388243
Mixed Acid/M-14	B	3.8229467
Fusion/M-13	C	3.6118184

Levels not connected by same letter are significantly different

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-13, Analyte=Al
Response Measurement
Summary of Fit

RSquare	0.66003
RSquare Adj	0.332652
Root Mean Square Error	0.073245
Mean of Response	2.337759
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	0.28122037	0.010816	2.0161
Error	27	0.14485150	0.005365	Prob > F
C. Total	53	0.42607187		0.0379

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.002726	33.689
Residual	0.005365	66.311
Total	0.008091	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00536	27	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.28122	0.01082	26	2.0161	0.0379

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-13, Analyte=Al/Ca
Response Measurement
Summary of Fit

RSquare	0.792196
RSquare Adj	0.592385
Root Mean Square Error	0.046937
Mean of Response	2.417109
Observations (or Sum Wgts)	52

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	25	0.21836806	0.008735	3.9647
Error	26	0.05728082	0.002203	Prob > F
C. Total	51	0.27564888		0.0004

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.003266	59.716
Residual	0.002203	40.284
Total	0.005469	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.0022	26	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.21837	0.00873	25	3.9647	0.0004

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-13, Analyte=Al/Mg
Response Measurement
Summary of Fit

RSquare	0.722536
RSquare Adj	0.455349
Root Mean Square Error	0.101427
Mean of Response	4.708089
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	0.7233155	0.027820	2.7042
Error	27	0.2777627	0.010288	Prob > F
C. Total	53	1.0010782		0.0063

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.008766	46.008
Residual	0.010288	53.992
Total	0.019054	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01029	27	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.72332	0.02782	26	2.7042	0.0063

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-13, Analyte=Al/Mn
Response Measurement
Summary of Fit

RSquare	0.52407
RSquare Adj	0.065767
Root Mean Square Error	0.049872
Mean of Response	1.651538
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	0.07394887	0.002844	1.1435
Error	27	0.06715607	0.002487	Prob > F
C. Total	53	0.14110494		0.3653

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000178	6.695
Residual	0.002487	93.305
Total	0.002666	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00249	27	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.07395	0.00284	26	1.1435	0.3653

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-13, Analyte=B
Response Measurement
Summary of Fit

RSquare	0.6505
RSquare Adj	0.313944
Root Mean Square Error	0.063481
Mean of Response	2.612519
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	0.20251448	0.007789	1.9328
Error	27	0.10880700	0.004030	Prob > F
C. Total	53	0.31132148		0.0474

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.00188	31.806
Residual	0.00403	68.194
Total	0.005909	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00403	27	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.20251	0.00779	26	1.9328	0.0474

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-13, Analyte=B/Li
Response Measurement
Summary of Fit

RSquare	0.698773
RSquare Adj	0.408702
Root Mean Square Error	0.053647
Mean of Response	1.815821
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	0.18025565	0.006933	2.4090
Error	27	0.07770465	0.002878	Prob > F
C. Total	53	0.25796031		0.0134

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.002027	41.331
Residual	0.002878	58.669
Total	0.004905	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00288	27	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.18026	0.00693	26	2.4090	0.0134

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-13, Analyte=Ca
Response Measurement
Summary of Fit

RSquare	0.747404
RSquare Adj	0.504523
Root Mean Square Error	0.038372
Mean of Response	0.967865
Observations (or Sum Wgts)	52

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	25	0.11327356	0.004531	3.0772
Error	26	0.03828250	0.001472	Prob > F
C. Total	51	0.15155606		0.0029

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.001529	50.947
Residual	0.001472	49.053
Total	0.003002	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00147	26	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.11327	0.00453	25	3.0772	0.0029

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-13, Analyte=Cr
Response Measurement
Summary of Fit

RSquare	0.846019
RSquare Adj	0.697741
Root Mean Square Error	0.003699
Mean of Response	0.065315
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	0.00203015	0.000078	5.7056
Error	27	0.00036950	0.000014	Prob > F
C. Total	53	0.00239965		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000032	70.174
Residual	0.000014	29.826
Total	0.000046	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00001	27	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00203	0.00008	26	5.7056	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-13, Analyte=Cu
Response Measurement
Summary of Fit

RSquare	0.400987
RSquare Adj	-0.17584
Root Mean Square Error	0.004794
Mean of Response	0.003759
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	0.00041537	0.000016	0.6952
Error	27	0.00062050	0.000023	Prob > F
C. Total	53	0.00103587		0.8215

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	-3.5e-6	-17.983
Residual	0.000023	117.983
Total	0.000019	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00002	27	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00042	0.00002	26	0.6952	0.8215

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-13, Analyte=Fe
Response Measurement
Summary of Fit

RSquare	0.642853
RSquare Adj	0.298934
Root Mean Square Error	0.240944
Mean of Response	9.722981
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	2.8213665	0.108514	1.8692
Error	27	1.5674545	0.058054	Prob > F
C. Total	53	4.3888210		0.0562

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.02523	30.294
Residual	0.058054	69.706
Total	0.083284	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.05805	27	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	2.82137	0.10851	26	1.8692	0.0562

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-13, Analyte=Fe/Al
Response Measurement
Summary of Fit

RSquare	0.643191
RSquare Adj	0.299598
Root Mean Square Error	0.100885
Mean of Response	4.16207
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	0.49536013	0.019052	1.8720
Error	27	0.27479976	0.010178	Prob > F
C. Total	53	0.77015989		0.0558

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.004437	30.361
Residual	0.010178	69.639
Total	0.014615	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01018	27	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.49536	0.01905	26	1.8720	0.0558

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-13, Analyte=Fe/Ca
Response Measurement
Summary of Fit

RSquare	0.551085
RSquare Adj	0.120874
Root Mean Square Error	0.369426
Mean of Response	9.979773
Observations (or Sum Wgts)	48

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	23	4.0208763	0.174821	1.2810
Error	24	3.2754174	0.136476	Prob > F
C. Total	47	7.2962937		0.2755

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.019172	12.318
Residual	0.136476	87.682
Total	0.155648	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.13648	24	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	4.02088	0.17482	23	1.2810	0.2755

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-13, Analyte=Fe/Li
Response Measurement
Summary of Fit

RSquare	0.756
RSquare Adj	0.521037
Root Mean Square Error	0.17547
Mean of Response	6.757638
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	2.5757426	0.099067	3.2175
Error	27	0.8313251	0.030790	Prob > F
C. Total	53	3.4070677		0.0018

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.034139	52.579
Residual	0.03079	47.421
Total	0.064928	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.03079	27	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	2.57574	0.09907	26	3.2175	0.0018

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-13, Analyte=Fe/Mg
Response Measurement
Summary of Fit

RSquare	0.782737
RSquare Adj	0.574527
Root Mean Square Error	0.315141
Mean of Response	19.54323
Observations (or Sum Wgts)	48

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	23	8.587202	0.373357	3.7594
Error	24	2.383533	0.099314	Prob > F
C. Total	47	10.970734		0.0010

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.137021	57.978
Residual	0.099314	42.022
Total	0.236335	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.09931	24	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	8.5872	0.37336	23	3.7594	0.0010

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-13, Analyte=Fe/Mn
Response Measurement
Summary of Fit

RSquare	0.452582
RSquare Adj	-0.07378
Root Mean Square Error	0.10973
Mean of Response	6.884214
Observations (or Sum Wgts)	52

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	25	0.25882268	0.010353	0.8598
Error	26	0.31305780	0.012041	Prob > F
C. Total	51	0.57188049		0.6460

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	-0.00084	-7.537
Residual	0.012041	107.537
Total	0.011197	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01204	26	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.25882	0.01035	25	0.8598	0.6460

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-13, Analyte=Fe/Ni
Response Measurement
Summary of Fit

RSquare	0.5847
RSquare Adj	0.185373
Root Mean Square Error	0.218021
Mean of Response	12.03033
Observations (or Sum Wgts)	52

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	25	1.7399690	0.069599	1.4642
Error	26	1.2358644	0.047533	Prob > F
C. Total	51	2.9758334		0.1700

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.011033	18.838
Residual	0.047533	81.162
Total	0.058566	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.04753	26	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.73997	0.0696	25	1.4642	0.1700

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-13, Analyte=Fe/U
Response Measurement
Summary of Fit

RSquare	0.42808
RSquare Adj	-0.11374
Root Mean Square Error	221.8497
Mean of Response	-8.71399
Observations (or Sum Wgts)	38

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	18	699941.3	38885.6	0.7901
Error	19	935128.5	49217.3	Prob > F
C. Total	37	1635069.7		0.6895

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	-5165.83	-11.727
Residual	49217.29	111.727
Total	44051.46	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	49217.3	19	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	699941	38885.6	18	0.7901	0.6895

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-13, Analyte=K
Response Measurement
Summary of Fit

RSquare	0.56732
RSquare Adj	0.150666
Root Mean Square Error	0.203088
Mean of Response	2.333074
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	1.4601367	0.056159	1.3616
Error	27	1.1136070	0.041245	Prob > F
C. Total	53	2.5737437		0.2152

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.007457	15.312
Residual	0.041245	84.688
Total	0.048702	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.04124	27	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.46014	0.05616	26	1.3616	0.2152

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-13, Analyte=Li
Response Measurement
Summary of Fit

RSquare	0.768293
RSquare Adj	0.545497
Root Mean Square Error	0.03483
Mean of Response	1.443596
Observations (or Sum Wgts)	52

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	25	0.10458502	0.004183	3.4484
Error	26	0.03154150	0.001213	Prob > F
C. Total	51	0.13612652		0.0013

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.001485	55.040
Residual	0.001213	44.960
Total	0.002698	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00121	26	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.10459	0.00418	25	3.4484	0.0013

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-13, Analyte=Mg
Response Measurement
Summary of Fit

RSquare	0.841407
RSquare Adj	0.688688
Root Mean Square Error	0.013647
Mean of Response	0.496981
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	0.02667848	0.001026	5.5095
Error	27	0.00502850	0.000186	Prob > F
C. Total	53	0.03170698		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.00042	69.276
Residual	0.000186	30.724
Total	0.000606	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00019	27	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.02668	0.00103	26	5.5095	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-13, Analyte=Mn
Response Measurement
Summary of Fit

RSquare	0.533516
RSquare Adj	0.084309
Root Mean Square Error	0.0393
Mean of Response	1.415741
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	0.04769437	0.001834	1.1877
Error	27	0.04170200	0.001545	Prob > F
C. Total	53	0.08939637		0.3296

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000145	8.579
Residual	0.001545	91.421
Total	0.001689	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00154	27	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.04769	0.00183	26	1.1877	0.3296

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-13, Analyte=Mn/Mg
Response Measurement
Summary of Fit

RSquare	0.829738
RSquare Adj	0.666287
Root Mean Square Error	0.053113
Mean of Response	2.848788
Observations (or Sum Wgts)	50

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	24	0.34368992	0.014320	5.0764
Error	25	0.07052493	0.002821	Prob > F
C. Total	49	0.41421485		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.00575	67.086
Residual	0.002821	32.914
Total	0.008571	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00282	25	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.34369	0.01432	24	5.0764	<.0001

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-13, Analyte=Na
Response Measurement
Summary of Fit

RSquare	0.621516
RSquare Adj	0.258801
Root Mean Square Error	0.127506
Mean of Response	8.340146
Observations (or Sum Wgts)	48

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	23	0.6407365	0.027858	1.7135
Error	24	0.3901895	0.016258	Prob > F
C. Total	47	1.0309260		0.0987

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.0058	26.295
Residual	0.016258	73.705
Total	0.022058	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01626	24	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.64074	0.02786	23	1.7135	0.0987

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-13, Analyte=Ni
Response Measurement
Summary of Fit

RSquare	0.602188
RSquare Adj	0.219677
Root Mean Square Error	0.015365
Mean of Response	0.808288
Observations (or Sum Wgts)	52

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	25	0.00929217	0.000372	1.5743
Error	26	0.00613850	0.000236	Prob > F
C. Total	51	0.01543067		0.1284

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000068	22.309
Residual	0.000236	77.691
Total	0.000304	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00024	26	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00929	0.00037	25	1.5743	0.1284

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-13, Analyte=Si
Response Measurement
Summary of Fit

RSquare	0.631191
RSquare Adj	0.276567
Root Mean Square Error	0.513755
Mean of Response	21.85973
Observations (or Sum Wgts)	52

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	25	11.744780	0.469791	1.7799
Error	26	6.862548	0.263944	Prob > F
C. Total	51	18.607328		0.0754

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.102924	28.055
Residual	0.263944	71.945
Total	0.366868	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.26394	26	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	11.7448	0.46979	25	1.7799	0.0754

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-13, Analyte=Sum of Oxides
Response Measurement
Summary of Fit

RSquare	0.624638
RSquare Adj	0.263178
Root Mean Square Error	2.8647
Mean of Response	97.41286
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	368.72301	14.1817	1.7281
Error	27	221.57563	8.2065	Prob > F
C. Total	53	590.29864		0.0821

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	2.987575	26.689
Residual	8.206505	73.311
Total	11.19408	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	8.2065	27	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	368.723	14.1817	26	1.7281	0.0821

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-13, Analyte=Ti
Response Measurement
Summary of Fit

RSquare	0.747034
RSquare Adj	0.503797
Root Mean Square Error	0.010688
Mean of Response	0.672423
Observations (or Sum Wgts)	52

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	25	0.00877069	0.000351	3.0712
Error	26	0.00297000	0.000114	Prob > F
C. Total	51	0.01174069		0.0030

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000118	50.875
Residual	0.000114	49.125
Total	0.000233	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00011	26	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00877	0.00035	25	3.0712	0.0030

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-13, Analyte=U
Response Measurement
Summary of Fit

RSquare	0.336584
RSquare Adj	-0.30226
Root Mean Square Error	0.13254
Mean of Response	0.093981
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	0.24064048	0.009255	0.5269
Error	27	0.47430850	0.017567	Prob > F
C. Total	53	0.71494898		0.9468

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	-0.00416	-30.987
Residual	0.017567	130.987
Total	0.013411	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01757	27	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.24064	0.00926	26	0.5269	0.9468

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-13, Analyte=U/Ca
Response Measurement
Summary of Fit

RSquare	0.347568
RSquare Adj	-0.2807
Root Mean Square Error	0.13376
Mean of Response	0.096
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	0.25734678	0.009898	0.5532
Error	27	0.48307402	0.017892	Prob > F
C. Total	53	0.74042080		0.9323

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	-0.004	-28.765
Residual	0.017892	128.765
Total	0.013895	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01789	27	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.25735	0.0099	26	0.5532	0.9323

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-13, Analyte=Zr
Response Measurement
Summary of Fit

RSquare	0.845137
RSquare Adj	0.69623
Root Mean Square Error	0.003048
Mean of Response	0.102173
Observations (or Sum Wgts)	52

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	25	0.00131794	0.000053	5.6756
Error	26	0.00024150	0.000009	Prob > F
C. Total	51	0.00155944		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000022	70.040
Residual	0.000009	29.960
Total	0.000031	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	9.29e-6	26	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00132	0.00005	25	5.6756	<.0001

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-14, Analyte=Al
Response Measurement
Summary of Fit

RSquare	0.658875
RSquare Adj	0.330384
Root Mean Square Error	0.060599
Mean of Response	2.34037
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	0.19150759	0.007366	2.0058
Error	27	0.09915100	0.003672	Prob > F
C. Total	53	0.29065859		0.0389

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.001847	33.461
Residual	0.003672	66.539
Total	0.005519	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00367	27	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.19151	0.00737	26	2.0058	0.0389

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-14, Analyte=Al/Ca
Response Measurement
Summary of Fit

RSquare	0.638688
RSquare Adj	0.290279
Root Mean Square Error	0.059692
Mean of Response	2.406863
Observations (or Sum Wgts)	56

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	27	0.17636049	0.006532	1.8332
Error	28	0.09976896	0.003563	Prob > F
C. Total	55	0.27612945		0.0585

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.001484	29.407
Residual	0.003563	70.593
Total	0.005048	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00356	28	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.17636	0.00653	27	1.8332	0.0585

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-14, Analyte=Al/Mg
Response Measurement
Summary of Fit

RSquare	0.769399
RSquare Adj	0.546485
Root Mean Square Error	0.114859
Mean of Response	4.838895
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	1.3205190	0.045535	3.4515
Error	30	0.3957803	0.013193	Prob > F
C. Total	59	1.7162993		0.0006

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.016171	55.072
Residual	0.013193	44.928
Total	0.029364	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01319	30	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.32052	0.04554	29	3.4515	0.0006

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-14, Analyte=Al/Mn
Response Measurement
Summary of Fit

RSquare	0.758542
RSquare Adj	0.525707
Root Mean Square Error	0.032434
Mean of Response	1.672907
Observations (or Sum Wgts)	56

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	27	0.09253537	0.003427	3.2579
Error	28	0.02945577	0.001052	Prob > F
C. Total	55	0.12199114		0.0014

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.001188	53.028
Residual	0.001052	46.972
Total	0.00224	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00105	28	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.09254	0.00343	27	3.2579	0.0014

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-14, Analyte=B
Response Measurement
Summary of Fit

RSquare	0.53084
RSquare Adj	0.078435
Root Mean Square Error	0.060323
Mean of Response	2.595143
Observations (or Sum Wgts)	56

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	27	0.11528186	0.004270	1.1734
Error	28	0.10188700	0.003639	Prob > F
C. Total	55	0.21716886		0.3381

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000315	7.977
Residual	0.003639	92.023
Total	0.003954	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00364	28	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.11528	0.00427	27	1.1734	0.3381

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-14, Analyte=B/Li
Response Measurement
Summary of Fit

RSquare	0.756567
RSquare Adj	0.521248
Root Mean Square Error	0.034897
Mean of Response	1.785661
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	0.11354671	0.003915	3.2151
Error	30	0.03653484	0.001218	Prob > F
C. Total	59	0.15008155		0.0011

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.001349	52.551
Residual	0.001218	47.449
Total	0.002567	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00122	30	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.11355	0.00392	29	3.2151	0.0011

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-14, Analyte=Ca
Response Measurement
Summary of Fit

RSquare	0.575738
RSquare Adj	0.166106
Root Mean Square Error	0.039324
Mean of Response	0.970534
Observations (or Sum Wgts)	58

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	28	0.06085693	0.002173	1.4055
Error	29	0.04484550	0.001546	Prob > F
C. Total	57	0.10570243		0.1837

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000314	16.857
Residual	0.001546	83.143
Total	0.00186	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00155	29	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.06086	0.00217	28	1.4055	0.1837

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-14, Analyte=Cr
Response Measurement
Summary of Fit

RSquare	0.862614
RSquare Adj	0.729807
Root Mean Square Error	0.003329
Mean of Response	0.068383
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	0.00208768	0.000072	6.4953
Error	30	0.00033250	0.000011	Prob > F
C. Total	59	0.00242018		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.00003	73.316
Residual	0.000011	26.684
Total	0.000042	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00001	30	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00209	0.00007	29	6.4953	<.0001

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-14, Analyte=Cu
Response Measurement
Summary of Fit

RSquare	0.694774
RSquare Adj	0.400073
Root Mean Square Error	0.002435
Mean of Response	0.001793
Observations (or Sum Wgts)	58

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	28	0.00039152	0.000014	2.3576
Error	29	0.00017200	0.000006	Prob > F
C. Total	57	0.00056352		0.0124

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000004	40.433
Residual	0.000006	59.567
Total	0.00001	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	5.93e-6	29	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00039	0.00001	28	2.3576	0.0124

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-14, Analyte=Fe
Response Measurement
Summary of Fit

RSquare	0.80974
RSquare Adj	0.626526
Root Mean Square Error	0.127692
Mean of Response	9.516833
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	1.8736550	0.072064	4.4197
Error	27	0.4402425	0.016305	Prob > F
C. Total	53	2.3138975		0.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.027879	63.097
Residual	0.016305	36.903
Total	0.044184	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01631	27	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.87365	0.07206	26	4.4197	0.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-14, Analyte=Fe/Al
Response Measurement
Summary of Fit

RSquare	0.871192
RSquare Adj	0.746825
Root Mean Square Error	0.066315
Mean of Response	4.085312
Observations (or Sum Wgts)	58

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	28	0.86255704	0.030806	7.0050
Error	29	0.12753153	0.004398	Prob > F
C. Total	57	0.99008856		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.013204	75.016
Residual	0.004398	24.984
Total	0.017602	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.0044	29	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.86256	0.03081	28	7.0050	<.0001

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-14, Analyte=Fe/Ca
Response Measurement
Summary of Fit

RSquare	0.616958
RSquare Adj	0.247597
Root Mean Square Error	0.317277
Mean of Response	9.763857
Observations (or Sum Wgts)	56

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	27	4.5398908	0.168144	1.6703
Error	28	2.8186123	0.100665	Prob > F
C. Total	55	7.3585031		0.0918

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.03374	25.103
Residual	0.100665	74.897
Total	0.134404	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.10066	28	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	4.53989	0.16814	27	1.6703	0.0918

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-14, Analyte=Fe/Li
Response Measurement
Summary of Fit

RSquare	0.73018
RSquare Adj	0.469355
Root Mean Square Error	0.127253
Mean of Response	6.547821
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	1.3146668	0.045333	2.7995
Error	30	0.4858018	0.016193	Prob > F
C. Total	59	1.8004686		0.0032

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.01457	47.361
Residual	0.016193	52.639
Total	0.030763	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01619	30	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.31467	0.04533	29	2.7995	0.0032

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-14, Analyte=Fe/Mg
Response Measurement
Summary of Fit

RSquare	0.829684
RSquare Adj	0.665918
Root Mean Square Error	0.263878
Mean of Response	19.6221
Observations (or Sum Wgts)	52

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	25	8.819342	0.352774	5.0663
Error	26	1.810422	0.069632	Prob > F
C. Total	51	10.629764		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.141571	67.031
Residual	0.069632	32.969
Total	0.211203	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.06963	26	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	8.81934	0.35277	25	5.0663	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-14, Analyte=Fe/Mn
Response Measurement
Summary of Fit

RSquare	0.592807
RSquare Adj	0.199188
Root Mean Square Error	0.076922
Mean of Response	6.8532
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	0.25842611	0.008911	1.5060
Error	30	0.17750999	0.005917	Prob > F
C. Total	59	0.43593609		0.1352

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.001497	20.193
Residual	0.005917	79.807
Total	0.007414	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00592	30	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.25843	0.00891	29	1.5060	0.1352

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-14, Analyte=Fe/Ni
Response Measurement
Summary of Fit

RSquare	0.661804
RSquare Adj	0.33488
Root Mean Square Error	0.168578
Mean of Response	11.93734
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	1.6683328	0.057529	2.0243
Error	30	0.8525554	0.028419	Prob > F
C. Total	59	2.5208881		0.0297

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.014555	33.870
Residual	0.028419	66.130
Total	0.042974	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.02842	30	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.66833	0.05753	29	2.0243	0.0297

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-14, Analyte=Fe/U
Response Measurement
Summary of Fit

RSquare	0.542802
RSquare Adj	0.105482
Root Mean Square Error	399.3535
Mean of Response	-33.2444
Observations (or Sum Wgts)	46

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	22	4354914.3	197951	1.2412
Error	23	3668114.9	159483	Prob > F
C. Total	45	8023029.2		0.3051

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	19233.7	10.762
Residual	159483.3	89.238
Total	178717	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	159483	23	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	4354914	197951	22	1.2412	0.3051

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-14, Analyte=K
Response Measurement
Summary of Fit

RSquare	0.471948
RSquare Adj	-0.0385
Root Mean Square Error	0.13956
Mean of Response	2.308267
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	0.5222287	0.018008	0.9246
Error	30	0.5843090	0.019477	Prob > F
C. Total	59	1.1065377		0.5828

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	-0.00073	-3.919
Residual	0.019477	103.919
Total	0.018742	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01948	30	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.52223	0.01801	29	0.9246	0.5828

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-14, Analyte=Li
Response Measurement
Summary of Fit

RSquare	0.619524
RSquare Adj	0.252636
Root Mean Square Error	0.040847
Mean of Response	1.455054
Observations (or Sum Wgts)	56

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	27	0.07606934	0.002817	1.6886
Error	28	0.04671750	0.001668	Prob > F
C. Total	55	0.12278684		0.0873

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000574	25.612
Residual	0.001668	74.388
Total	0.002243	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00167	28	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.07607	0.00282	27	1.6886	0.0873

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-14, Analyte=Mg
Response Measurement
Summary of Fit

RSquare	0.639143
RSquare Adj	0.291651
Root Mean Square Error	0.014841
Mean of Response	0.483944
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	0.01053233	0.000405	1.8393
Error	27	0.00594650	0.000220	Prob > F
C. Total	53	0.01647883		0.0609

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000092	29.560
Residual	0.00022	70.440
Total	0.000313	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00022	27	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.01053	0.00041	26	1.8393	0.0609

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-14, Analyte=Mn
Response Measurement
Summary of Fit

RSquare	0.598853
RSquare Adj	0.212033
Root Mean Square Error	0.032328
Mean of Response	1.389161
Observations (or Sum Wgts)	56

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	27	0.04368605	0.001618	1.5481
Error	28	0.02926350	0.001045	Prob > F
C. Total	55	0.07294955		0.1282

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000286	21.511
Residual	0.001045	78.489
Total	0.001332	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00105	28	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.04369	0.00162	27	1.5481	0.1282

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-14, Analyte=Mn/Mg
Response Measurement
Summary of Fit

RSquare	0.754352
RSquare Adj	0.517803
Root Mean Square Error	0.048439
Mean of Response	2.870397
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	0.19453939	0.007482	3.1890
Error	27	0.06334990	0.002346	Prob > F
C. Total	53	0.25788928		0.0019

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.002568	52.256
Residual	0.002346	47.744
Total	0.004914	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00235	27	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.19454	0.00748	26	3.1890	0.0019

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-14, Analyte=Na
Response Measurement
Summary of Fit

RSquare	0.63991
RSquare Adj	0.293157
Root Mean Square Error	0.149533
Mean of Response	8.299648
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	1.0728698	0.041264	1.8454
Error	27	0.6037245	0.022360	Prob > F
C. Total	53	1.6765943		0.0599

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.009452	29.712
Residual	0.02236	70.288
Total	0.031812	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.02236	27	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.07287	0.04126	26	1.8454	0.0599

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-14, Analyte=Ni
Response Measurement
Summary of Fit

RSquare	0.659991
RSquare Adj	0.332126
Root Mean Square Error	0.018637
Mean of Response	0.797821
Observations (or Sum Wgts)	56

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	27	0.01887721	0.000699	2.0130
Error	28	0.00972500	0.000347	Prob > F
C. Total	55	0.02860221		0.0355

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000176	33.621
Residual	0.000347	66.379
Total	0.000523	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00035	28	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.01888	0.0007	27	2.0130	0.0355

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-14, Analyte=Si
Response Measurement
Summary of Fit

RSquare	0.551385
RSquare Adj	0.119385
Root Mean Square Error	0.559948
Mean of Response	21.88493
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	10.404968	0.400191	1.2764
Error	27	8.465636	0.313542	Prob > F
C. Total	53	18.870604		0.2662

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.043324	12.140
Residual	0.313542	87.860
Total	0.356867	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.31354	27	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	10.405	0.40019	26	1.2764	0.2662

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-14, Analyte=Sum of Oxides
Response Measurement
Summary of Fit

RSquare	0.482173
RSquare Adj	-0.0178
Root Mean Square Error	3.789714
Mean of Response	96.179
Observations (or Sum Wgts)	58

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	28	387.81917	13.8507	0.9644
Error	29	416.49596	14.3619	Prob > F
C. Total	57	804.31514		0.5373

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	-0.25562	-1.812
Residual	14.36193	101.812
Total	14.10631	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	14.3619	29	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	387.819	13.8507	28	0.9644	0.5373

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-14, Analyte=Ti
Response Measurement
Summary of Fit

RSquare	0.523964
RSquare Adj	0.066237
Root Mean Square Error	0.01426
Mean of Response	0.670615
Observations (or Sum Wgts)	52

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	25	0.00581931	0.000233	1.1447
Error	26	0.00528700	0.000203	Prob > F
C. Total	51	0.01110631		0.3668

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000015	6.747
Residual	0.000203	93.253
Total	0.000218	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.0002	26	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00582	0.00023	25	1.1447	0.3668

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-14, Analyte=U
Response Measurement
Summary of Fit

RSquare	0.559232
RSquare Adj	0.133662
Root Mean Square Error	0.073536
Mean of Response	0.029914
Observations (or Sum Wgts)	58

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	28	0.19896707	0.007106	1.3141
Error	29	0.15681950	0.005408	Prob > F
C. Total	57	0.35578657		0.2345

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000849	13.572
Residual	0.005408	86.428
Total	0.006257	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00541	29	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.19897	0.00711	28	1.3141	0.2345

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-14, Analyte=U/Ca
Response Measurement
Summary of Fit

RSquare	0.573703
RSquare Adj	0.162105
Root Mean Square Error	0.077888
Mean of Response	0.030031
Observations (or Sum Wgts)	58

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	28	0.23676186	0.008456	1.3938
Error	29	0.17592893	0.006067	Prob > F
C. Total	57	0.41269078		0.1895

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.001195	16.452
Residual	0.006067	83.548
Total	0.007261	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00607	29	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.23676	0.00846	28	1.3938	0.1895

Sample Type=ARG-1, Prep=Cold Chem, ICP=M-14, Analyte=Zr
Response Measurement
Summary of Fit

RSquare	0.772157
RSquare Adj	0.552451
Root Mean Square Error	0.004179
Mean of Response	0.102679
Observations (or Sum Wgts)	56

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	27	0.00165721	0.000061	3.5145
Error	28	0.00048900	0.000017	Prob > F
C. Total	55	0.00214621		0.0007

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000022	55.698
Residual	0.000017	44.302
Total	0.000039	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00002	28	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00166	0.00006	27	3.5145	0.0007

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Fusion, ICP=M-13, Analyte=Al
Response Measurement
Summary of Fit

RSquare	0.656329
RSquare Adj	0.32147
Root Mean Square Error	0.077621
Mean of Response	2.401051
Observations (or Sum Wgts)	78

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	38	0.44874379	0.011809	1.9600
Error	39	0.23497400	0.006025	Prob > F
C. Total	77	0.68371779		0.0197

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.002892	32.433
Residual	0.006025	67.567
Total	0.008917	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00602	39	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.44874	0.01181	38	1.9600	0.0197

Sample Type=ARG-1, Prep=Fusion, ICP=M-13, Analyte=Al/Ca
Response Measurement
Summary of Fit

RSquare	0.758932
RSquare Adj	0.524208
Root Mean Square Error	0.040017
Mean of Response	2.438037
Observations (or Sum Wgts)	76

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	37	0.19157794	0.005178	3.2333
Error	38	0.06085308	0.001601	Prob > F
C. Total	75	0.25243101		0.0002

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.001788	52.755
Residual	0.001601	47.245
Total	0.00339	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.0016	38	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.19158	0.00518	37	3.2333	0.0002

Sample Type=ARG-1, Prep=Fusion, ICP=M-13, Analyte=Al/Mg
Response Measurement
Summary of Fit

RSquare	0.778937
RSquare Adj	0.563691
Root Mean Square Error	0.082772
Mean of Response	4.764103
Observations (or Sum Wgts)	76

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	37	0.9173570	0.024793	3.6188
Error	38	0.2603470	0.006851	Prob > F
C. Total	75	1.1777039		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.008971	56.699
Residual	0.006851	43.301
Total	0.015822	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00685	38	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.91736	0.02479	37	3.6188	<.0001

Sample Type=ARG-1, Prep=Fusion, ICP=M-13, Analyte=Al/Mn
Response Measurement
Summary of Fit

RSquare	0.743034
RSquare Adj	0.492829
Root Mean Square Error	0.028116
Mean of Response	1.706018
Observations (or Sum Wgts)	76

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	37	0.08686104	0.002348	2.9697
Error	38	0.03003952	0.000791	Prob > F
C. Total	75	0.11690056		0.0006

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000779	49.618
Residual	0.000791	50.382
Total	0.001569	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00079	38	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.08686	0.00235	37	2.9697	0.0006

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Fusion, ICP=M-13, Analyte=B
Response Measurement
Summary of Fit

RSquare	0.61423
RSquare Adj	0.238612
Root Mean Square Error	0.077794
Mean of Response	2.616763
Observations (or Sum Wgts)	76

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	37	0.36616574	0.009896	1.6353
Error	38	0.22997200	0.006052	Prob > F
C. Total	75	0.59613774		0.0679

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.001922	24.106
Residual	0.006052	75.894
Total	0.007974	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00605	38	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.36617	0.0099	37	1.6353	0.0679

Sample Type=ARG-1, Prep=Fusion, ICP=M-13, Analyte=B/Li
Response Measurement
Summary of Fit

RSquare	0.564651
RSquare Adj	0.140465
Root Mean Square Error	0.044254
Mean of Response	1.784125
Observations (or Sum Wgts)	78

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	38	0.09906250	0.002607	1.3311
Error	39	0.07637777	0.001958	Prob > F
C. Total	77	0.17544028		0.1889

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000324	14.205
Residual	0.001958	85.795
Total	0.002283	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00196	39	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.09906	0.00261	38	1.3311	0.1889

Sample Type=ARG-1, Prep=Fusion, ICP=M-13, Analyte=Ca
Response Measurement
Summary of Fit

RSquare	0.691129
RSquare Adj	0.390605
Root Mean Square Error	0.033645
Mean of Response	0.983338
Observations (or Sum Wgts)	74

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	36	0.09371605	0.002603	2.2997
Error	37	0.04188250	0.001132	Prob > F
C. Total	73	0.13559855		0.0068

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000736	39.389
Residual	0.001132	60.611
Total	0.001868	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00113	37	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.09372	0.0026	36	2.2997	0.0068

Sample Type=ARG-1, Prep=Fusion, ICP=M-13, Analyte=Cr
Response Measurement
Summary of Fit

RSquare	0.787677
RSquare Adj	0.580941
Root Mean Square Error	0.004025
Mean of Response	0.067961
Observations (or Sum Wgts)	76

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	37	0.00228338	0.000062	3.8101
Error	38	0.00061550	0.000016	Prob > F
C. Total	75	0.00289888		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000023	58.421
Residual	0.000016	41.579
Total	0.000039	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00002	38	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00228	0.00006	37	3.8101	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Fusion, ICP=M-13, Analyte=Cu
Response Measurement
Summary of Fit

RSquare	0.795446
RSquare Adj	0.596136
Root Mean Square Error	0.002873
Mean of Response	0.001846
Observations (or Sum Wgts)	78

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	38	0.00125215	0.000033	3.9910
Error	39	0.00032200	0.000008	Prob > F
C. Total	77	0.00157415		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000012	59.928
Residual	0.000008	40.072
Total	0.000021	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	8.26e-6	39	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00125	0.00003	38	3.9910	<.0001

Sample Type=ARG-1, Prep=Fusion, ICP=M-13, Analyte=Fe
Response Measurement
Summary of Fit

RSquare	0.656536
RSquare Adj	0.322355
Root Mean Square Error	0.288246
Mean of Response	9.708905
Observations (or Sum Wgts)	74

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	36	5.8763208	0.163231	1.9646
Error	37	3.0741695	0.083086	Prob > F
C. Total	73	8.9504903		0.0221

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.040073	32.538
Residual	0.083086	67.462
Total	0.123158	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.08309	37	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	5.87632	0.16323	36	1.9646	0.0221

Sample Type=ARG-1, Prep=Fusion, ICP=M-13, Analyte=Fe/Al
Response Measurement
Summary of Fit

RSquare	0.73883
RSquare Adj	0.484533
Root Mean Square Error	0.072844
Mean of Response	4.031659
Observations (or Sum Wgts)	76

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	37	0.57042205	0.015417	2.9054
Error	38	0.20163899	0.005306	Prob > F
C. Total	75	0.77206104		0.0007

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.005055	48.789
Residual	0.005306	51.211
Total	0.010362	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00531	38	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.57042	0.01542	37	2.9054	0.0007

Sample Type=ARG-1, Prep=Fusion, ICP=M-13, Analyte=Fe/Ca
Response Measurement
Summary of Fit

RSquare	0.623213
RSquare Adj	0.256342
Root Mean Square Error	0.265044
Mean of Response	9.80705
Observations (or Sum Wgts)	76

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	37	4.4153112	0.119333	1.6987
Error	38	2.6694392	0.070248	Prob > F
C. Total	75	7.0847504		0.0542

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.024542	25.891
Residual	0.070248	74.109
Total	0.094791	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.07025	38	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	4.41531	0.11933	37	1.6987	0.0542

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Fusion, ICP=M-13, Analyte=Fe/Li
Response Measurement
Summary of Fit

RSquare	0.645683
RSquare Adj	0.30069
Root Mean Square Error	0.167979
Mean of Response	6.61406
Observations (or Sum Wgts)	76

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	37	1.9539746	0.052810	1.8716
Error	38	1.0722395	0.028217	Prob > F
C. Total	75	3.0262141		0.0290

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.012297	30.352
Residual	0.028217	69.648
Total	0.040513	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.02822	38	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.95397	0.05281	37	1.8716	0.0290

Sample Type=ARG-1, Prep=Fusion, ICP=M-13, Analyte=Fe/Mg
Response Measurement
Summary of Fit

RSquare	0.517585
RSquare Adj	0.048209
Root Mean Square Error	0.337358
Mean of Response	19.16612
Observations (or Sum Wgts)	74

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	36	4.5179883	0.125500	1.1027
Error	37	4.2109856	0.113810	Prob > F
C. Total	73	8.7289740		0.3841

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.005845	4.885
Residual	0.11381	95.115
Total	0.119655	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.11381	37	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	4.51799	0.1255	36	1.1027	0.3841

Sample Type=ARG-1, Prep=Fusion, ICP=M-13, Analyte=Fe/Mn
Response Measurement
Summary of Fit

RSquare	0.667802
RSquare Adj	0.344583
Root Mean Square Error	0.084426
Mean of Response	6.867823
Observations (or Sum Wgts)	74

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	36	0.53015268	0.014726	2.0661
Error	37	0.26372379	0.007128	Prob > F
C. Total	73	0.79387647		0.0154

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.003799	34.771
Residual	0.007128	65.229
Total	0.010927	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00713	37	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.53015	0.01473	36	2.0661	0.0154

Sample Type=ARG-1, Prep=Fusion, ICP=M-13, Analyte=Fe/Ni
Response Measurement
Summary of Fit

RSquare	0.490002
RSquare Adj	-0.00657
Root Mean Square Error	0.297587
Mean of Response	12.05206
Observations (or Sum Wgts)	76

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	37	3.2332756	0.087386	0.9868
Error	38	3.3652131	0.088558	Prob > F
C. Total	75	6.5984887		0.5156

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	-0.00059	-0.666
Residual	0.088558	100.666
Total	0.087972	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.08856	38	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	3.23328	0.08739	37	0.9868	0.5156

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Fusion, ICP=M-13, Analyte=Fe/U
Response Measurement
Summary of Fit

RSquare	0.607821
RSquare Adj	0.228715
Root Mean Square Error	339.2734
Mean of Response	86.99412
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	5351956.5	184550	1.6033
Error	30	3453193.6	115106	Prob > F
C. Total	59	8805150.1		0.1022

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	34721.88	23.174
Residual	115106.5	76.826
Total	149828.3	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	115106	30	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	5351956	184550	29	1.6033	0.1022

Sample Type=ARG-1, Prep=Fusion, ICP=M-13, Analyte=K
Response Measurement
Summary of Fit

RSquare	0.635748
RSquare Adj	0.280836
Root Mean Square Error	0.11278
Mean of Response	2.197577
Observations (or Sum Wgts)	78

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	38	0.8657945	0.022784	1.7913
Error	39	0.4960565	0.012719	Prob > F
C. Total	77	1.3618510		0.0369

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.005032	28.348
Residual	0.012719	71.652
Total	0.017752	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01272	39	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.86579	0.02278	38	1.7913	0.0369

Sample Type=ARG-1, Prep=Fusion, ICP=M-13, Analyte=Li
Response Measurement
Summary of Fit

RSquare	0.574579
RSquare Adj	0.160354
Root Mean Square Error	0.047969
Mean of Response	1.467053
Observations (or Sum Wgts)	76

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	37	0.11809779	0.003192	1.3871
Error	38	0.08744000	0.002301	Prob > F
C. Total	75	0.20553779		0.1598

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000445	16.217
Residual	0.002301	83.783
Total	0.002746	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.0023	38	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.1181	0.00319	37	1.3871	0.1598

Sample Type=ARG-1, Prep=Fusion, ICP=M-13, Analyte=Mg
Response Measurement
Summary of Fit

RSquare	0.656304
RSquare Adj	0.321897
Root Mean Square Error	0.015993
Mean of Response	0.506027
Observations (or Sum Wgts)	74

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	36	0.01807195	0.000502	1.9626
Error	37	0.00946400	0.000256	Prob > F
C. Total	73	0.02753595		0.0223

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000123	32.491
Residual	0.000256	67.509
Total	0.000379	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00026	37	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.01807	0.0005	36	1.9626	0.0223

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Fusion, ICP=M-13, Analyte=Mn
Response Measurement
Summary of Fit

RSquare	0.616477
RSquare Adj	0.243046
Root Mean Square Error	0.047961
Mean of Response	1.414276
Observations (or Sum Wgts)	76

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	37	0.14050070	0.003797	1.6508
Error	38	0.08740850	0.002300	Prob > F
C. Total	75	0.22790920		0.0643

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000749	24.552
Residual	0.0023	75.448
Total	0.003049	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.0023	38	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.1405	0.0038	37	1.6508	0.0643

Sample Type=ARG-1, Prep=Fusion, ICP=M-13, Analyte=Mn/Mg
Response Measurement
Summary of Fit

RSquare	0.592187
RSquare Adj	0.195105
Root Mean Square Error	0.051871
Mean of Response	2.792904
Observations (or Sum Wgts)	76

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	37	0.14846839	0.004013	1.4913
Error	38	0.10224379	0.002691	Prob > F
C. Total	75	0.25071218		0.1124

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000661	19.722
Residual	0.002691	80.278
Total	0.003352	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00269	38	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.14847	0.00401	37	1.4913	0.1124

Sample Type=ARG-1, Prep=Fusion, ICP=M-13, Analyte=Na

Sample Type=ARG-1, Prep=Fusion, ICP=M-13, Analyte=Ni
Response Measurement
Summary of Fit

RSquare	0.710046
RSquare Adj	0.427722
Root Mean Square Error	0.022985
Mean of Response	0.802671
Observations (or Sum Wgts)	76

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	37	0.04916128	0.001329	2.5150
Error	38	0.02007550	0.000528	Prob > F
C. Total	75	0.06923678		0.0028

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.0004	43.101
Residual	0.000528	56.899
Total	0.000928	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00053	38	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.04916	0.00133	37	2.5150	0.0028

Sample Type=ARG-1, Prep=Fusion, ICP=M-13, Analyte=Si
Response Measurement
Summary of Fit

RSquare	0.662383
RSquare Adj	0.333651
Root Mean Square Error	0.648671
Mean of Response	22.58568
Observations (or Sum Wgts)	76

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	37	31.370196	0.847843	2.0150
Error	38	15.989402	0.420774	Prob > F
C. Total	75	47.359598		0.0172

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.213535	33.664
Residual	0.420774	66.336
Total	0.634308	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.42077	38	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	31.3702	0.84784	37	2.0150	0.0172

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Fusion, ICP=M-13, Analyte=Sum of Oxides
Response Measurement
Summary of Fit

RSquare	0.584057
RSquare Adj	0.178779
Root Mean Square Error	3.026719
Mean of Response	87.10261
Observations (or Sum Wgts)	78

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	38	501.68430	13.2022	1.4411
Error	39	357.28012	9.1610	Prob > F
C. Total	77	858.96443		0.1302

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	2.020595	18.071
Residual	9.161029	81.929
Total	11.18162	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	9.16103	39	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	501.684	13.2022	38	1.4411	0.1302

Sample Type=ARG-1, Prep=Fusion, ICP=M-13, Analyte=Ti
Response Measurement
Summary of Fit

RSquare	0.580661
RSquare Adj	0.172074
Root Mean Square Error	0.023355
Mean of Response	0.670949
Observations (or Sum Wgts)	78

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	38	0.02945679	0.000775	1.4211
Error	39	0.02127300	0.000545	Prob > F
C. Total	77	0.05072979		0.1395

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000115	17.394
Residual	0.000545	82.606
Total	0.00066	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00055	39	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.02946	0.00078	38	1.4211	0.1395

Sample Type=ARG-1, Prep=Fusion, ICP=M-13, Analyte=U
Response Measurement
Summary of Fit

RSquare	0.876977
RSquare Adj	0.757108
Root Mean Square Error	0.029985
Mean of Response	0.021231
Observations (or Sum Wgts)	78

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	38	0.24996985	0.006578	7.3161
Error	39	0.03506600	0.000899	Prob > F
C. Total	77	0.28503585		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.00284	75.950
Residual	0.000899	24.050
Total	0.003739	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.0009	39	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.24997	0.00658	38	7.3161	<.0001

Sample Type=ARG-1, Prep=Fusion, ICP=M-13, Analyte=U/Ca
Response Measurement
Summary of Fit

RSquare	0.873078
RSquare Adj	0.74941
Root Mean Square Error	0.03141
Mean of Response	0.022113
Observations (or Sum Wgts)	78

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	38	0.26467117	0.006965	7.0599
Error	39	0.03847616	0.000987	Prob > F
C. Total	77	0.30314733		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.002989	75.186
Residual	0.000987	24.814
Total	0.003976	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00099	39	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.26467	0.00697	38	7.0599	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Fusion, ICP=M-13, Analyte=Zr

Sample Type=ARG-1, Prep=Fusion, ICP=M-14, Analyte=Al
Response Measurement
Summary of Fit

RSquare	0.596015
RSquare Adj	0.220886
Root Mean Square Error	0.066127
Mean of Response	2.392286
Observations (or Sum Wgts)	28

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	13	0.09031871	0.006948	1.5888
Error	14	0.06121900	0.004373	Prob > F
C. Total	27	0.15153771		0.2005

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.001287	22.745
Residual	0.004373	77.255
Total	0.00566	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00437	14	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.09032	0.00695	13	1.5888	0.2005

Sample Type=ARG-1, Prep=Fusion, ICP=M-14, Analyte=Al/Ca
Response Measurement
Summary of Fit

RSquare	0.731948
RSquare Adj	0.486235
Root Mean Square Error	0.042879
Mean of Response	2.475269
Observations (or Sum Wgts)	24

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	11	0.06024769	0.005477	2.9789
Error	12	0.02206369	0.001839	Prob > F
C. Total	23	0.08231138		0.0367

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.001819	49.734
Residual	0.001839	50.266
Total	0.003658	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00184	12	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.06025	0.00548	11	2.9789	0.0367

Sample Type=ARG-1, Prep=Fusion, ICP=M-14, Analyte=Al/Mg
Response Measurement
Summary of Fit

RSquare	0.501861
RSquare Adj	0.039304
Root Mean Square Error	0.087708
Mean of Response	4.820871
Observations (or Sum Wgts)	28

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	13	0.10850295	0.008346	1.0850
Error	14	0.10769820	0.007693	Prob > F
C. Total	27	0.21620115		0.4389

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000327	4.075
Residual	0.007693	95.925
Total	0.00802	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00769	14	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.1085	0.00835	13	1.0850	0.4389

Sample Type=ARG-1, Prep=Fusion, ICP=M-14, Analyte=Al/Mn
Response Measurement
Summary of Fit

RSquare	0.610742
RSquare Adj	0.249287
Root Mean Square Error	0.031091
Mean of Response	1.720974
Observations (or Sum Wgts)	28

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	13	0.02123358	0.001633	1.6897
Error	14	0.01353330	0.000967	Prob > F
C. Total	27	0.03476688		0.1711

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000333	25.642
Residual	0.000967	74.358
Total	0.0013	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00097	14	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.02123	0.00163	13	1.6897	0.1711

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Fusion, ICP=M-14, Analyte=B
Response Measurement
Summary of Fit

RSquare	0.518082
RSquare Adj	0.073234
Root Mean Square Error	0.063766
Mean of Response	2.555231
Observations (or Sum Wgts)	26

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	12	0.05682662	0.004736	1.1646
Error	13	0.05286000	0.004066	Prob > F
C. Total	25	0.10968662		0.3930

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000335	7.605
Residual	0.004066	92.395
Total	0.004401	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00407	13	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.05683	0.00474	12	1.1646	0.3930

Sample Type=ARG-1, Prep=Fusion, ICP=M-14, Analyte=B/Li
Response Measurement
Summary of Fit

RSquare	0.791643
RSquare Adj	0.598169
Root Mean Square Error	0.019674
Mean of Response	1.744337
Observations (or Sum Wgts)	28

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	13	0.02058954	0.001584	4.0917
Error	14	0.00541907	0.000387	Prob > F
C. Total	27	0.02600861		0.0067

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000598	60.721
Residual	0.000387	39.279
Total	0.000985	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00039	14	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.02059	0.00158	13	4.0917	0.0067

Sample Type=ARG-1, Prep=Fusion, ICP=M-14, Analyte=Ca
Response Measurement
Summary of Fit

RSquare	0.485332
RSquare Adj	0.013554
Root Mean Square Error	0.023761
Mean of Response	0.971083
Observations (or Sum Wgts)	24

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	11	0.00638883	0.000581	1.0287
Error	12	0.00677500	0.000565	Prob > F
C. Total	23	0.01316383		0.4778

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000008	1.416
Residual	0.000565	98.584
Total	0.000573	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00056	12	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00639	0.00058	11	1.0287	0.4778

Sample Type=ARG-1, Prep=Fusion, ICP=M-14, Analyte=Cr
Response Measurement
Summary of Fit

RSquare	0.751856
RSquare Adj	0.5228
Root Mean Square Error	0.0048
Mean of Response	0.066038
Observations (or Sum Wgts)	26

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	12	0.00090746	0.000076	3.2824
Error	13	0.00029950	0.000023	Prob > F
C. Total	25	0.00120696		0.0214

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000026	53.297
Residual	0.000023	46.703
Total	0.000049	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00002	13	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00091	0.00008	12	3.2824	0.0214

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Fusion, ICP=M-14, Analyte=Cu
Response Measurement
Summary of Fit

RSquare	0.690819
RSquare Adj	0.403722
Root Mean Square Error	0.003566
Mean of Response	-0.00071
Observations (or Sum Wgts)	28

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	13	0.00039771	0.000031	2.4062
Error	14	0.00017800	0.000013	Prob > F
C. Total	27	0.00057571		0.0578

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000009	41.284
Residual	0.000013	58.716
Total	0.000022	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00001	14	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.0004	0.00003	13	2.4062	0.0578

Sample Type=ARG-1, Prep=Fusion, ICP=M-14, Analyte=Fe
Response Measurement
Summary of Fit

RSquare	0.740332
RSquare Adj	0.499212
Root Mean Square Error	0.172285
Mean of Response	9.549571
Observations (or Sum Wgts)	28

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	13	1.1847589	0.091135	3.0704
Error	14	0.4155480	0.029682	Prob > F
C. Total	27	1.6003069		0.0231

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.030727	50.865
Residual	0.029682	49.135
Total	0.060409	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.02968	14	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.18476	0.09114	13	3.0704	0.0231

Sample Type=ARG-1, Prep=Fusion, ICP=M-14, Analyte=Fe/Al
Response Measurement
Summary of Fit

RSquare	0.589255
RSquare Adj	0.207848
Root Mean Square Error	0.090304
Mean of Response	3.993699
Observations (or Sum Wgts)	28

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	13	0.16378581	0.012599	1.5450
Error	14	0.11416837	0.008155	Prob > F
C. Total	27	0.27795418		0.2148

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.002222	21.413
Residual	0.008155	78.587
Total	0.010377	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00815	14	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.16379	0.0126	13	1.5450	0.2148

Sample Type=ARG-1, Prep=Fusion, ICP=M-14, Analyte=Fe/Ca
Response Measurement
Summary of Fit

RSquare	0.619454
RSquare Adj	0.268182
Root Mean Square Error	0.280918
Mean of Response	9.882986
Observations (or Sum Wgts)	26

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	12	1.6699543	0.139163	1.7635
Error	13	1.0258926	0.078915	Prob > F
C. Total	25	2.6958469		0.1618

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.030124	27.627
Residual	0.078915	72.373
Total	0.109039	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.07891	13	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.66995	0.13916	12	1.7635	0.1618

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Fusion, ICP=M-14, Analyte=Fe/Li
Response Measurement
Summary of Fit

RSquare	0.742907
RSquare Adj	0.504178
Root Mean Square Error	0.099839
Mean of Response	6.551828
Observations (or Sum Wgts)	28

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	13	0.40324659	0.031019	3.1119
Error	14	0.13954887	0.009968	Prob > F
C. Total	27	0.54279546		0.0219

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.010526	51.361
Residual	0.009968	48.639
Total	0.020493	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00997	14	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.40325	0.03102	13	3.1119	0.0219

Sample Type=ARG-1, Prep=Fusion, ICP=M-14, Analyte=Fe/Mg
Response Measurement
Summary of Fit

RSquare	0.726628
RSquare Adj	0.474285
Root Mean Square Error	0.159897
Mean of Response	19.14317
Observations (or Sum Wgts)	26

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	12	0.8834495	0.073621	2.8795
Error	13	0.3323710	0.025567	Prob > F
C. Total	25	1.2158205		0.0350

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.024027	48.447
Residual	0.025567	51.553
Total	0.049594	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.02557	13	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.88345	0.07362	12	2.8795	0.0350

Sample Type=ARG-1, Prep=Fusion, ICP=M-14, Analyte=Fe/Mn
Response Measurement
Summary of Fit

RSquare	0.671583
RSquare Adj	0.368428
Root Mean Square Error	0.060049
Mean of Response	6.8384
Observations (or Sum Wgts)	26

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	12	0.09585670	0.007988	2.2153
Error	13	0.04687581	0.003606	Prob > F
C. Total	25	0.14273251		0.0846

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.002191	37.798
Residual	0.003606	62.202
Total	0.005797	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00361	13	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.09586	0.00799	12	2.2153	0.0846

Sample Type=ARG-1, Prep=Fusion, ICP=M-14, Analyte=Fe/Ni
Response Measurement
Summary of Fit

RSquare	0.666313
RSquare Adj	0.356462
Root Mean Square Error	0.217527
Mean of Response	12.19136
Observations (or Sum Wgts)	28

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	13	1.3228030	0.101754	2.1504
Error	14	0.6624536	0.047318	Prob > F
C. Total	27	1.9852566		0.0843

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.027218	36.517
Residual	0.047318	63.483
Total	0.074536	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.04732	14	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.3228	0.10175	13	2.1504	0.0843

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Fusion, ICP=M-14, Analyte=Fe/U
Response Measurement
Summary of Fit

RSquare	0.648233
RSquare Adj	0.323525
Root Mean Square Error	202.3171
Mean of Response	68.55243
Observations (or Sum Wgts)	26

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	12	980582.7	81715.2	1.9964
Error	13	532118.8	40932.2	Prob > F
C. Total	25	1512701.5		0.1154

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	20391.5	33.252
Residual	40932.22	66.748
Total	61323.72	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	40932.2	13	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	980583	81715.2	12	1.9964	0.1154

Sample Type=ARG-1, Prep=Fusion, ICP=M-14, Analyte=K
Response Measurement
Summary of Fit

RSquare	0.679696
RSquare Adj	0.382271
Root Mean Square Error	0.18012
Mean of Response	2.165036
Observations (or Sum Wgts)	28

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	13	0.9638425	0.074142	2.2853
Error	14	0.4542065	0.032443	Prob > F
C. Total	27	1.4180490		0.0690

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.020849	39.122
Residual	0.032443	60.878
Total	0.053293	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.03244	14	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.96384	0.07414	13	2.2853	0.0690

Sample Type=ARG-1, Prep=Fusion, ICP=M-14, Analyte=Li
Response Measurement
Summary of Fit

RSquare	0.704405
RSquare Adj	0.429924
Root Mean Square Error	0.033459
Mean of Response	1.458071
Observations (or Sum Wgts)	28

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	13	0.03734886	0.002873	2.5663
Error	14	0.01567300	0.001119	Prob > F
C. Total	27	0.05302186		0.0460

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000877	43.920
Residual	0.001119	56.080
Total	0.001996	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00112	14	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.03735	0.00287	13	2.5663	0.0460

Sample Type=ARG-1, Prep=Fusion, ICP=M-14, Analyte=Mg
Response Measurement
Summary of Fit

RSquare	0.687217
RSquare Adj	0.396776
Root Mean Square Error	0.012931
Mean of Response	0.496357
Observations (or Sum Wgts)	28

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	13	0.00514343	0.000396	2.3661
Error	14	0.00234100	0.000167	Prob > F
C. Total	27	0.00748443		0.0613

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000114	40.584
Residual	0.000167	59.416
Total	0.000281	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00017	14	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00514	0.0004	13	2.3661	0.0613

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Fusion, ICP=M-14, Analyte=Mn
Response Measurement
Summary of Fit

RSquare	0.635363
RSquare Adj	0.298775
Root Mean Square Error	0.029966
Mean of Response	1.397192
Observations (or Sum Wgts)	26

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	12	0.02034054	0.001695	1.8877
Error	13	0.01167350	0.000898	Prob > F
C. Total	25	0.03201404		0.1349

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000399	30.740
Residual	0.000898	69.260
Total	0.001297	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.0009	13	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.02034	0.0017	12	1.8877	0.1349

Sample Type=ARG-1, Prep=Fusion, ICP=M-14, Analyte=Mn/Mg
Response Measurement
Summary of Fit

RSquare	0.747367
RSquare Adj	0.512779
Root Mean Square Error	0.029015
Mean of Response	2.80167
Observations (or Sum Wgts)	28

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	13	0.03486830	0.002682	3.1859
Error	14	0.01178655	0.000842	Prob > F
C. Total	27	0.04665485		0.0199

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.00092	52.220
Residual	0.000842	47.780
Total	0.001762	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00084	14	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.03487	0.00268	13	3.1859	0.0199

Sample Type=ARG-1, Prep=Fusion, ICP=M-14, Analyte=Na

Sample Type=ARG-1, Prep=Fusion, ICP=M-14, Analyte=Ni
Response Measurement
Summary of Fit

RSquare	0.4998
RSquare Adj	0.035328
Root Mean Square Error	0.023749
Mean of Response	0.783607
Observations (or Sum Wgts)	28

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	13	0.00789018	0.000607	1.0761
Error	14	0.00789650	0.000564	Prob > F
C. Total	27	0.01578668		0.4447

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000021	3.664
Residual	0.000564	96.336
Total	0.000585	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00056	14	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00789	0.00061	13	1.0761	0.4447

Sample Type=ARG-1, Prep=Fusion, ICP=M-14, Analyte=Si
Response Measurement
Summary of Fit

RSquare	0.603838
RSquare Adj	0.235974
Root Mean Square Error	0.513036
Mean of Response	22.41382
Observations (or Sum Wgts)	28

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	13	5.6165726	0.432044	1.6415
Error	14	3.6848815	0.263206	Prob > F
C. Total	27	9.3014541		0.1845

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.084419	24.285
Residual	0.263206	75.715
Total	0.347625	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.26321	14	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	5.61657	0.43204	13	1.6415	0.1845

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Fusion, ICP=M-14, Analyte=Sum of Oxides
Response Measurement
Summary of Fit

RSquare	0.578353
RSquare Adj	0.186823
Root Mean Square Error	1.808654
Mean of Response	86.17594
Observations (or Sum Wgts)	28

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	13	62.81774	4.83213	1.4772
Error	14	45.79722	3.27123	Prob > F
C. Total	27	108.61496		0.2390

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.780452	19.262
Residual	3.27123	80.738
Total	4.051682	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	3.27123	14	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	62.8177	4.83213	13	1.4772	0.2390

Sample Type=ARG-1, Prep=Fusion, ICP=M-14, Analyte=Ti
Response Measurement
Summary of Fit

RSquare	0.615148
RSquare Adj	0.259899
Root Mean Square Error	0.013178
Mean of Response	0.671654
Observations (or Sum Wgts)	26

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	12	0.00360838	0.000301	1.7316
Error	13	0.00225750	0.000174	Prob > F
C. Total	25	0.00586588		0.1696

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000064	26.783
Residual	0.000174	73.217
Total	0.000237	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00017	13	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00361	0.0003	12	1.7316	0.1696

Sample Type=ARG-1, Prep=Fusion, ICP=M-14, Analyte=U
Response Measurement
Summary of Fit

RSquare	0.734354
RSquare Adj	0.487683
Root Mean Square Error	0.062273
Mean of Response	-0.04486
Observations (or Sum Wgts)	28

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	13	0.15008243	0.011545	2.9771
Error	14	0.05429100	0.003878	Prob > F
C. Total	27	0.20437343		0.0262

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.003833	49.712
Residual	0.003878	50.288
Total	0.007711	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00388	14	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.15008	0.01154	13	2.9771	0.0262

Sample Type=ARG-1, Prep=Fusion, ICP=M-14, Analyte=U/Ca
Response Measurement
Summary of Fit

RSquare	0.687939
RSquare Adj	0.398169
Root Mean Square Error	0.07285
Mean of Response	-0.049
Observations (or Sum Wgts)	28

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	13	0.16379532	0.012600	2.3741
Error	14	0.07430022	0.005307	Prob > F
C. Total	27	0.23809554		0.0606

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.003646	40.725
Residual	0.005307	59.275
Total	0.008953	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00531	14	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.1638	0.0126	13	2.3741	0.0606

Sample Type=ARG-1, Prep=Fusion, ICP=M-14, Analyte=Zr

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-13, Analyte=Al
Response Measurement
Summary of Fit

RSquare	0.666193
RSquare Adj	0.343513
Root Mean Square Error	0.041992
Mean of Response	2.298967
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	0.10557293	0.003640	2.0646
Error	30	0.05289900	0.001763	Prob > F
C. Total	59	0.15847193		0.0264

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000939	34.738
Residual	0.001763	65.262
Total	0.002702	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00176	30	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.10557	0.00364	29	2.0646	0.0264

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-13, Analyte=Al/Ca
Response Measurement
Summary of Fit

RSquare	0.668713
RSquare Adj	0.348113
Root Mean Square Error	0.033412
Mean of Response	2.312817
Observations (or Sum Wgts)	62

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	30	0.06985549	0.002329	2.0858
Error	31	0.03460710	0.001116	Prob > F
C. Total	61	0.10446259		0.0229

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000606	35.187
Residual	0.001116	64.813
Total	0.001722	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00112	31	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.06986	0.00233	30	2.0858	0.0229

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-13, Analyte=Al/Mg
Response Measurement
Summary of Fit

RSquare	0.733353
RSquare Adj	0.475307
Root Mean Square Error	0.089788
Mean of Response	4.518645
Observations (or Sum Wgts)	62

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	30	0.68734481	0.022911	2.8420
Error	31	0.24991864	0.008062	Prob > F
C. Total	61	0.93726345		0.0025

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.007425	47.943
Residual	0.008062	52.057
Total	0.015487	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00806	31	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.68734	0.02291	30	2.8420	0.0025

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-13, Analyte=Al/Mn
Response Measurement
Summary of Fit

RSquare	0.711503
RSquare Adj	0.432312
Root Mean Square Error	0.027375
Mean of Response	1.654021
Observations (or Sum Wgts)	62

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	30	0.05729240	0.001910	2.5484
Error	31	0.02323067	0.000749	Prob > F
C. Total	61	0.08052307		0.0058

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.00058	43.637
Residual	0.000749	56.363
Total	0.00133	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00075	31	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.05729	0.00191	30	2.5484	0.0058

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-13, Analyte=B

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-13, Analyte=B/Li

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-13, Analyte=Ca
Response Measurement
Summary of Fit

RSquare	0.717246
RSquare Adj	0.443918
Root Mean Square Error	0.016801
Mean of Response	0.993833
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	0.02148033	0.000741	2.6241
Error	30	0.00846800	0.000282	Prob > F
C. Total	59	0.02994833		0.0053

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000229	44.814
Residual	0.000282	55.186
Total	0.000511	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00028	30	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.02148	0.00074	29	2.6241	0.0053

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-13, Analyte=Cr
Response Measurement
Summary of Fit

RSquare	0.799292
RSquare Adj	0.605058
Root Mean Square Error	0.005118
Mean of Response	0.066806
Observations (or Sum Wgts)	62

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	30	0.00323368	0.000108	4.1151
Error	31	0.00081200	0.000026	Prob > F
C. Total	61	0.00404568		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000041	60.900
Residual	0.000026	39.100
Total	0.000067	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00003	31	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00323	0.00011	30	4.1151	<.0001

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-13, Analyte=Cu
Response Measurement
Summary of Fit

RSquare	0.956745
RSquare Adj	0.914933
Root Mean Square Error	0.002349
Mean of Response	-0.00338
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	0.00366068	0.000126	22.8817
Error	30	0.00016550	0.000006	Prob > F
C. Total	59	0.00382618		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.00006	91.625
Residual	0.000006	8.375
Total	0.000066	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	5.52e-6	30	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00366	0.00013	29	22.8817	<.0001

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-13, Analyte=Fe
Response Measurement
Summary of Fit

RSquare	0.515922
RSquare Adj	0.04798
Root Mean Square Error	0.197928
Mean of Response	9.523933
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	1.2525777	0.043192	1.1025
Error	30	1.1752660	0.039176	Prob > F
C. Total	59	2.4278437		0.3955

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.002008	4.877
Residual	0.039176	95.123
Total	0.041184	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.03918	30	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.25258	0.04319	29	1.1025	0.3955

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-13, Analyte=Fe/Al
Response Measurement
Summary of Fit

RSquare	0.720126
RSquare Adj	0.44928
Root Mean Square Error	0.079757
Mean of Response	4.148937
Observations (or Sum Wgts)	62

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	30	0.50739634	0.016913	2.6588
Error	31	0.19719757	0.006361	Prob > F
C. Total	61	0.70459391		0.0042

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.005276	45.337
Residual	0.006361	54.663
Total	0.011637	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00636	31	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.5074	0.01691	30	2.6588	0.0042

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-13, Analyte=Fe/Ca
Response Measurement
Summary of Fit

RSquare	0.743525
RSquare Adj	0.495324
Root Mean Square Error	0.155039
Mean of Response	9.593467
Observations (or Sum Wgts)	62

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	30	2.1602113	0.072007	2.9957
Error	31	0.7451522	0.024037	Prob > F
C. Total	61	2.9053636		0.0016

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.023985	49.946
Residual	0.024037	50.054
Total	0.048022	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.02404	31	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	2.16021	0.07201	30	2.9957	0.0016

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-13, Analyte=Fe/Li
Response Measurement
Summary of Fit

RSquare	0.881038
RSquare Adj	0.766041
Root Mean Square Error	0.095888
Mean of Response	6.499968
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	2.0428557	0.070443	7.6614
Error	30	0.2758361	0.009195	Prob > F
C. Total	59	2.3186919		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.030624	76.909
Residual	0.009195	23.091
Total	0.039819	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00919	30	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	2.04286	0.07044	29	7.6614	<.0001

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-13, Analyte=Fe/Mg
Response Measurement
Summary of Fit

RSquare	0.743028
RSquare Adj	0.494346
Root Mean Square Error	0.203208
Mean of Response	18.73663
Observations (or Sum Wgts)	62

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	30	3.7013895	0.123380	2.9879
Error	31	1.2801026	0.041294	Prob > F
C. Total	61	4.9814921		0.0017

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.041043	49.848
Residual	0.041294	50.152
Total	0.082337	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.04129	31	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	3.70139	0.12338	30	2.9879	0.0017

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-13, Analyte=Fe/Mn
Response Measurement
Summary of Fit

RSquare	0.72107
RSquare Adj	0.451137
Root Mean Square Error	0.075746
Mean of Response	6.859287
Observations (or Sum Wgts)	62

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	30	0.45979275	0.015326	2.6713
Error	31	0.17786111	0.005737	Prob > F
C. Total	61	0.63765385		0.0040

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.004794	45.523
Residual	0.005737	54.477
Total	0.010532	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00574	31	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.45979	0.01533	30	2.6713	0.0040

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-13, Analyte=Fe/Ni
Response Measurement
Summary of Fit

RSquare	0.6834
RSquare Adj	0.377353
Root Mean Square Error	0.22444
Mean of Response	11.8287
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	3.2619994	0.112483	2.2330
Error	30	1.5111932	0.050373	Prob > F
C. Total	59	4.7731927		0.0161

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.031055	38.138
Residual	0.050373	61.862
Total	0.081428	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.05037	30	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	3.262	0.11248	29	2.2330	0.0161

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-13, Analyte=Fe/U
Response Measurement
Summary of Fit

RSquare	0.433699
RSquare Adj	-0.11238
Root Mean Square Error	124.42
Mean of Response	-54.1556
Observations (or Sum Wgts)	56

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	27	331954.72	12294.6	0.7942
Error	28	433449.21	15480.3	Prob > F
C. Total	55	765403.93		0.7241

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	-1592.85	-11.470
Residual	15480.33	111.470
Total	13887.47	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	15480.3	28	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	331955	12294.6	27	0.7942	0.7241

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-13, Analyte=K
Response Measurement
Summary of Fit

RSquare	0.816766
RSquare Adj	0.63964
Root Mean Square Error	0.243545
Mean of Response	2.0071
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	7.9317684	0.273509	4.6112
Error	30	1.7794190	0.059314	Prob > F
C. Total	59	9.7111874		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.107098	64.357
Residual	0.059314	35.643
Total	0.166412	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.05931	30	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	7.93177	0.27351	29	4.6112	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-13, Analyte=Li
Response Measurement
Summary of Fit

RSquare	0.858197
RSquare Adj	0.721285
Root Mean Square Error	0.025268
Mean of Response	1.465466
Observations (or Sum Wgts)	58

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	28	0.11205693	0.004002	6.2682
Error	29	0.01851550	0.000638	Prob > F
C. Total	57	0.13057243		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.001682	72.483
Residual	0.000638	27.517
Total	0.00232	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00064	29	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.11206	0.004	28	6.2682	<.0001

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-13, Analyte=Mg
Response Measurement
Summary of Fit

RSquare	0.605266
RSquare Adj	0.22369
Root Mean Square Error	0.010778
Mean of Response	0.508567
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	0.00534373	0.000184	1.5862
Error	30	0.00348500	0.000116	Prob > F
C. Total	59	0.00882873		0.1074

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000034	22.667
Residual	0.000116	77.333
Total	0.00015	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00012	30	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00534	0.00018	29	1.5862	0.1074

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-13, Analyte=Mn
Response Measurement
Summary of Fit

RSquare	0.518098
RSquare Adj	0.052259
Root Mean Square Error	0.027109
Mean of Response	1.389017
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	0.02370348	0.000817	1.1122
Error	30	0.02204750	0.000735	Prob > F
C. Total	59	0.04575098		0.3865

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000041	5.311
Residual	0.000735	94.689
Total	0.000776	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00073	30	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.0237	0.00082	29	1.1122	0.3865

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-13, Analyte=Mn/Mg
Response Measurement
Summary of Fit

RSquare	0.770192
RSquare Adj	0.547796
Root Mean Square Error	0.033649
Mean of Response	2.732006
Observations (or Sum Wgts)	62

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	30	0.11763773	0.003921	3.4632
Error	31	0.03510053	0.001132	Prob > F
C. Total	61	0.15273826		0.0005

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.001394	55.189
Residual	0.001132	44.811
Total	0.002527	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00113	31	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.11764	0.00392	30	3.4632	0.0005

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-13, Analyte=Na
Response Measurement
Summary of Fit

RSquare	0.728344
RSquare Adj	0.466056
Root Mean Square Error	0.106444
Mean of Response	8.340017
Observations (or Sum Wgts)	58

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	28	0.8809665	0.031463	2.7769
Error	29	0.3285805	0.011330	Prob > F
C. Total	57	1.2095470		0.0039

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.010066	47.046
Residual	0.01133	52.954
Total	0.021397	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01133	29	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.88097	0.03146	28	2.7769	0.0039

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-13, Analyte=Ni
Response Measurement
Summary of Fit

RSquare	0.726857
RSquare Adj	0.462818
Root Mean Square Error	0.018471
Mean of Response	0.803683
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	0.02723748	0.000939	2.7528
Error	30	0.01023550	0.000341	Prob > F
C. Total	59	0.03747298		0.0037

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000299	46.707
Residual	0.000341	53.293
Total	0.00064	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00034	30	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.02724	0.00094	29	2.7528	0.0037

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-13, Analyte=Si
Response Measurement
Summary of Fit

RSquare	0.675912
RSquare Adj	0.362626
Root Mean Square Error	0.376818
Mean of Response	21.3064
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	8.884037	0.306346	2.1575
Error	30	4.259749	0.141992	Prob > F
C. Total	59	13.143786		0.0201

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.082177	36.659
Residual	0.141992	63.341
Total	0.224169	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.14199	30	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	8.88404	0.30635	29	2.1575	0.0201

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-13, Analyte=Sum of Oxides
Response Measurement
Summary of Fit

RSquare	0.627036
RSquare Adj	0.266505
Root Mean Square Error	1.456726
Mean of Response	86.57023
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	107.02950	3.69067	1.7392
Error	30	63.66156	2.12205	Prob > F
C. Total	59	170.69106		0.0688

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.78431	26.986
Residual	2.122052	73.014
Total	2.906362	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	2.12205	30	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	107.029	3.69067	29	1.7392	0.0688

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-13, Analyte=Ti
Response Measurement
Summary of Fit

RSquare	0.73693
RSquare Adj	0.482629
Root Mean Square Error	0.013087
Mean of Response	0.671467
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	0.01439293	0.000496	2.8979
Error	30	0.00513800	0.000171	Prob > F
C. Total	59	0.01953093		0.0025

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000163	48.690
Residual	0.000171	51.310
Total	0.000334	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00017	30	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.01439	0.0005	29	2.8979	0.0025

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-13, Analyte=U
Response Measurement
Summary of Fit

RSquare	0.852579
RSquare Adj	0.709914
Root Mean Square Error	0.052496
Mean of Response	-0.12731
Observations (or Sum Wgts)	62

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	30	0.49406568	0.016469	5.9761
Error	31	0.08542950	0.002756	Prob > F
C. Total	61	0.57949518		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.006857	71.331
Residual	0.002756	28.669
Total	0.009612	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00276	31	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.49407	0.01647	30	5.9761	<.0001

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-13, Analyte=U/Ca
Response Measurement
Summary of Fit

RSquare	0.842131
RSquare Adj	0.689525
Root Mean Square Error	0.051563
Mean of Response	-0.12214
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	0.42548008	0.014672	5.5183
Error	30	0.07976187	0.002659	Prob > F
C. Total	59	0.50524195		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.006006	69.317
Residual	0.002659	30.683
Total	0.008665	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00266	30	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.42548	0.01467	29	5.5183	<.0001

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-13, Analyte=Zr
Response Measurement
Summary of Fit

RSquare	0.894226
RSquare Adj	0.791977
Root Mean Square Error	0.003362
Mean of Response	0.093467
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	0.00286593	0.000099	8.7456
Error	30	0.00033900	0.000011	Prob > F
C. Total	59	0.00320493		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000044	79.478
Residual	0.000011	20.522
Total	0.000055	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00001	30	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00287	0.0001	29	8.7456	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-14, Analyte=Al
Response Measurement
Summary of Fit

RSquare	0.62884
RSquare Adj	0.274551
Root Mean Square Error	0.042647
Mean of Response	2.365818
Observations (or Sum Wgts)	44

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	21	0.06779055	0.003228	1.7749
Error	22	0.04001200	0.001819	Prob > F
C. Total	43	0.10780255		0.0948

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000705	27.926
Residual	0.001819	72.074
Total	0.002523	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00182	22	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.06779	0.00323	21	1.7749	0.0948

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-14, Analyte=Al/Ca
Response Measurement
Summary of Fit

RSquare	0.620656
RSquare Adj	0.258555
Root Mean Square Error	0.029764
Mean of Response	2.365209
Observations (or Sum Wgts)	44

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	21	0.03188796	0.001518	1.7140
Error	22	0.01948988	0.000886	Prob > F
C. Total	43	0.05137784		0.1088

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000316	26.309
Residual	0.000886	73.691
Total	0.001202	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00089	22	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.03189	0.00152	21	1.7140	0.1088

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-14, Analyte=Al/Mg
Response Measurement
Summary of Fit

RSquare	0.799804
RSquare Adj	0.608708
Root Mean Square Error	0.056887
Mean of Response	4.656833
Observations (or Sum Wgts)	44

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	21	0.28443117	0.013544	4.1854
Error	22	0.07119488	0.003236	Prob > F
C. Total	43	0.35562605		0.0008

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.005154	61.430
Residual	0.003236	38.570
Total	0.00839	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00324	22	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.28443	0.01354	21	4.1854	0.0008

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-14, Analyte=Al/Mn
Response Measurement
Summary of Fit

RSquare	0.816798
RSquare Adj	0.641923
Root Mean Square Error	0.017924
Mean of Response	1.691432
Observations (or Sum Wgts)	44

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	21	0.03151064	0.001501	4.6708
Error	22	0.00706762	0.000321	Prob > F
C. Total	43	0.03857826		0.0003

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.00059	64.731
Residual	0.000321	35.269
Total	0.000911	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00032	22	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.03151	0.0015	21	4.6708	0.0003

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-14, Analyte=B

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-14, Analyte=B/Li

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-14, Analyte=Ca
Response Measurement
Summary of Fit

RSquare	0.571514
RSquare Adj	0.162504
Root Mean Square Error	0.020464
Mean of Response	1.000386
Observations (or Sum Wgts)	44

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	21	0.01228893	0.000585	1.3973
Error	22	0.00921350	0.000419	Prob > F
C. Total	43	0.02150243		0.2209

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000083	16.573
Residual	0.000419	83.427
Total	0.000502	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00042	22	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.01229	0.00059	21	1.3973	0.2209

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-14, Analyte=Cr
Response Measurement
Summary of Fit

RSquare	0.888281
RSquare Adj	0.78164
Root Mean Square Error	0.002426
Mean of Response	0.059295
Observations (or Sum Wgts)	44

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	21	0.00102966	0.000049	8.3297
Error	22	0.00012950	0.000006	Prob > F
C. Total	43	0.00115916		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000022	78.563
Residual	0.000006	21.437
Total	0.000027	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

y	MS Den	DF Den	Denom MS Synthesis
Batch&Random	5.89e-6	22	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00103	0.00005	21	8.3297	<.0001

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-14, Analyte=Cu
Response Measurement
Summary of Fit

RSquare	0.959721
RSquare Adj	0.921274
Root Mean Square Error	0.001523
Mean of Response	-0.00536
Observations (or Sum Wgts)	44

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	21	0.00121518	0.000058	24.9617
Error	22	0.00005100	0.000002	Prob > F
C. Total	43	0.00126618		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000028	92.296
Residual	0.000002	7.704
Total	0.00003	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	2.32e-6	22	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00122	0.00006	21	24.9617	<.0001

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-14, Analyte=Fe
Response Measurement
Summary of Fit

RSquare	0.824371
RSquare Adj	0.656726
Root Mean Square Error	0.13804
Mean of Response	9.491727
Observations (or Sum Wgts)	44

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	21	1.9677157	0.093701	4.9173
Error	22	0.4192130	0.019055	Prob > F
C. Total	43	2.3869287		0.0002

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.037323	66.201
Residual	0.019055	33.799
Total	0.056378	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01906	22	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.96772	0.0937	21	4.9173	0.0002

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-14, Analyte=Fe/Al
Response Measurement
Summary of Fit

RSquare	0.805582
RSquare Adj	0.620001
Root Mean Square Error	0.04842
Mean of Response	4.012449
Observations (or Sum Wgts)	44

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	21	0.21371638	0.010177	4.3409
Error	22	0.05157810	0.002344	Prob > F
C. Total	43	0.26529448		0.0006

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.003916	62.553
Residual	0.002344	37.447
Total	0.006261	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00234	22	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.21372	0.01018	21	4.3409	0.0006

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-14, Analyte=Fe/Ca
Response Measurement
Summary of Fit

RSquare	0.662295
RSquare Adj	0.33994
Root Mean Square Error	0.153169
Mean of Response	9.489341
Observations (or Sum Wgts)	44

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	21	1.0122211	0.048201	2.0546
Error	22	0.5161331	0.023461	Prob > F
C. Total	43	1.5283542		0.0505

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.01237	34.524
Residual	0.023461	65.476
Total	0.035831	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.02346	22	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.01222	0.0482	21	2.0546	0.0505

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-14, Analyte=Fe/Li
Response Measurement
Summary of Fit

RSquare	0.885377
RSquare Adj	0.775964
Root Mean Square Error	0.06376
Mean of Response	6.337625
Observations (or Sum Wgts)	44

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	21	0.69083612	0.032897	8.0921
Error	22	0.08943712	0.004065	Prob > F
C. Total	43	0.78027324		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.014416	78.003
Residual	0.004065	21.997
Total	0.018481	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00407	22	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.69084	0.0329	21	8.0921	<.0001

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-14, Analyte=Fe/Mg
Response Measurement
Summary of Fit

RSquare	0.841903
RSquare Adj	0.690993
Root Mean Square Error	0.195758
Mean of Response	18.68157
Observations (or Sum Wgts)	44

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	21	4.4895312	0.213787	5.5788
Error	22	0.8430655	0.038321	Prob > F
C. Total	43	5.3325967		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.087733	69.599
Residual	0.038321	30.401
Total	0.126054	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.03832	22	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	4.48953	0.21379	21	5.5788	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-14, Analyte=Fe/Mn
Response Measurement
Summary of Fit

RSquare	0.825856
RSquare Adj	0.660004
Root Mean Square Error	0.068036
Mean of Response	6.76655
Observations (or Sum Wgts)	42

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	20	0.46099663	0.023050	4.9795
Error	21	0.09720815	0.004629	Prob > F
C. Total	41	0.55820478		0.0003

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.00921	66.552
Residual	0.004629	33.448
Total	0.013839	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00463	21	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.461	0.02305	20	4.9795	0.0003

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-14, Analyte=Fe/Ni
Response Measurement
Summary of Fit

RSquare	0.705875
RSquare Adj	0.425118
Root Mean Square Error	0.189316
Mean of Response	11.82032
Observations (or Sum Wgts)	44

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	21	1.8923075	0.090110	2.5142
Error	22	0.7884910	0.035840	Prob > F
C. Total	43	2.6807985		0.0184

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.027135	43.088
Residual	0.03584	56.912
Total	0.062975	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.03584	22	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.89231	0.09011	21	2.5142	0.0184

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-14, Analyte=Fe/U
Response Measurement
Summary of Fit

RSquare	0.831425
RSquare Adj	0.671279
Root Mean Square Error	96.33154
Mean of Response	-86.0825
Observations (or Sum Wgts)	40

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	19	915369.8	48177.4	5.1917
Error	20	185595.3	9279.8	Prob > F
C. Total	39	1100965.2		0.0003

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	19448.8	67.698
Residual	9279.766	32.302
Total	28728.56	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	9279.77	20	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	915370	48177.4	19	5.1917	0.0003

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-14, Analyte=K
Response Measurement
Summary of Fit

RSquare	0.638321
RSquare Adj	0.293082
Root Mean Square Error	0.134022
Mean of Response	2.226818
Observations (or Sum Wgts)	44

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	21	0.6974095	0.033210	1.8489
Error	22	0.3951590	0.017962	Prob > F
C. Total	43	1.0925685		0.0802

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.007624	29.798
Residual	0.017962	70.202
Total	0.025586	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01796	22	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.69741	0.03321	21	1.8489	0.0802

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-14, Analyte=Li
Response Measurement
Summary of Fit

RSquare	0.697446
RSquare Adj	0.408645
Root Mean Square Error	0.02374
Mean of Response	1.497864
Observations (or Sum Wgts)	44

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	21	0.02858218	0.001361	2.4150
Error	22	0.01239900	0.000564	Prob > F
C. Total	43	0.04098118		0.0228

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000399	41.434
Residual	0.000564	58.566
Total	0.000962	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00056	22	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.02858	0.00136	21	2.4150	0.0228

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-14, Analyte=Mg
Response Measurement
Summary of Fit

RSquare	0.762804
RSquare Adj	0.536389
Root Mean Square Error	0.008997
Mean of Response	0.508182
Observations (or Sum Wgts)	44

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	21	0.00572755	0.000273	3.3691
Error	22	0.00178100	0.000081	Prob > F
C. Total	43	0.00750855		0.0033

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000096	54.224
Residual	0.000081	45.776
Total	0.000177	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00008	22	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00573	0.00027	21	3.3691	0.0033

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-14, Analyte=Mn
Response Measurement
Summary of Fit

RSquare	0.722432
RSquare Adj	0.457481
Root Mean Square Error	0.024509
Mean of Response	1.399
Observations (or Sum Wgts)	44

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	21	0.03439500	0.001638	2.7267
Error	22	0.01321500	0.000601	Prob > F
C. Total	43	0.04761000		0.0118

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000519	46.333
Residual	0.000601	53.667
Total	0.001119	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.0006	22	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.03439	0.00164	21	2.7267	0.0118

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-14, Analyte=Mn/Mg
Response Measurement
Summary of Fit

RSquare	0.785259
RSquare Adj	0.580279
Root Mean Square Error	0.029175
Mean of Response	2.753454
Observations (or Sum Wgts)	44

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	21	0.06847782	0.003261	3.8309
Error	22	0.01872630	0.000851	Prob > F
C. Total	43	0.08720412		0.0014

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.001205	58.600
Residual	0.000851	41.400
Total	0.002056	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00085	22	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.06848	0.00326	21	3.8309	0.0014

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-14, Analyte=Na
Response Measurement
Summary of Fit

RSquare	0.610283
RSquare Adj	0.241078
Root Mean Square Error	0.128408
Mean of Response	8.400421
Observations (or Sum Wgts)	38

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	18	0.49059526	0.027255	1.6530
Error	19	0.31328600	0.016489	Prob > F
C. Total	37	0.80388126		0.1430

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.005383	24.613
Residual	0.016489	75.387
Total	0.021872	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01649	19	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.4906	0.02726	18	1.6530	0.1430

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-14, Analyte=Ni
Response Measurement
Summary of Fit

RSquare	0.589621
RSquare Adj	0.197896
Root Mean Square Error	0.015503
Mean of Response	0.803114
Observations (or Sum Wgts)	44

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	21	0.00759693	0.000362	1.5052
Error	22	0.00528750	0.000240	Prob > F
C. Total	43	0.01288443		0.1740

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000061	20.166
Residual	0.00024	79.834
Total	0.000301	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00024	22	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.0076	0.00036	21	1.5052	0.1740

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-14, Analyte=Si
Response Measurement
Summary of Fit

RSquare	0.699941
RSquare Adj	0.414884
Root Mean Square Error	0.537641
Mean of Response	20.98507
Observations (or Sum Wgts)	40

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	19	13.485535	0.709765	2.4554
Error	20	5.781152	0.289058	Prob > F
C. Total	39	19.266687		0.0263

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.210354	42.120
Residual	0.289058	57.880
Total	0.499411	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.28906	20	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	13.4855	0.70977	19	2.4554	0.0263

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-14, Analyte=Sum of Oxides
Response Measurement
Summary of Fit

RSquare	0.660366
RSquare Adj	0.33617
Root Mean Square Error	2.052126
Mean of Response	85.97355
Observations (or Sum Wgts)	44

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	21	180.13747	8.57797	2.0369
Error	22	92.64688	4.21122	Prob > F
C. Total	43	272.78435		0.0525

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	2.183376	34.144
Residual	4.211222	65.856
Total	6.394598	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	4.21122	22	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	180.137	8.57797	21	2.0369	0.0525

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-14, Analyte=Ti
Response Measurement
Summary of Fit

RSquare	0.548033
RSquare Adj	0.116609
Root Mean Square Error	0.013387
Mean of Response	0.687977
Observations (or Sum Wgts)	44

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	21	0.00478048	0.000228	1.2703
Error	22	0.00394250	0.000179	Prob > F
C. Total	43	0.00872298		0.2907

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000024	11.906
Residual	0.000179	88.094
Total	0.000203	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00018	22	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00478	0.00023	21	1.2703	0.2907

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-14, Analyte=U
Response Measurement
Summary of Fit

RSquare	0.837146
RSquare Adj	0.681695
Root Mean Square Error	0.043774
Mean of Response	-0.09157
Observations (or Sum Wgts)	44

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	21	0.21669930	0.010319	5.3853
Error	22	0.04215550	0.001916	Prob > F
C. Total	43	0.25885480		0.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.004201	68.678
Residual	0.001916	31.322
Total	0.006118	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00192	22	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.2167	0.01032	21	5.3853	0.0001

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-14, Analyte=U/Ca
Response Measurement
Summary of Fit

RSquare	0.826359
RSquare Adj	0.660611
Root Mean Square Error	0.045751
Mean of Response	-0.09206
Observations (or Sum Wgts)	44

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	21	0.21914848	0.010436	4.9856
Error	22	0.04604922	0.002093	Prob > F
C. Total	43	0.26519770		0.0002

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.004171	66.587
Residual	0.002093	33.413
Total	0.006264	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00209	22	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.21915	0.01044	21	4.9856	0.0002

Sample Type=ARG-1, Prep=Mixed Acid, ICP=M-14, Analyte=Zr
Response Measurement
Summary of Fit

RSquare	0.845019
RSquare Adj	0.697083
Root Mean Square Error	0.002693
Mean of Response	0.094205
Observations (or Sum Wgts)	44

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	21	0.00086966	0.000041	5.7120
Error	22	0.00015950	0.000007	Prob > F
C. Total	43	0.00102916		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	2

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000017	70.203
Residual	0.000007	29.797
Total	0.000024	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	7.25e-6	22	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00087	0.00004	21	5.7120	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SME, Prep=Fusion, ICP=M-13, Analyte=Al
Response Measurement
Summary of Fit

RSquare	0.74378
RSquare Adj	0.694089
Root Mean Square Error	0.125284
Mean of Response	2.956626
Observations (or Sum Wgts)	198

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	32	7.518053	0.234939	14.9680
Error	165	2.589847	0.015696	Prob > F
C. Total	197	10.107900		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.036541	69.952
Residual	0.015696	30.048
Total	0.052237	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.0157	165	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	7.51805	0.23494	32	14.9680	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-13, Analyte=Al/Ca
Response Measurement
Summary of Fit

RSquare	0.539969
RSquare Adj	0.450838
Root Mean Square Error	0.131167
Mean of Response	4.109778
Observations (or Sum Wgts)	192

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	31	3.2311040	0.104229	6.0581
Error	160	2.7527667	0.017205	Prob > F
C. Total	191	5.9838706		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.014504	45.741
Residual	0.017205	54.259
Total	0.031709	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.0172	160	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	3.2311	0.10423	31	6.0581	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-13, Analyte=Al/Mg
Response Measurement
Summary of Fit

RSquare	0.580288
RSquare Adj	0.49889
Root Mean Square Error	0.166667
Mean of Response	4.314932
Observations (or Sum Wgts)	198

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	32	6.336846	0.198026	7.1290
Error	165	4.583325	0.027778	Prob > F
C. Total	197	10.920171		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.028375	50.532
Residual	0.027778	49.468
Total	0.056153	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.02778	165	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	6.33685	0.19803	32	7.1290	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-13, Analyte=Al/Mn
Response Measurement
Summary of Fit

RSquare	0.688135
RSquare Adj	0.627653
Root Mean Square Error	0.053241
Mean of Response	1.878336
Observations (or Sum Wgts)	198

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	32	1.0320209	0.032251	11.3774
Error	165	0.4677145	0.002835	Prob > F
C. Total	197	1.4997354		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.004903	63.364
Residual	0.002835	36.636
Total	0.007737	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00283	165	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.03202	0.03225	32	11.3774	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SME, Prep=Fusion, ICP=M-13, Analyte=B
Response Measurement
Summary of Fit

RSquare	0.543151
RSquare Adj	0.454827
Root Mean Square Error	0.051433
Mean of Response	1.448972
Observations (or Sum Wgts)	180

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	0.47176603	0.016268	6.1495
Error	150	0.39680683	0.002645	Prob > F
C. Total	179	0.86857286		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.00227	46.186
Residual	0.002645	53.814
Total	0.004916	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00265	150	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.47177	0.01627	29	6.1495	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-13, Analyte=B/Li
Response Measurement
Summary of Fit

RSquare	0.507462
RSquare Adj	0.411852
Root Mean Square Error	0.013754
Mean of Response	0.658095
Observations (or Sum Wgts)	204

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	33	0.03313255	0.001004	5.3076
Error	170	0.03215814	0.000189	Prob > F
C. Total	203	0.06529069		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000136	41.791
Residual	0.000189	58.209
Total	0.000325	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00019	170	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.03313	0.001	33	5.3076	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-13, Analyte=Ca
Response Measurement
Summary of Fit

RSquare	0.659986
RSquare Adj	0.593983
Root Mean Square Error	0.042511
Mean of Response	0.71798
Observations (or Sum Wgts)	204

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	33	0.59632892	0.018071	9.9994
Error	170	0.30721900	0.001807	Prob > F
C. Total	203	0.90354792		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.002711	59.998
Residual	0.001807	40.002
Total	0.004518	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00181	170	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.59633	0.01807	33	9.9994	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-13, Analyte=Cr
Response Measurement
Summary of Fit

RSquare	0.772727
RSquare Adj	0.72865
Root Mean Square Error	0.003723
Mean of Response	0.055045
Observations (or Sum Wgts)	198

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	32	0.00777409	0.000243	17.5312
Error	165	0.00228650	0.000014	Prob > F
C. Total	197	0.01006059		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000038	73.370
Residual	0.000014	26.630
Total	0.000052	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00001	165	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00777	0.00024	32	17.5312	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SME, Prep=Fusion, ICP=M-13, Analyte=Cu
Response Measurement
Summary of Fit

RSquare	0.937415
RSquare Adj	0.925289
Root Mean Square Error	0.001169
Mean of Response	0.014146
Observations (or Sum Wgts)	192

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	31	0.00327525	0.000106	77.3072
Error	160	0.00021867	0.000001	Prob > F
C. Total	191	0.00349392		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000017	92.710
Residual	0.000001	7.290
Total	0.000019	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	1.37e-6	160	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00328	0.00011	31	77.3072	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-13, Analyte=Fe
Response Measurement
Summary of Fit

RSquare	0.639357
RSquare Adj	0.569414
Root Mean Square Error	0.337043
Mean of Response	7.96904
Observations (or Sum Wgts)	198

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	32	33.229186	1.03841	9.1411
Error	165	18.743673	0.11360	Prob > F
C. Total	197	51.972860		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.154136	57.571
Residual	0.113598	42.429
Total	0.267734	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.1136	165	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	33.2292	1.03841	32	9.1411	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-13, Analyte=Fe/Al
Response Measurement
Summary of Fit

RSquare	0.817151
RSquare Adj	0.781657
Root Mean Square Error	0.04682
Mean of Response	2.692412
Observations (or Sum Wgts)	204

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	33	1.6654345	0.050468	23.0221
Error	170	0.3726647	0.002192	Prob > F
C. Total	203	2.0380992		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.008046	78.588
Residual	0.002192	21.412
Total	0.010238	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00219	170	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.66543	0.05047	33	23.0221	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-13, Analyte=Fe/Ca
Response Measurement
Summary of Fit

RSquare	0.646798
RSquare Adj	0.578365
Root Mean Square Error	0.353652
Mean of Response	11.08334
Observations (or Sum Wgts)	192

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	31	36.645246	1.18210	9.4516
Error	160	20.011178	0.12507	Prob > F
C. Total	191	56.656424		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.176172	58.482
Residual	0.12507	41.518
Total	0.301242	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.12507	160	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	36.6452	1.1821	31	9.4516	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SME, Prep=Fusion, ICP=M-13, Analyte=Fe/Li
Response Measurement
Summary of Fit

RSquare	0.841853
RSquare Adj	0.811154
Root Mean Square Error	0.122063
Mean of Response	3.622828
Observations (or Sum Wgts)	204

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	33	13.483237	0.408583	27.4226
Error	170	2.532911	0.014899	Prob > F
C. Total	203	16.016147		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.065614	81.494
Residual	0.014899	18.506
Total	0.080513	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.0149	170	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	13.4832	0.40858	33	27.4226	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-13, Analyte=Fe/Mg
Response Measurement
Summary of Fit

RSquare	0.677176
RSquare Adj	0.614629
Root Mean Square Error	0.331136
Mean of Response	11.58352
Observations (or Sum Wgts)	192

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	31	36.801809	1.18716	10.8267
Error	160	17.544179	0.10965	Prob > F
C. Total	191	54.345988		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.179584	62.089
Residual	0.109651	37.911
Total	0.289235	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.10965	160	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	36.8018	1.18716	31	10.8267	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-13, Analyte=Fe/Mn
Response Measurement
Summary of Fit

RSquare	0.646041
RSquare Adj	0.577332
Root Mean Square Error	0.120141
Mean of Response	5.048998
Observations (or Sum Wgts)	204

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	33	4.4785538	0.135714	9.4025
Error	170	2.4537495	0.014434	Prob > F
C. Total	203	6.9323033		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.020213	58.341
Residual	0.014434	41.659
Total	0.034647	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01443	170	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	4.47855	0.13571	33	9.4025	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-13, Analyte=Fe/Ni
Response Measurement
Summary of Fit

RSquare	0.63813
RSquare Adj	0.567824
Root Mean Square Error	0.345427
Mean of Response	17.50425
Observations (or Sum Wgts)	210

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	34	36.822052	1.08300	9.0765
Error	175	20.880988	0.11932	Prob > F
C. Total	209	57.703040		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.160614	57.376
Residual	0.11932	42.624
Total	0.279934	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.11932	175	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	36.8221	1.083	34	9.0765	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SME, Prep=Fusion, ICP=M-13, Analyte=Fe/U
Response Measurement
Summary of Fit

RSquare	0.897711
RSquare Adj	0.877837
Root Mean Square Error	0.051989
Mean of Response	3.087834
Observations (or Sum Wgts)	210

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	34	4.1511460	0.122093	45.1716
Error	175	0.4730005	0.002703	Prob > F
C. Total	209	4.6241465		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.019898	88.041
Residual	0.002703	11.959
Total	0.022601	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.0027	175	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	4.15115	0.12209	34	45.1716	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-13, Analyte=K
Response Measurement
Summary of Fit

RSquare	0.578815
RSquare Adj	0.49721
Root Mean Square Error	0.107844
Mean of Response	0.101844
Observations (or Sum Wgts)	192

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	31	2.5572770	0.082493	7.0929
Error	160	1.8608483	0.011630	Prob > F
C. Total	191	4.4181253		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.01181	50.384
Residual	0.01163	49.616
Total	0.023441	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01163	160	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	2.55728	0.08249	31	7.0929	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-13, Analyte=Li
Response Measurement
Summary of Fit

RSquare	0.47195
RSquare Adj	0.369861
Root Mean Square Error	0.075229
Mean of Response	2.202906
Observations (or Sum Wgts)	180

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	0.7587289	0.026163	4.6229
Error	150	0.8489165	0.005659	Prob > F
C. Total	179	1.6076454		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.003417	37.649
Residual	0.005659	62.351
Total	0.009077	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00566	150	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.75873	0.02616	29	4.6229	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-13, Analyte=Mg
Response Measurement
Summary of Fit

RSquare	0.672313
RSquare Adj	0.608703
Root Mean Square Error	0.038224
Mean of Response	0.685966
Observations (or Sum Wgts)	204

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	33	0.50961526	0.015443	10.5693
Error	170	0.24838750	0.001461	Prob > F
C. Total	203	0.75800276		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.00233	61.463
Residual	0.001461	38.537
Total	0.003791	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00146	170	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.50962	0.01544	33	10.5693	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SME, Prep=Fusion, ICP=M-13, Analyte=Mn
Response Measurement
Summary of Fit

RSquare	0.694818
RSquare Adj	0.635577
Root Mean Square Error	0.079755
Mean of Response	1.57525
Observations (or Sum Wgts)	204

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	33	2.4619514	0.074605	11.7286
Error	170	1.0813508	0.006361	Prob > F
C. Total	203	3.5433023		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.011374	64.133
Residual	0.006361	35.867
Total	0.017735	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00636	170	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	2.46195	0.0746	33	11.7286	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-13, Analyte=Mn/Mg
Response Measurement
Summary of Fit

RSquare	0.623701
RSquare Adj	0.550722
Root Mean Square Error	0.041688
Mean of Response	2.296603
Observations (or Sum Wgts)	198

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	32	0.47528649	0.014853	8.5463
Error	165	0.28675547	0.001738	Prob > F
C. Total	197	0.76204196		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.002186	55.707
Residual	0.001738	44.293
Total	0.003924	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00174	165	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.47529	0.01485	32	8.5463	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-13, Analyte=Na

Sample Type=SME, Prep=Fusion, ICP=M-13, Analyte=Ni
Response Measurement
Summary of Fit

RSquare	0.623709
RSquare Adj	0.550731
Root Mean Square Error	0.023044
Mean of Response	0.456263
Observations (or Sum Wgts)	198

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	32	0.14523334	0.004539	8.5466
Error	165	0.08762100	0.000531	Prob > F
C. Total	197	0.23285434		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000668	55.708
Residual	0.000531	44.292
Total	0.001199	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00053	165	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.14523	0.00454	32	8.5466	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-13, Analyte=Si
Response Measurement
Summary of Fit

RSquare	0.38719
RSquare Adj	0.268342
Root Mean Square Error	1.123704
Mean of Response	23.80898
Observations (or Sum Wgts)	198

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	32	131.63943	4.11373	3.2579
Error	165	208.34717	1.26271	Prob > F
C. Total	197	339.98660		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.47517	27.342
Residual	1.26271	72.658
Total	1.73788	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	1.26271	165	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	131.639	4.11373	32	3.2579	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SME, Prep=Fusion, ICP=M-13, Analyte=Sum of Oxides
Response Measurement
Summary of Fit

RSquare	0.264641
RSquare Adj	0.122165
Root Mean Square Error	2.901547
Mean of Response	85.72756
Observations (or Sum Wgts)	192

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	31	484.7706	15.6378	1.8574
Error	160	1347.0362	8.4190	Prob > F
C. Total	191	1831.8068		0.0074

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	1.203131	12.504
Residual	8.418976	87.496
Total	9.622107	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	8.41898	160	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	484.771	15.6378	31	1.8574	0.0074

Sample Type=SME, Prep=Fusion, ICP=M-13, Analyte=Ti
Response Measurement
Summary of Fit

RSquare	0.951826
RSquare Adj	0.942474
Root Mean Square Error	0.001882
Mean of Response	0.038603
Observations (or Sum Wgts)	204

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	33	0.01189100	0.000360	101.7835
Error	170	0.00060183	0.000004	Prob > F
C. Total	203	0.01249284		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000059	94.381
Residual	0.000004	5.619
Total	0.000063	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	3.54e-6	170	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.01189	0.00036	33	101.7835	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-13, Analyte=U
Response Measurement
Summary of Fit

RSquare	0.754849
RSquare Adj	0.707351
Root Mean Square Error	0.103836
Mean of Response	2.601328
Observations (or Sum Wgts)	192

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	31	5.3118188	0.171349	15.8922
Error	160	1.7251075	0.010782	Prob > F
C. Total	191	7.0369263		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.026761	71.281
Residual	0.010782	28.719
Total	0.037543	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01078	160	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	5.31182	0.17135	31	15.8922	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-13, Analyte=U/Ca
Response Measurement
Summary of Fit

RSquare	0.793442
RSquare Adj	0.75331
Root Mean Square Error	0.130442
Mean of Response	3.611818
Observations (or Sum Wgts)	210

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	34	11.437909	0.336409	19.7711
Error	175	2.977657	0.017015	Prob > F
C. Total	209	14.415566		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.053232	75.778
Residual	0.017015	24.222
Total	0.070248	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01702	175	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	11.4379	0.33641	34	19.7711	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-13, Analyte=Zr

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SME, Prep=Fusion, ICP=M-14, Analyte=Al
Response Measurement
Summary of Fit

RSquare	0.496826
RSquare Adj	0.407372
Root Mean Square Error	0.184189
Mean of Response	2.885389
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	8	1.5073903	0.188424	5.5540
Error	45	1.5266525	0.033926	Prob > F
C. Total	53	3.0340428		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.02575	43.150
Residual	0.033926	56.850
Total	0.059675	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.03393	45	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.50739	0.18842	8	5.5540	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-14, Analyte=Al/Ca
Response Measurement
Summary of Fit

RSquare	0.597603
RSquare Adj	0.525171
Root Mean Square Error	0.116775
Mean of Response	4.178395
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	9	1.0125835	0.112509	8.2506
Error	50	0.6818249	0.013636	Prob > F
C. Total	59	1.6944084		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.016479	54.719
Residual	0.013636	45.281
Total	0.030115	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01364	50	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.01258	0.11251	9	8.2506	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-14, Analyte=Al/Mg
Response Measurement
Summary of Fit

RSquare	0.536096
RSquare Adj	0.452593
Root Mean Square Error	0.092041
Mean of Response	4.307171
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	9	0.48949506	0.054388	6.4201
Error	50	0.42357906	0.008472	Prob > F
C. Total	59	0.91307412		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.007653	47.461
Residual	0.008472	52.539
Total	0.016124	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00847	50	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.4895	0.05439	9	6.4201	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-14, Analyte=Al/Mn
Response Measurement
Summary of Fit

RSquare	0.480577
RSquare Adj	0.387081
Root Mean Square Error	0.040142
Mean of Response	1.873531
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	9	0.07454501	0.008283	5.1401
Error	50	0.08057062	0.001611	Prob > F
C. Total	59	0.15511563		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.001112	40.829
Residual	0.001611	59.171
Total	0.002723	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00161	50	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.07455	0.00828	9	5.1401	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SME, Prep=Fusion, ICP=M-14, Analyte=B
Response Measurement
Summary of Fit

RSquare	0.44935
RSquare Adj	0.351457
Root Mean Square Error	0.08747
Mean of Response	1.390241
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	8	0.28095904	0.035120	4.5902
Error	45	0.34429683	0.007651	Prob > F
C. Total	53	0.62525587		0.0004

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.004578	37.436
Residual	0.007651	62.564
Total	0.012229	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00765	45	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.28096	0.03512	8	4.5902	0.0004

Sample Type=SME, Prep=Fusion, ICP=M-14, Analyte=B/Li
Response Measurement
Summary of Fit

RSquare	0.609564
RSquare Adj	0.539286
Root Mean Square Error	0.009465
Mean of Response	0.640935
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	9	0.00699364	0.000777	8.6736
Error	50	0.00447954	0.000090	Prob > F
C. Total	59	0.01147318		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000115	56.120
Residual	0.00009	43.880
Total	0.000204	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00009	50	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00699	0.00078	9	8.6736	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-14, Analyte=Ca
Response Measurement
Summary of Fit

RSquare	0.537536
RSquare Adj	0.45532
Root Mean Square Error	0.049121
Mean of Response	0.687037
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	8	0.12620259	0.015775	6.5381
Error	45	0.10857733	0.002413	Prob > F
C. Total	53	0.23477993		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.002227	47.998
Residual	0.002413	52.002
Total	0.00464	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00241	45	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.1262	0.01578	8	6.5381	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-14, Analyte=Cr
Response Measurement
Summary of Fit

RSquare	0.633623
RSquare Adj	0.567675
Root Mean Square Error	0.00706
Mean of Response	0.051067
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	9	0.00430973	0.000479	9.6079
Error	50	0.00249200	0.000050	Prob > F
C. Total	59	0.00680173		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000072	58.926
Residual	0.00005	41.074
Total	0.000121	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00005	50	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00431	0.00048	9	9.6079	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SME, Prep=Fusion, ICP=M-14, Analyte=Cu
Response Measurement
Summary of Fit

RSquare	0.792348
RSquare Adj	0.755432
Root Mean Square Error	0.002214
Mean of Response	0.011241
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	8	0.00084137	0.000105	21.4635
Error	45	0.00022050	0.000005	Prob > F
C. Total	53	0.00106187		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000017	77.327
Residual	0.000005	22.673
Total	0.000022	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	4.9e-6	45	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00084	0.00011	8	21.4635	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-14, Analyte=Fe
Response Measurement
Summary of Fit

RSquare	0.448625
RSquare Adj	0.350603
Root Mean Square Error	0.526957
Mean of Response	7.678778
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	8	10.167162	1.27090	4.5768
Error	45	12.495777	0.27768	Prob > F
C. Total	53	22.662939		0.0004

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.165535	37.348
Residual	0.277684	62.652
Total	0.443219	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.27768	45	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	10.1672	1.2709	8	4.5768	0.0004

Sample Type=SME, Prep=Fusion, ICP=M-14, Analyte=Fe/Al
Response Measurement
Summary of Fit

RSquare	0.601847
RSquare Adj	0.530179
Root Mean Square Error	0.046091
Mean of Response	2.668255
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	9	0.16056134	0.017840	8.3978
Error	50	0.10621981	0.002124	Prob > F
C. Total	59	0.26678115		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.002619	55.216
Residual	0.002124	44.784
Total	0.004744	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00212	50	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.16056	0.01784	9	8.3978	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-14, Analyte=Fe/Ca
Response Measurement
Summary of Fit

RSquare	0.582957
RSquare Adj	0.507889
Root Mean Square Error	0.307701
Mean of Response	11.14501
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	9	6.617311	0.735257	7.7657
Error	50	4.733983	0.094680	Prob > F
C. Total	59	11.351294		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.106763	52.999
Residual	0.09468	47.001
Total	0.201443	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.09468	50	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	6.61731	0.73526	9	7.7657	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SME, Prep=Fusion, ICP=M-14, Analyte=Fe/Li
Response Measurement
Summary of Fit

RSquare	0.885245
RSquare Adj	0.864589
Root Mean Square Error	0.104821
Mean of Response	3.543268
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	9	4.2379731	0.470886	42.8567
Error	50	0.5493727	0.010987	Prob > F
C. Total	59	4.7873458		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.07665	87.463
Residual	0.010987	12.537
Total	0.087637	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01099	50	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	4.23797	0.47089	9	42.8567	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-14, Analyte=Fe/Mg
Response Measurement
Summary of Fit

RSquare	0.516502
RSquare Adj	0.429473
Root Mean Square Error	0.243151
Mean of Response	11.4888
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	9	3.1579152	0.350879	5.9348
Error	50	2.9561243	0.059122	Prob > F
C. Total	59	6.1140395		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.048626	45.129
Residual	0.059122	54.871
Total	0.107749	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.05912	50	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	3.15792	0.35088	9	5.9348	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-14, Analyte=Fe/Mn
Response Measurement
Summary of Fit

RSquare	0.36155
RSquare Adj	0.246629
Root Mean Square Error	0.083839
Mean of Response	4.996603
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	9	0.19902324	0.022114	3.1461
Error	50	0.35144889	0.007029	Prob > F
C. Total	59	0.55047213		0.0044

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.002514	26.345
Residual	0.007029	73.655
Total	0.009543	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00703	50	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.19902	0.02211	9	3.1461	0.0044

Sample Type=SME, Prep=Fusion, ICP=M-14, Analyte=Fe/Ni
Response Measurement
Summary of Fit

RSquare	0.482952
RSquare Adj	0.389883
Root Mean Square Error	0.351635
Mean of Response	17.70708
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	9	5.774678	0.641631	5.1892
Error	50	6.182363	0.123647	Prob > F
C. Total	59	11.957041		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.086331	41.114
Residual	0.123647	58.886
Total	0.209978	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.12365	50	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	5.77468	0.64163	9	5.1892	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SME, Prep=Fusion, ICP=M-14, Analyte=Fe/U
Response Measurement
Summary of Fit

RSquare	0.75144
RSquare Adj	0.7067
Root Mean Square Error	0.063984
Mean of Response	2.829664
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	9	0.61883166	0.068759	16.7954
Error	50	0.20469566	0.004094	Prob > F
C. Total	59	0.82352732		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.010778	72.471
Residual	0.004094	27.529
Total	0.014871	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00409	50	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.61883	0.06876	9	16.7954	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-14, Analyte=K
Response Measurement
Summary of Fit

RSquare	0.529689
RSquare Adj	0.445033
Root Mean Square Error	0.130132
Mean of Response	0.1152
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	9	0.9536119	0.105957	6.2570
Error	50	0.8467117	0.016934	Prob > F
C. Total	59	1.8003236		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.014837	46.700
Residual	0.016934	53.300
Total	0.031771	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01693	50	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.95361	0.10596	9	6.2570	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-14, Analyte=Li
Response Measurement
Summary of Fit

RSquare	0.369572
RSquare Adj	0.257496
Root Mean Square Error	0.139194
Mean of Response	2.169796
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	8	0.5111106	0.063889	3.2975
Error	45	0.8718682	0.019375	Prob > F
C. Total	53	1.3829788		0.0048

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.007419	27.689
Residual	0.019375	72.311
Total	0.026794	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01937	45	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.51111	0.06389	8	3.2975	0.0048

Sample Type=SME, Prep=Fusion, ICP=M-14, Analyte=Mg
Response Measurement
Summary of Fit

RSquare	0.522143
RSquare Adj	0.43719
Root Mean Square Error	0.043457
Mean of Response	0.668833
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	8	0.09285967	0.011607	6.1463
Error	45	0.08498383	0.001889	Prob > F
C. Total	53	0.17784350		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.00162	46.170
Residual	0.001889	53.830
Total	0.003508	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00189	45	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.09286	0.01161	8	6.1463	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SME, Prep=Fusion, ICP=M-14, Analyte=Mn
Response Measurement
Summary of Fit

RSquare	0.533125
RSquare Adj	0.450125
Root Mean Square Error	0.098856
Mean of Response	1.536222
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	8	0.50216067	0.062770	6.4232
Error	45	0.43975867	0.009772	Prob > F
C. Total	53	0.94191933		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.008833	47.475
Residual	0.009772	52.525
Total	0.018605	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00977	45	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.50216	0.06277	8	6.4232	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-14, Analyte=Mn/Mg
Response Measurement
Summary of Fit

RSquare	0.466769
RSquare Adj	0.370788
Root Mean Square Error	0.041629
Mean of Response	2.299459
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	9	0.07584782	0.008428	4.8631
Error	50	0.08664752	0.001733	Prob > F
C. Total	59	0.16249534		0.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.001116	39.167
Residual	0.001733	60.833
Total	0.002849	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00173	50	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.07585	0.00843	9	4.8631	0.0001

Sample Type=SME, Prep=Fusion, ICP=M-14, Analyte=Na

Sample Type=SME, Prep=Fusion, ICP=M-14, Analyte=Ni
Response Measurement
Summary of Fit

RSquare	0.490318
RSquare Adj	0.399708
Root Mean Square Error	0.030074
Mean of Response	0.432926
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	8	0.03915470	0.004894	5.4113
Error	45	0.04070100	0.000904	Prob > F
C. Total	53	0.07985570		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000665	42.370
Residual	0.000904	57.630
Total	0.001569	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.0009	45	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.03915	0.00489	8	5.4113	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-14, Analyte=Si
Response Measurement
Summary of Fit

RSquare	0.351167
RSquare Adj	0.235819
Root Mean Square Error	1.541752
Mean of Response	23.2878
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	8	57.89251	7.23656	3.0444
Error	45	106.96496	2.37700	Prob > F
C. Total	53	164.85746		0.0080

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.809927	25.414
Residual	2.376999	74.586
Total	3.186926	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	2.377	45	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	57.8925	7.23656	8	3.0444	0.0080

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SME, Prep=Fusion, ICP=M-14, Analyte=Sum of Oxides
Response Measurement
Summary of Fit

RSquare	0.229986
RSquare Adj	0.095234
Root Mean Square Error	5.186094
Mean of Response	83.3977
Observations (or Sum Wgts)	48

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	7	321.3243	45.9035	1.7067
Error	40	1075.8230	26.8956	Prob > F
C. Total	47	1397.1472		0.1351

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	3.167982	10.538
Residual	26.89557	89.462
Total	30.06356	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	26.8956	40	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	321.324	45.9035	7	1.7067	0.1351

Sample Type=SME, Prep=Fusion, ICP=M-14, Analyte=Ti
Response Measurement
Summary of Fit

RSquare	0.677602
RSquare Adj	0.61957
Root Mean Square Error	0.003489
Mean of Response	0.040967
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	9	0.00127927	0.000142	11.6764
Error	50	0.00060867	0.000012	Prob > F
C. Total	59	0.00188793		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000022	64.021
Residual	0.000012	35.979
Total	0.000034	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00001	50	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00128	0.00014	9	11.6764	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-14, Analyte=U
Response Measurement
Summary of Fit

RSquare	0.563183
RSquare Adj	0.485527
Root Mean Square Error	0.178505
Mean of Response	2.709963
Observations (or Sum Wgts)	54

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	8	1.8486816	0.231085	7.2523
Error	45	1.4338763	0.031864	Prob > F
C. Total	53	3.2825579		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.033204	51.029
Residual	0.031864	48.971
Total	0.065067	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.03186	45	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.84868	0.23109	8	7.2523	<.0001

Sample Type=SME, Prep=Fusion, ICP=M-14, Analyte=U/Ca
Response Measurement
Summary of Fit

RSquare	0.447423
RSquare Adj	0.347959
Root Mean Square Error	0.107878
Mean of Response	3.94113
Observations (or Sum Wgts)	60

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	9	0.4711507	0.052350	4.4983
Error	50	0.5818822	0.011638	Prob > F
C. Total	59	1.0530329		0.0002

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.006785	36.831
Residual	0.011638	63.169
Total	0.018423	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01164	50	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.47115	0.05235	9	4.4983	0.0002

Sample Type=SME, Prep=Fusion, ICP=M-14, Analyte=Zr

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SME, Prep=Mixed Acid, ICP=M-13, Analyte=Al
Response Measurement
Summary of Fit

RSquare	0.718986
RSquare Adj	0.664657
Root Mean Square Error	0.11023
Mean of Response	2.884844
Observations (or Sum Wgts)	180

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	4.6631590	0.160799	13.2338
Error	150	1.8225847	0.012151	Prob > F
C. Total	179	6.4857436		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.024775	67.094
Residual	0.012151	32.906
Total	0.036925	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01215	150	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	4.66316	0.1608	29	13.2338	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-13, Analyte=Al/Ca
Response Measurement
Summary of Fit

RSquare	0.379827
RSquare Adj	0.260387
Root Mean Square Error	0.104571
Mean of Response	4.021323
Observations (or Sum Wgts)	162

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	0.9041311	0.034774	3.1800
Error	135	1.4762436	0.010935	Prob > F
C. Total	161	2.3803747		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.003973	26.651
Residual	0.010935	73.349
Total	0.014908	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01094	135	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.90413	0.03477	26	3.1800	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-13, Analyte=Al/Mg
Response Measurement
Summary of Fit

RSquare	0.652844
RSquare Adj	0.585652
Root Mean Square Error	0.166023
Mean of Response	4.26423
Observations (or Sum Wgts)	186

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	30	8.034351	0.267812	9.7162
Error	155	4.272351	0.027564	Prob > F
C. Total	185	12.306702		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.040041	59.228
Residual	0.027564	40.772
Total	0.067605	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.02756	155	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	8.03435	0.26781	30	9.7162	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-13, Analyte=Al/Mn
Response Measurement
Summary of Fit

RSquare	0.703536
RSquare Adj	0.646156
Root Mean Square Error	0.052816
Mean of Response	1.879144
Observations (or Sum Wgts)	186

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	30	1.0260732	0.034202	12.2610
Error	155	0.4323774	0.002790	Prob > F
C. Total	185	1.4584506		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.005235	65.240
Residual	0.00279	34.760
Total	0.008025	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00279	155	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.02607	0.0342	30	12.2610	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-13, Analyte=B

Sample Type=SME, Prep=Mixed Acid, ICP=M-13, Analyte=B/Li

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SME, Prep=Mixed Acid, ICP=M-13, Analyte=Ca
Response Measurement
Summary of Fit

RSquare	0.522824
RSquare Adj	0.430924
Root Mean Square Error	0.033834
Mean of Response	0.716852
Observations (or Sum Wgts)	162

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	0.16932311	0.006512	5.6890
Error	135	0.15453933	0.001145	Prob > F
C. Total	161	0.32386244		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000895	43.868
Residual	0.001145	56.132
Total	0.002039	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00114	135	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.16932	0.00651	26	5.6890	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-13, Analyte=Cr
Response Measurement
Summary of Fit

RSquare	0.73292
RSquare Adj	0.681174
Root Mean Square Error	0.004451
Mean of Response	0.054339
Observations (or Sum Wgts)	192

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	31	0.00870049	0.000281	14.1636
Error	160	0.00317050	0.000020	Prob > F
C. Total	191	0.01187099		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000043	68.691
Residual	0.00002	31.309
Total	0.000063	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00002	160	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.0087	0.00028	31	14.1636	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-13, Analyte=Cu
Response Measurement
Summary of Fit

RSquare	0.917647
RSquare Adj	0.901708
Root Mean Square Error	0.002403
Mean of Response	0.008978
Observations (or Sum Wgts)	186

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	30	0.00997291	0.000332	57.5718
Error	155	0.00089500	0.000006	Prob > F
C. Total	185	0.01086791		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000054	90.411
Residual	0.000006	9.589
Total	0.00006	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	5.77e-6	155	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00997	0.00033	30	57.5718	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-13, Analyte=Fe
Response Measurement
Summary of Fit

RSquare	0.623674
RSquare Adj	0.551197
Root Mean Square Error	0.229852
Mean of Response	7.782
Observations (or Sum Wgts)	162

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	11.820243	0.454625	8.6051
Error	135	7.132341	0.052832	Prob > F
C. Total	161	18.952584		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.066965	55.899
Residual	0.052832	44.101
Total	0.119798	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.05283	135	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	11.8202	0.45462	26	8.6051	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SME, Prep=Mixed Acid, ICP=M-13, Analyte=Fe/Al
Response Measurement
Summary of Fit

RSquare	0.841267
RSquare Adj	0.810513
Root Mean Square Error	0.044158
Mean of Response	2.688102
Observations (or Sum Wgts)	192

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	31	1.6535392	0.053340	27.3543
Error	160	0.3119946	0.001950	Prob > F
C. Total	191	1.9655338		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.008565	81.455
Residual	0.00195	18.545
Total	0.010515	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00195	160	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.65354	0.05334	31	27.3543	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-13, Analyte=Fe/Ca
Response Measurement
Summary of Fit

RSquare	0.501832
RSquare Adj	0.40552
Root Mean Square Error	0.342975
Mean of Response	10.85282
Observations (or Sum Wgts)	180

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	17.774582	0.612917	5.2105
Error	150	17.644785	0.117632	Prob > F
C. Total	179	35.419367		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.082547	41.237
Residual	0.117632	58.763
Total	0.200179	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.11763	150	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	17.7746	0.61292	29	5.2105	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-13, Analyte=Fe/Li
Response Measurement
Summary of Fit

RSquare	0.851456
RSquare Adj	0.822772
Root Mean Square Error	0.110723
Mean of Response	3.489506
Observations (or Sum Wgts)	174

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	28	10.189409	0.363907	29.6837
Error	145	1.777627	0.012259	Prob > F
C. Total	173	11.967036		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.058608	82.701
Residual	0.012259	17.299
Total	0.070867	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01226	145	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	10.1894	0.36391	28	29.6837	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-13, Analyte=Fe/Mg
Response Measurement
Summary of Fit

RSquare	0.639089
RSquare Adj	0.569313
Root Mean Square Error	0.37268
Mean of Response	11.44492
Observations (or Sum Wgts)	180

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	36.891226	1.27211	9.1591
Error	150	20.833509	0.13889	Prob > F
C. Total	179	57.724735		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.18887	57.624
Residual	0.13889	42.376
Total	0.32776	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.13889	150	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	36.8912	1.27211	29	9.1591	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SME, Prep=Mixed Acid, ICP=M-13, Analyte=Fe/Mn
Response Measurement
Summary of Fit

RSquare	0.663526
RSquare Adj	0.598402
Root Mean Square Error	0.11326
Mean of Response	5.046693
Observations (or Sum Wgts)	186

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	30	3.9209420	0.130698	10.1886
Error	155	1.9883107	0.012828	Prob > F
C. Total	185	5.9092527		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.019645	60.497
Residual	0.012828	39.503
Total	0.032473	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01283	155	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	3.92094	0.1307	30	10.1886	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-13, Analyte=Fe/Ni
Response Measurement
Summary of Fit

RSquare	0.626761
RSquare Adj	0.554601
Root Mean Square Error	0.351964
Mean of Response	17.14521
Observations (or Sum Wgts)	180

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	31.203507	1.07598	8.6858
Error	150	18.581837	0.12388	Prob > F
C. Total	179	49.785344		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.158684	56.159
Residual	0.123879	43.841
Total	0.282563	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.12388	150	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	31.2035	1.07598	29	8.6858	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-13, Analyte=Fe/U
Response Measurement
Summary of Fit

RSquare	0.706377
RSquare Adj	0.649547
Root Mean Square Error	0.07475
Mean of Response	2.828548
Observations (or Sum Wgts)	186

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	30	2.0835167	0.069451	12.4296
Error	155	0.8660648	0.005588	Prob > F
C. Total	185	2.9495815		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.010644	65.576
Residual	0.005588	34.424
Total	0.016231	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00559	155	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	2.08352	0.06945	30	12.4296	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-13, Analyte=K
Response Measurement
Summary of Fit

RSquare	0.585187
RSquare Adj	0.505297
Root Mean Square Error	0.242111
Mean of Response	-0.06115
Observations (or Sum Wgts)	162

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	11.163576	0.429368	7.3249
Error	135	7.913372	0.058618	Prob > F
C. Total	161	19.076947		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.061792	51.318
Residual	0.058618	48.682
Total	0.120409	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.05862	135	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	11.1636	0.42937	26	7.3249	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SME, Prep=Mixed Acid, ICP=M-13, Analyte=Li
Response Measurement
Summary of Fit

RSquare	0.790096
RSquare Adj	0.74973
Root Mean Square Error	0.054608
Mean of Response	2.213846
Observations (or Sum Wgts)	156

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	25	1.4592030	0.058368	19.5732
Error	130	0.3876653	0.002982	Prob > F
C. Total	155	1.8468683		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.009231	75.583
Residual	0.002982	24.417
Total	0.012213	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00298	130	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.4592	0.05837	25	19.5732	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-13, Analyte=Mg
Response Measurement
Summary of Fit

RSquare	0.664547
RSquare Adj	0.59977
Root Mean Square Error	0.03281
Mean of Response	0.674586
Observations (or Sum Wgts)	174

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	28	0.30921654	0.011043	10.2590
Error	145	0.15608767	0.001076	Prob > F
C. Total	173	0.46530421		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.001661	60.679
Residual	0.001076	39.321
Total	0.002738	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00108	145	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.30922	0.01104	28	10.2590	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-13, Analyte=Mn
Response Measurement
Summary of Fit

RSquare	0.622893
RSquare Adj	0.550072
Root Mean Square Error	0.068724
Mean of Response	1.541925
Observations (or Sum Wgts)	174

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	28	1.1311925	0.040400	8.5538
Error	145	0.6848375	0.004723	Prob > F
C. Total	173	1.8160300		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.005946	55.732
Residual	0.004723	44.268
Total	0.010669	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00472	145	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.13119	0.0404	28	8.5538	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-13, Analyte=Mn/Mg
Response Measurement
Summary of Fit

RSquare	0.512158
RSquare Adj	0.417737
Root Mean Square Error	0.043209
Mean of Response	2.268349
Observations (or Sum Wgts)	186

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	30	0.30381537	0.010127	5.4242
Error	155	0.28939074	0.001867	Prob > F
C. Total	185	0.59320611		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.001377	42.442
Residual	0.001867	57.558
Total	0.003244	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00187	155	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.30382	0.01013	30	5.4242	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SME, Prep=Mixed Acid, ICP=M-13, Analyte=Na
Response Measurement
Summary of Fit

RSquare	0.542482
RSquare Adj	0.454367
Root Mean Square Error	0.292731
Mean of Response	8.807543
Observations (or Sum Wgts)	162

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	13.716642	0.527563	6.1566
Error	135	11.568329	0.085691	Prob > F
C. Total	161	25.284970		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.073645	46.220
Residual	0.085691	53.780
Total	0.159337	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.08569	135	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	13.7166	0.52756	26	6.1566	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-13, Analyte=Ni
Response Measurement
Summary of Fit

RSquare	0.588661
RSquare Adj	0.509332
Root Mean Square Error	0.018487
Mean of Response	0.450274
Observations (or Sum Wgts)	168

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	27	0.06847274	0.002536	7.4205
Error	140	0.04784667	0.000342	Prob > F
C. Total	167	0.11631940		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000366	51.693
Residual	0.000342	48.307
Total	0.000707	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00034	140	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.06847	0.00254	27	7.4205	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-13, Analyte=Si
Response Measurement
Summary of Fit

RSquare	0.503514
RSquare Adj	0.40764
Root Mean Square Error	0.714654
Mean of Response	22.46066
Observations (or Sum Wgts)	174

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	28	75.10400	2.68229	5.2519
Error	145	74.05580	0.51073	Prob > F
C. Total	173	149.15980		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.361926	41.474
Residual	0.51073	58.526
Total	0.872656	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.51073	145	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	75.104	2.68229	28	5.2519	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-13, Analyte=Sum of Oxides
Response Measurement
Summary of Fit

RSquare	0.378618
RSquare Adj	0.258485
Root Mean Square Error	2.213148
Mean of Response	89.09756
Observations (or Sum Wgts)	180

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	447.6676	15.4368	3.1516
Error	150	734.7036	4.8980	Prob > F
C. Total	179	1182.3712		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	1.756465	26.395
Residual	4.898024	73.605
Total	6.654489	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	4.89802	150	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	447.668	15.4368	29	3.1516	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SME, Prep=Mixed Acid, ICP=M-13, Analyte=Ti
Response Measurement
Summary of Fit

RSquare	0.841983
RSquare Adj	0.811399
Root Mean Square Error	0.003315
Mean of Response	0.031952
Observations (or Sum Wgts)	186

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	30	0.00907873	0.000303	27.5301
Error	155	0.00170383	0.000011	Prob > F
C. Total	185	0.01078256		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000049	81.556
Residual	0.000011	18.444
Total	0.00006	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00001	155	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00908	0.0003	30	27.5301	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-13, Analyte=U
Response Measurement
Summary of Fit

RSquare	0.673481
RSquare Adj	0.610429
Root Mean Square Error	0.123854
Mean of Response	2.754569
Observations (or Sum Wgts)	174

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	28	4.5878402	0.163851	10.6814
Error	145	2.2242885	0.015340	Prob > F
C. Total	173	6.8121287		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.024752	61.738
Residual	0.01534	38.262
Total	0.040092	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01534	145	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	4.58784	0.16385	28	10.6814	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-13, Analyte=U/Ca
Response Measurement
Summary of Fit

RSquare	0.592674
RSquare Adj	0.514018
Root Mean Square Error	0.137033
Mean of Response	3.838824
Observations (or Sum Wgts)	174

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	28	3.9617977	0.141493	7.5350
Error	145	2.7228189	0.018778	Prob > F
C. Total	173	6.6846166		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.020452	52.134
Residual	0.018778	47.866
Total	0.039231	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01878	145	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	3.9618	0.14149	28	7.5350	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-13, Analyte=Zr
Response Measurement
Summary of Fit

RSquare	0.917943
RSquare Adj	0.902078
Root Mean Square Error	0.003277
Mean of Response	0.049783
Observations (or Sum Wgts)	180

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	0.01801605	0.000621	57.8618
Error	150	0.00161050	0.000011	Prob > F
C. Total	179	0.01962655		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000102	90.455
Residual	0.000011	9.545
Total	0.000112	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00001	150	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.01802	0.00062	29	57.8618	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SME, Prep=Mixed Acid, ICP=M-14, Analyte=Al
Response Measurement
Summary of Fit

RSquare	0.836762
RSquare Adj	0.805747
Root Mean Square Error	0.088055
Mean of Response	3.050817
Observations (or Sum Wgts)	120

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	19	3.9745353	0.209186	26.9791
Error	100	0.7753627	0.007754	Prob > F
C. Total	119	4.7498980		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.033572	81.238
Residual	0.007754	18.762
Total	0.041326	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00775	100	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	3.97454	0.20919	19	26.9791	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-14, Analyte=Al/Ca
Response Measurement
Summary of Fit

RSquare	0.638343
RSquare Adj	0.569818
Root Mean Square Error	0.083889
Mean of Response	4.041221
Observations (or Sum Wgts)	114

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	18	1.1800276	0.065557	9.3155
Error	95	0.6685528	0.007037	Prob > F
C. Total	113	1.8485804		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.009753	58.087
Residual	0.007037	41.913
Total	0.016791	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00704	95	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.18003	0.06556	18	9.3155	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-14, Analyte=Al/Mg
Response Measurement
Summary of Fit

RSquare	0.754207
RSquare Adj	0.707506
Root Mean Square Error	0.109488
Mean of Response	4.246526
Observations (or Sum Wgts)	120

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	19	3.6783636	0.193598	16.1498
Error	100	1.1987662	0.011988	Prob > F
C. Total	119	4.8771298		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.030268	71.631
Residual	0.011988	28.369
Total	0.042256	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01199	100	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	3.67836	0.1936	19	16.1498	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-14, Analyte=Al/Mn
Response Measurement
Summary of Fit

RSquare	0.815962
RSquare Adj	0.780995
Root Mean Square Error	0.038262
Mean of Response	1.886865
Observations (or Sum Wgts)	120

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	19	0.64909084	0.034163	23.3351
Error	100	0.14640040	0.001464	Prob > F
C. Total	119	0.79549124		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.00545	78.825
Residual	0.001464	21.175
Total	0.006914	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00146	100	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.64909	0.03416	19	23.3351	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-14, Analyte=B

Sample Type=SME, Prep=Mixed Acid, ICP=M-14, Analyte=B/Li

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SME, Prep=Mixed Acid, ICP=M-14, Analyte=Ca
Response Measurement
Summary of Fit

RSquare	0.750384
RSquare Adj	0.703088
Root Mean Square Error	0.026159
Mean of Response	0.755316
Observations (or Sum Wgts)	114

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	18	0.19541996	0.010857	15.8658
Error	95	0.06500667	0.000684	Prob > F
C. Total	113	0.26042663		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.001695	71.245
Residual	0.000684	28.755
Total	0.00238	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00068	95	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.19542	0.01086	18	15.8658	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-14, Analyte=Cr
Response Measurement
Summary of Fit

RSquare	0.748858
RSquare Adj	0.701142
Root Mean Square Error	0.003028
Mean of Response	0.046758
Observations (or Sum Wgts)	120

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	19	0.00273483	0.000144	15.6938
Error	100	0.00091717	0.000009	Prob > F
C. Total	119	0.00365199		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000022	71.006
Residual	0.000009	28.994
Total	0.000032	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	9.17e-6	100	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00273	0.00014	19	15.6938	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-14, Analyte=Cu
Response Measurement
Summary of Fit

RSquare	0.854191
RSquare Adj	0.826487
Root Mean Square Error	0.002175
Mean of Response	0.007517
Observations (or Sum Wgts)	120

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	19	0.00277097	0.000146	30.8331
Error	100	0.00047300	0.000005	Prob > F
C. Total	119	0.00324397		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000024	83.256
Residual	0.000005	16.744
Total	0.000028	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	4.73e-6	100	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00277	0.00015	19	30.8331	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-14, Analyte=Fe
Response Measurement
Summary of Fit

RSquare	0.796133
RSquare Adj	0.757398
Root Mean Square Error	0.234398
Mean of Response	7.880575
Observations (or Sum Wgts)	120

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	19	21.455891	1.12926	20.5535
Error	100	5.494246	0.05494	Prob > F
C. Total	119	26.950137		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.179052	76.520
Residual	0.054942	23.480
Total	0.233995	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.05494	100	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	21.4559	1.12926	19	20.5535	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SME, Prep=Mixed Acid, ICP=M-14, Analyte=Fe/Al
Response Measurement
Summary of Fit

RSquare	0.83586
RSquare Adj	0.804674
Root Mean Square Error	0.039282
Mean of Response	2.585362
Observations (or Sum Wgts)	120

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	19	0.78581079	0.041358	26.8019
Error	100	0.15431142	0.001543	Prob > F
C. Total	119	0.94012221		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.006636	81.133
Residual	0.001543	18.867
Total	0.008179	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00154	100	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.78581	0.04136	19	26.8019	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-14, Analyte=Fe/Ca
Response Measurement
Summary of Fit

RSquare	0.452323
RSquare Adj	0.348553
Root Mean Square Error	0.232035
Mean of Response	10.41888
Observations (or Sum Wgts)	114

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	18	4.2243080	0.234684	4.3589
Error	95	5.1148228	0.053840	Prob > F
C. Total	113	9.3391307		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.030141	35.890
Residual	0.05384	64.110
Total	0.083981	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.05384	95	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	4.22431	0.23468	18	4.3589	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-14, Analyte=Fe/Li
Response Measurement
Summary of Fit

RSquare	0.923885
RSquare Adj	0.909423
Root Mean Square Error	0.088119
Mean of Response	3.516826
Observations (or Sum Wgts)	120

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	19	9.425243	0.496065	63.8844
Error	100	0.776504	0.007765	Prob > F
C. Total	119	10.201747		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.081383	91.290
Residual	0.007765	8.710
Total	0.089148	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00777	100	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	9.42524	0.49607	19	63.8844	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-14, Analyte=Fe/Mg
Response Measurement
Summary of Fit

RSquare	0.635052
RSquare Adj	0.565711
Root Mean Square Error	0.296504
Mean of Response	10.96896
Observations (or Sum Wgts)	120

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	19	15.298131	0.805165	9.1585
Error	100	8.791457	0.087915	Prob > F
C. Total	119	24.089588		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.119542	57.623
Residual	0.087915	42.377
Total	0.207456	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.08791	100	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	15.2981	0.80516	19	9.1585	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SME, Prep=Mixed Acid, ICP=M-14, Analyte=Fe/Mn
Response Measurement
Summary of Fit

RSquare	0.658059
RSquare Adj	0.59309
Root Mean Square Error	0.092351
Mean of Response	4.872926
Observations (or Sum Wgts)	120

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	19	1.6413431	0.086386	10.1288
Error	100	0.8528761	0.008529	Prob > F
C. Total	119	2.4942192		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.012976	60.341
Residual	0.008529	39.659
Total	0.021505	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00853	100	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.64134	0.08639	19	10.1288	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-14, Analyte=Fe/Ni
Response Measurement
Summary of Fit

RSquare	0.55181
RSquare Adj	0.466654
Root Mean Square Error	0.371275
Mean of Response	17.13264
Observations (or Sum Wgts)	120

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	19	16.971406	0.893232	6.4800
Error	100	13.784497	0.137845	Prob > F
C. Total	119	30.755903		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.125898	47.735
Residual	0.137845	52.265
Total	0.263743	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.13784	100	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	16.9714	0.89323	19	6.4800	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-14, Analyte=Fe/U
Response Measurement
Summary of Fit

RSquare	0.680986
RSquare Adj	0.620373
Root Mean Square Error	0.058862
Mean of Response	2.728421
Observations (or Sum Wgts)	120

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	19	0.7395995	0.038926	11.2350
Error	100	0.3464725	0.003465	Prob > F
C. Total	119	1.0860720		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.00591	63.043
Residual	0.003465	36.957
Total	0.009375	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00346	100	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.7396	0.03893	19	11.2350	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-14, Analyte=K
Response Measurement
Summary of Fit

RSquare	0.778168
RSquare Adj	0.736266
Root Mean Square Error	0.134019
Mean of Response	0.166454
Observations (or Sum Wgts)	108

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	17	5.6705339	0.333561	18.5713
Error	90	1.6164968	0.017961	Prob > F
C. Total	107	7.2870308		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.0526	74.545
Residual	0.017961	25.455
Total	0.070561	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01796	90	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	5.67053	0.33356	17	18.5713	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SME, Prep=Mixed Acid, ICP=M-14, Analyte=Li
Response Measurement
Summary of Fit

RSquare	0.679799
RSquare Adj	0.618809
Root Mean Square Error	0.05404
Mean of Response	2.243683
Observations (or Sum Wgts)	126

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	20	0.65099297	0.032550	11.1460
Error	105	0.30663233	0.002920	Prob > F
C. Total	125	0.95762530		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.004938	62.839
Residual	0.00292	37.161
Total	0.007859	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00292	105	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.65099	0.03255	20	11.1460	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-14, Analyte=Mg
Response Measurement
Summary of Fit

RSquare	0.822223
RSquare Adj	0.788446
Root Mean Square Error	0.024521
Mean of Response	0.719683
Observations (or Sum Wgts)	120

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	19	0.27809563	0.014637	24.3423
Error	100	0.06012833	0.000601	Prob > F
C. Total	119	0.33822397		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.002339	79.552
Residual	0.000601	20.448
Total	0.002941	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.0006	100	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.2781	0.01464	19	24.3423	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-14, Analyte=Mn
Response Measurement
Summary of Fit

RSquare	0.865002
RSquare Adj	0.839352
Root Mean Square Error	0.049303
Mean of Response	1.6196
Observations (or Sum Wgts)	120

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	19	1.5575265	0.081975	33.7237
Error	100	0.2430783	0.002431	Prob > F
C. Total	119	1.8006048		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.013257	84.506
Residual	0.002431	15.494
Total	0.015688	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00243	100	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.55753	0.08198	19	33.7237	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-14, Analyte=Mn/Mg
Response Measurement
Summary of Fit

RSquare	0.663488
RSquare Adj	0.599727
Root Mean Square Error	0.031505
Mean of Response	2.243634
Observations (or Sum Wgts)	114

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	18	0.18591032	0.010328	10.4060
Error	95	0.09429130	0.000993	Prob > F
C. Total	113	0.28020162		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.001556	61.054
Residual	0.000993	38.946
Total	0.002549	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00099	95	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.18591	0.01033	18	10.4060	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SME, Prep=Mixed Acid, ICP=M-14, Analyte=Na
Response Measurement
Summary of Fit

RSquare	0.658216
RSquare Adj	0.593278
Root Mean Square Error	0.239573
Mean of Response	9.053983
Observations (or Sum Wgts)	120

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	19	11.053309	0.581753	10.1359
Error	100	5.739509	0.057395	Prob > F
C. Total	119	16.792818		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.087393	60.359
Residual	0.057395	39.641
Total	0.144788	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.0574	100	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	11.0533	0.58175	19	10.1359	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-14, Analyte=Ni
Response Measurement
Summary of Fit

RSquare	0.680804
RSquare Adj	0.620156
Root Mean Square Error	0.016985
Mean of Response	0.460142
Observations (or Sum Wgts)	120

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	19	0.06153143	0.003238	11.2256
Error	100	0.02884917	0.000288	Prob > F
C. Total	119	0.09038059		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000492	63.021
Residual	0.000288	36.979
Total	0.00078	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00029	100	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.06153	0.00324	19	11.2256	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-14, Analyte=Si
Response Measurement
Summary of Fit

RSquare	0.370909
RSquare Adj	0.251382
Root Mean Square Error	0.967813
Mean of Response	21.66863
Observations (or Sum Wgts)	120

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	19	55.22508	2.90658	3.1031
Error	100	93.66613	0.93666	Prob > F
C. Total	119	148.89120		0.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.32832	25.955
Residual	0.936661	74.045
Total	1.264982	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.93666	100	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	55.2251	2.90658	19	3.1031	0.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-14, Analyte=Sum of Oxides
Response Measurement
Summary of Fit

RSquare	0.356252
RSquare Adj	0.234278
Root Mean Square Error	2.130502
Mean of Response	89.2959
Observations (or Sum Wgts)	114

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	18	238.63201	13.2573	2.9207
Error	95	431.20886	4.5390	Prob > F
C. Total	113	669.84088		0.0004

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	1.453049	24.249
Residual	4.539041	75.751
Total	5.99209	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	4.53904	95	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	238.632	13.2573	18	2.9207	0.0004

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SME, Prep=Mixed Acid, ICP=M-14, Analyte=Ti
Response Measurement
Summary of Fit

RSquare	0.894109
RSquare Adj	0.87399
Root Mean Square Error	0.002301
Mean of Response	0.04
Observations (or Sum Wgts)	120

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	19	0.00447233	0.000235	44.4404
Error	100	0.00052967	0.000005	Prob > F
C. Total	119	0.00500200		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000038	87.864
Residual	0.000005	12.136
Total	0.000044	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	5.3e-6	100	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00447	0.00024	19	44.4404	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-14, Analyte=U
Response Measurement
Summary of Fit

RSquare	0.761621
RSquare Adj	0.716329
Root Mean Square Error	0.09994
Mean of Response	2.890975
Observations (or Sum Wgts)	120

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	19	3.1911798	0.167957	16.8158
Error	100	0.9988032	0.009988	Prob > F
C. Total	119	4.1899829		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.026328	72.497
Residual	0.009988	27.503
Total	0.036316	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00999	100	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	3.19118	0.16796	19	16.8158	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-14, Analyte=U/Ca
Response Measurement
Summary of Fit

RSquare	0.567657
RSquare Adj	0.485739
Root Mean Square Error	0.108213
Mean of Response	3.822947
Observations (or Sum Wgts)	114

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	18	1.4606204	0.081146	6.9296
Error	95	1.1124492	0.011710	Prob > F
C. Total	113	2.5730696		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.011573	49.705
Residual	0.01171	50.295
Total	0.023283	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01171	95	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.46062	0.08115	18	6.9296	<.0001

Sample Type=SME, Prep=Mixed Acid, ICP=M-14, Analyte=Zr
Response Measurement
Summary of Fit

RSquare	0.984879
RSquare Adj	0.982006
Root Mean Square Error	0.001861
Mean of Response	0.060383
Observations (or Sum Wgts)	120

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	19	0.02255803	0.001187	342.8099
Error	100	0.00034633	0.000003	Prob > F
C. Total	119	0.02290437		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000197	98.275
Residual	0.000003	1.725
Total	0.000201	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	3.46e-6	100	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.02256	0.00119	19	342.8099	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SRAT, Prep=Cold Chem, ICP=M-13, Analyte=Al
Response Measurement
Summary of Fit

RSquare	0.441535
RSquare Adj	0.33572
Root Mean Square Error	0.193305
Mean of Response	5.142316
Observations (or Sum Wgts)	114

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	18	2.8065800	0.155921	4.1727
Error	95	3.5498387	0.037367	Prob > F
C. Total	113	6.3564186		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.019759	34.589
Residual	0.037367	65.411
Total	0.057126	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.03737	95	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	2.80658	0.15592	18	4.1727	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-13, Analyte=Al/Ca
Response Measurement
Summary of Fit

RSquare	0.364563
RSquare Adj	0.242559
Root Mean Square Error	0.071141
Mean of Response	3.837108
Observations (or Sum Wgts)	150

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	24	0.36295529	0.015123	2.9881
Error	125	0.63263485	0.005061	Prob > F
C. Total	149	0.99559013		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.001677	24.889
Residual	0.005061	75.111
Total	0.006738	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00506	125	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.36296	0.01512	24	2.9881	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-13, Analyte=Al/Mg
Response Measurement
Summary of Fit

RSquare	0.562024
RSquare Adj	0.477933
Root Mean Square Error	0.096782
Mean of Response	3.841868
Observations (or Sum Wgts)	150

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	24	1.5024686	0.062603	6.6835
Error	125	1.1708490	0.009367	Prob > F
C. Total	149	2.6733176		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.008873	48.645
Residual	0.009367	51.355
Total	0.018239	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00937	125	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.50247	0.0626	24	6.6835	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-13, Analyte=Al/Mn
Response Measurement
Summary of Fit

RSquare	0.665952
RSquare Adj	0.601926
Root Mean Square Error	0.025264
Mean of Response	1.619489
Observations (or Sum Wgts)	144

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	23	0.15269487	0.006639	10.4013
Error	120	0.07659321	0.000638	Prob > F
C. Total	143	0.22928808		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.001	61.042
Residual	0.000638	38.958
Total	0.001638	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00064	120	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.15269	0.00664	23	10.4013	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SRAT, Prep=Cold Chem, ICP=M-13, Analyte=B
Response Measurement
Summary of Fit

RSquare	0.954818
RSquare Adj	0.946129
Root Mean Square Error	0.005691
Mean of Response	0.011891
Observations (or Sum Wgts)	156

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	25	0.08897865	0.003559	109.8893
Error	130	0.00421050	0.000032	Prob > F
C. Total	155	0.09318915		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000588	94.778
Residual	0.000032	5.222
Total	0.00062	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00003	130	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.08898	0.00356	25	109.8893	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-13, Analyte=B/Li
Response Measurement
Summary of Fit

RSquare	0.673132
RSquare Adj	0.610696
Root Mean Square Error	0.912914
Mean of Response	0.253943
Observations (or Sum Wgts)	107

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	17	152.74842	8.98520	10.7812
Error	89	74.17366	0.83341	Prob > F
C. Total	106	226.92208		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	5.94393

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	1.371449	62.201
Residual	0.833412	37.799
Total	2.204861	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.83341	89	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	152.748	8.9852	17	10.7812	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-13, Analyte=Ca
Response Measurement
Summary of Fit

RSquare	0.651531
RSquare Adj	0.585505
Root Mean Square Error	0.034304
Mean of Response	1.342026
Observations (or Sum Wgts)	114

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	18	0.20901942	0.011612	9.8678
Error	95	0.11179350	0.001177	Prob > F
C. Total	113	0.32081292		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.001739	59.644
Residual	0.001177	40.356
Total	0.002916	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00118	95	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.20902	0.01161	18	9.8678	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-13, Analyte=Cr
Response Measurement
Summary of Fit

RSquare	0.611409
RSquare Adj	0.53707
Root Mean Square Error	0.00546
Mean of Response	0.084246
Observations (or Sum Wgts)	138

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	22	0.00539362	0.000245	8.2246
Error	115	0.00342800	0.000030	Prob > F
C. Total	137	0.00882162		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000036	54.630
Residual	0.00003	45.370
Total	0.000066	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00003	115	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00539	0.00025	22	8.2246	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SRAT, Prep=Cold Chem, ICP=M-13, Analyte=Cu
Response Measurement
Summary of Fit

RSquare	0.598064
RSquare Adj	0.521027
Root Mean Square Error	0.002778
Mean of Response	0.032562
Observations (or Sum Wgts)	144

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	23	0.00137760	0.000060	7.7633
Error	120	0.00092583	0.000008	Prob > F
C. Total	143	0.00230344		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000009	52.990
Residual	0.000008	47.010
Total	0.000016	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	7.72e-6	120	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00138	0.00006	23	7.7633	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-13, Analyte=Fe
Response Measurement
Summary of Fit

RSquare	0.465745
RSquare Adj	0.363982
Root Mean Square Error	0.768055
Mean of Response	15.06258
Observations (or Sum Wgts)	126

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	20	53.99740	2.69987	4.5768
Error	105	61.94036	0.58991	Prob > F
C. Total	125	115.93776		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.35166	37.348
Residual	0.589908	62.652
Total	0.941569	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.58991	105	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	53.9974	2.69987	20	4.5768	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-13, Analyte=Fe/Al
Response Measurement
Summary of Fit

RSquare	0.624077
RSquare Adj	0.55231
Root Mean Square Error	0.041746
Mean of Response	2.923278
Observations (or Sum Wgts)	132

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	21	0.31824186	0.015154	8.6959
Error	110	0.19169798	0.001743	Prob > F
C. Total	131	0.50993984		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.002235	56.191
Residual	0.001743	43.809
Total	0.003978	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00174	110	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.31824	0.01515	21	8.6959	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-13, Analyte=Fe/Ca
Response Measurement
Summary of Fit

RSquare	0.570995
RSquare Adj	0.488925
Root Mean Square Error	0.241356
Mean of Response	11.15218
Observations (or Sum Wgts)	138

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	22	8.916263	0.405285	6.9574
Error	115	6.699045	0.058253	Prob > F
C. Total	137	15.615308		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.057839	49.822
Residual	0.058253	50.178
Total	0.116091	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.05825	115	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	8.91626	0.40528	22	6.9574	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SRAT, Prep=Cold Chem, ICP=M-13, Analyte=Fe/Li
Response Measurement
Summary of Fit

RSquare	0.706741
RSquare Adj	0.650585
Root Mean Square Error	719.1431
Mean of Response	79.15296
Observations (or Sum Wgts)	113

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	18	117156842	6508713	12.5853
Error	94	48613682	517167	Prob > F
C. Total	112	165770524		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	5.9469

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	1007507	66.080
Residual	517166.8	33.920
Total	1524674	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	517167	94	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.172e8	6508713	18	12.5853	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-13, Analyte=Fe/Mg
Response Measurement
Summary of Fit

RSquare	0.528148
RSquare Adj	0.43788
Root Mean Square Error	0.269268
Mean of Response	11.16104
Observations (or Sum Wgts)	138

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	22	9.332889	0.424222	5.8509
Error	115	8.338100	0.072505	Prob > F
C. Total	137	17.670988		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.058619	44.705
Residual	0.072505	55.295
Total	0.131125	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.07251	115	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	9.33289	0.42422	22	5.8509	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-13, Analyte=Fe/Mn
Response Measurement
Summary of Fit

RSquare	0.625283
RSquare Adj	0.553462
Root Mean Square Error	0.091263
Mean of Response	4.720936
Observations (or Sum Wgts)	144

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	23	1.6677900	0.072513	8.7062
Error	120	0.9994662	0.008329	Prob > F
C. Total	143	2.6672562		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.010697	56.224
Residual	0.008329	43.776
Total	0.019026	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00833	120	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.66779	0.07251	23	8.7062	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-13, Analyte=Fe/Ni
Response Measurement
Summary of Fit

RSquare	0.652006
RSquare Adj	0.58557
Root Mean Square Error	0.221042
Mean of Response	17.38547
Observations (or Sum Wgts)	132

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	21	10.069775	0.479513	9.8141
Error	110	5.374532	0.048859	Prob > F
C. Total	131	15.444307		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.071776	59.498
Residual	0.048859	40.502
Total	0.120635	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.04886	110	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	10.0698	0.47951	21	9.8141	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SRAT, Prep=Cold Chem, ICP=M-13, Analyte=Fe/U
Response Measurement
Summary of Fit

RSquare	0.78862
RSquare Adj	0.748105
Root Mean Square Error	0.067339
Mean of Response	2.701894
Observations (or Sum Wgts)	144

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	23	2.0301209	0.088266	19.4651
Error	120	0.5441502	0.004535	Prob > F
C. Total	143	2.5742711		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.013955	75.475
Residual	0.004535	24.525
Total	0.01849	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00453	120	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	2.03012	0.08827	23	19.4651	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-13, Analyte=K
Response Measurement
Summary of Fit

RSquare	0.777052
RSquare Adj	0.734178
Root Mean Square Error	0.10697
Mean of Response	0.251314
Observations (or Sum Wgts)	156

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	25	5.1846108	0.207384	18.1239
Error	130	1.4875408	0.011443	Prob > F
C. Total	155	6.6721516		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.032657	74.053
Residual	0.011443	25.947
Total	0.0441	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01144	130	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	5.18461	0.20738	25	18.1239	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-13, Analyte=Li
Response Measurement
Summary of Fit

RSquare	0.956476
RSquare Adj	0.948119
Root Mean Square Error	0.005814
Mean of Response	0.007727
Observations (or Sum Wgts)	150

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	24	0.09285063	0.003869	114.4563
Error	125	0.00422517	0.000034	Prob > F
C. Total	149	0.09707579		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000639	94.977
Residual	0.000034	5.023
Total	0.000673	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00003	125	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.09285	0.00387	24	114.4563	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-13, Analyte=Mg
Response Measurement
Summary of Fit

RSquare	0.541983
RSquare Adj	0.454742
Root Mean Square Error	0.052505
Mean of Response	1.340317
Observations (or Sum Wgts)	126

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	20	0.34252197	0.017126	6.2125
Error	105	0.28945733	0.002757	Prob > F
C. Total	125	0.63197930		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.002395	46.488
Residual	0.002757	53.512
Total	0.005152	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00276	105	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.34252	0.01713	20	6.2125	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SRAT, Prep=Cold Chem, ICP=M-13, Analyte=Mn
Response Measurement
Summary of Fit

RSquare	0.623402
RSquare Adj	0.551849
Root Mean Square Error	0.107885
Mean of Response	3.184317
Observations (or Sum Wgts)	120

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	19	1.9267073	0.101406	8.7124
Error	100	1.1639247	0.011639	Prob > F
C. Total	119	3.0906320		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.014961	56.244
Residual	0.011639	43.756
Total	0.0266	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.01164	100	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.92671	0.10141	19	8.7124	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-13, Analyte=Mn/Mg
Response Measurement
Summary of Fit

RSquare	0.436277
RSquare Adj	0.327868
Root Mean Square Error	0.04565
Mean of Response	2.371366
Observations (or Sum Wgts)	156

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	25	0.20966623	0.008387	4.0244
Error	130	0.27091461	0.002084	Prob > F
C. Total	155	0.48058084		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.00105	33.513
Residual	0.002084	66.487
Total	0.003134	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00208	130	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.20967	0.00839	25	4.0244	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-13, Analyte=Na
Response Measurement
Summary of Fit

RSquare	0.386087
RSquare Adj	0.269766
Root Mean Square Error	0.275329
Mean of Response	10.63782
Observations (or Sum Wgts)	114

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	18	4.529021	0.251612	3.3192
Error	95	7.201564	0.075806	Prob > F
C. Total	113	11.730585		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.029301	27.877
Residual	0.075806	72.123
Total	0.105107	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.07581	95	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	4.52902	0.25161	18	3.3192	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-13, Analyte=Ni
Response Measurement
Summary of Fit

RSquare	0.531856
RSquare Adj	0.443155
Root Mean Square Error	0.035733
Mean of Response	0.866895
Observations (or Sum Wgts)	114

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	18	0.13780640	0.007656	5.9961
Error	95	0.12129833	0.001277	Prob > F
C. Total	113	0.25910474		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.001063	45.435
Residual	0.001277	54.565
Total	0.00234	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00128	95	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.13781	0.00766	18	5.9961	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SRAT, Prep=Cold Chem, ICP=M-13, Analyte=Si
Response Measurement
Summary of Fit

RSquare	0.75095
RSquare Adj	0.703306
Root Mean Square Error	0.071728
Mean of Response	1.162522
Observations (or Sum Wgts)	138

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	22	1.7839998	0.081091	15.7616
Error	115	0.5916567	0.005145	Prob > F
C. Total	137	2.3756564		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.012658	71.100
Residual	0.005145	28.900
Total	0.017803	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00514	115	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.784	0.08109	22	15.7616	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-13, Analyte=Sum of Oxides
Response Measurement
Summary of Fit

RSquare	0.579482
RSquare Adj	0.499805
Root Mean Square Error	1.916708
Mean of Response	64.68359
Observations (or Sum Wgts)	114

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	18	480.94049	26.7189	7.2729
Error	95	349.00822	3.6738	Prob > F
C. Total	113	829.94871		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	3.840858	51.112
Residual	3.673771	48.888
Total	7.514628	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	3.67377	95	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	480.94	26.7189	18	7.2729	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-13, Analyte=Ti
Response Measurement
Summary of Fit

RSquare	0.82388
RSquare Adj	0.790065
Root Mean Square Error	0.001684
Mean of Response	0.014567
Observations (or Sum Wgts)	150

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	24	0.00165833	0.000069	24.3643
Error	125	0.00035450	0.000003	Prob > F
C. Total	149	0.00201283		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000011	79.567
Residual	0.000003	20.433
Total	0.000014	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	2.84e-6	125	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00166	0.00007	24	24.3643	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-13, Analyte=U
Response Measurement
Summary of Fit

RSquare	0.644112
RSquare Adj	0.576681
Root Mean Square Error	0.172466
Mean of Response	5.57614
Observations (or Sum Wgts)	114

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	18	5.1142218	0.284123	9.5521
Error	95	2.8257300	0.029745	Prob > F
C. Total	113	7.9399518		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.042396	58.769
Residual	0.029745	41.231
Total	0.072141	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.02974	95	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	5.11422	0.28412	18	9.5521	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SRAT, Prep=Cold Chem, ICP=M-13, Analyte=U/Ca
Response Measurement
Summary of Fit

RSquare	0.827155
RSquare Adj	0.793915
Root Mean Square Error	0.062198
Mean of Response	4.132033
Observations (or Sum Wgts)	156

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	25	2.4067243	0.096269	24.8847
Error	130	0.5029184	0.003869	Prob > F
C. Total	155	2.9096427		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.0154	79.923
Residual	0.003869	20.077
Total	0.019269	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00387	130	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	2.40672	0.09627	25	24.8847	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-13, Analyte=Zr
Response Measurement
Summary of Fit

RSquare	0.643136
RSquare Adj	0.574738
Root Mean Square Error	0.005135
Mean of Response	0.077667
Observations (or Sum Wgts)	144

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	23	0.00570333	0.000248	9.4027
Error	120	0.00316467	0.000026	Prob > F
C. Total	143	0.00886800		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000037	58.341
Residual	0.000026	41.659
Total	0.000063	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00003	120	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.0057	0.00025	23	9.4027	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-14, Analyte=Al
Response Measurement
Summary of Fit

RSquare	0.457857
RSquare Adj	0.353301
Root Mean Square Error	0.266954
Mean of Response	5.092173
Observations (or Sum Wgts)	168

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	27	8.425928	0.312071	4.3791
Error	140	9.977038	0.071265	Prob > F
C. Total	167	18.402966		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.040134	36.028
Residual	0.071265	63.972
Total	0.111399	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.07126	140	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	8.42593	0.31207	27	4.3791	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-14, Analyte=Al/Ca
Response Measurement
Summary of Fit

RSquare	0.439896
RSquare Adj	0.332024
Root Mean Square Error	0.097675
Mean of Response	3.808229
Observations (or Sum Wgts)	162

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	1.0115288	0.038905	4.0779
Error	135	1.2879445	0.009540	Prob > F
C. Total	161	2.2994734		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.004894	33.906
Residual	0.00954	66.094
Total	0.014434	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00954	135	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.01153	0.0389	26	4.0779	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SRAT, Prep=Cold Chem, ICP=M-14, Analyte=Al/Mg
Response Measurement
Summary of Fit

RSquare	0.34661
RSquare Adj	0.220958
Root Mean Square Error	0.132666
Mean of Response	3.881657
Observations (or Sum Wgts)	156

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	25	1.2137498	0.048550	2.7585
Error	130	2.2880279	0.017600	Prob > F
C. Total	155	3.5017777		0.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.005158	22.665
Residual	0.0176	77.335
Total	0.022759	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.0176	130	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.21375	0.04855	25	2.7585	0.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-14, Analyte=Al/Mn
Response Measurement
Summary of Fit

RSquare	0.427243
RSquare Adj	0.317274
Root Mean Square Error	0.031031
Mean of Response	1.623093
Observations (or Sum Wgts)	150

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	24	0.08978287	0.003741	3.8851
Error	125	0.12036179	0.000963	Prob > F
C. Total	149	0.21014467		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000463	32.471
Residual	0.000963	67.529
Total	0.001426	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00096	125	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.08978	0.00374	24	3.8851	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-14, Analyte=B
Response Measurement
Summary of Fit

RSquare	0.950157
RSquare Adj	0.940544
Root Mean Square Error	0.003899
Mean of Response	0.007577
Observations (or Sum Wgts)	168

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	27	0.04056883	0.001503	98.8442
Error	140	0.00212817	0.000015	Prob > F
C. Total	167	0.04269699		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000248	94.222
Residual	0.000015	5.778
Total	0.000263	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00002	140	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.04057	0.0015	27	98.8442	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-14, Analyte=B/Li
Response Measurement
Summary of Fit

RSquare	0.737013
RSquare Adj	0.685355
Root Mean Square Error	0.533267
Mean of Response	-0.22092
Observations (or Sum Wgts)	135

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	22	89.25817	4.05719	14.2671
Error	112	31.84982	0.28437	Prob > F
C. Total	134	121.10798		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	5.86869

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.642872	69.331
Residual	0.284373	30.669
Total	0.927246	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.28437	112	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	89.2582	4.05719	22	14.2671	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SRAT, Prep=Cold Chem, ICP=M-14, Analyte=Ca
Response Measurement
Summary of Fit

RSquare	0.523064
RSquare Adj	0.431652
Root Mean Square Error	0.041737
Mean of Response	1.336208
Observations (or Sum Wgts)	144

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	23	0.22925275	0.009968	5.7220
Error	120	0.20903500	0.001742	Prob > F
C. Total	143	0.43828775		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.001371	44.040
Residual	0.001742	55.960
Total	0.003113	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00174	120	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.22925	0.00997	23	5.7220	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-14, Analyte=Cr
Response Measurement
Summary of Fit

RSquare	0.669013
RSquare Adj	0.605179
Root Mean Square Error	0.005372
Mean of Response	0.08831
Observations (or Sum Wgts)	168

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	27	0.00816590	0.000302	10.4806
Error	140	0.00404000	0.000029	Prob > F
C. Total	167	0.01220590		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000046	61.242
Residual	0.000029	38.758
Total	0.000074	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00003	140	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00817	0.0003	27	10.4806	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-14, Analyte=Cu
Response Measurement
Summary of Fit

RSquare	0.720537
RSquare Adj	0.666572
Root Mean Square Error	0.002298
Mean of Response	0.028247
Observations (or Sum Wgts)	174

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	28	0.00197454	0.000071	13.3519
Error	145	0.00076583	0.000005	Prob > F
C. Total	173	0.00274037		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000011	67.306
Residual	0.000005	32.694
Total	0.000016	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	5.28e-6	145	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00197	0.00007	28	13.3519	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-14, Analyte=Fe
Response Measurement
Summary of Fit

RSquare	0.523388
RSquare Adj	0.431596
Root Mean Square Error	0.772514
Mean of Response	14.66683
Observations (or Sum Wgts)	162

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	88.47191	3.40277	5.7019
Error	135	80.56507	0.59678	Prob > F
C. Total	161	169.03698		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.467665	43.935
Residual	0.596778	56.065
Total	1.064443	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.59678	135	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	88.4719	3.40277	26	5.7019	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SRAT, Prep=Cold Chem, ICP=M-14, Analyte=Fe/Al
Response Measurement
Summary of Fit

RSquare	0.473363
RSquare Adj	0.371937
Root Mean Square Error	0.045665
Mean of Response	2.88557
Observations (or Sum Wgts)	162

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	0.25303360	0.009732	4.6671
Error	135	0.28151077	0.002085	Prob > F
C. Total	161	0.53454437		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.001274	37.934
Residual	0.002085	62.066
Total	0.00336	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00209	135	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.25303	0.00973	26	4.6671	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-14, Analyte=Fe/Ca
Response Measurement
Summary of Fit

RSquare	0.539372
RSquare Adj	0.450658
Root Mean Square Error	0.316415
Mean of Response	10.99948
Observations (or Sum Wgts)	162

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	15.826487	0.608711	6.0799
Error	135	13.515951	0.100118	Prob > F
C. Total	161	29.342438		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.084765	45.848
Residual	0.100118	54.152
Total	0.184884	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.10012	135	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	15.8265	0.60871	26	6.0799	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-14, Analyte=Fe/Li
Response Measurement
Summary of Fit

RSquare	0.772987
RSquare Adj	0.728906
Root Mean Square Error	531.3276
Mean of Response	-366.532
Observations (or Sum Wgts)	124

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	20	99010814	4950541	17.5359
Error	103	29077829	282309	Prob > F
C. Total	123	128088643		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	5.90403

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	790685.3	73.690
Residual	282309	26.310
Total	1072994	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	282309	103	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	9.901e7	4950541	20	17.5359	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-14, Analyte=Fe/Mg
Response Measurement
Summary of Fit

RSquare	0.486046
RSquare Adj	0.386927
Root Mean Square Error	0.358858
Mean of Response	11.20593
Observations (or Sum Wgts)	168

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	27	17.050138	0.631487	4.9036
Error	140	18.029095	0.128779	Prob > F
C. Total	167	35.079233		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.083785	39.416
Residual	0.128779	60.584
Total	0.212564	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.12878	140	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	17.0501	0.63149	27	4.9036	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SRAT, Prep=Cold Chem, ICP=M-14, Analyte=Fe/Mn
Response Measurement
Summary of Fit

RSquare	0.628361
RSquare Adj	0.556688
Root Mean Square Error	0.081638
Mean of Response	4.686563
Observations (or Sum Wgts)	168

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	27	1.5776110	0.058430	8.7670
Error	140	0.9330640	0.006665	Prob > F
C. Total	167	2.5106751		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.008628	56.418
Residual	0.006665	43.582
Total	0.015292	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00666	140	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.57761	0.05843	27	8.7670	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-14, Analyte=Fe/Ni
Response Measurement
Summary of Fit

RSquare	0.335887
RSquare Adj	0.207984
Root Mean Square Error	0.250914
Mean of Response	17.21092
Observations (or Sum Wgts)	162

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	4.298690	0.165334	2.6261
Error	135	8.499322	0.062958	Prob > F
C. Total	161	12.798012		0.0002

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.017063	21.323
Residual	0.062958	78.677
Total	0.080021	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.06296	135	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	4.29869	0.16533	26	2.6261	0.0002

Sample Type=SRAT, Prep=Cold Chem, ICP=M-14, Analyte=Fe/U
Response Measurement
Summary of Fit

RSquare	0.532245
RSquare Adj	0.442292
Root Mean Square Error	0.0803
Mean of Response	2.648256
Observations (or Sum Wgts)	156

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	25	0.9538236	0.038153	5.9169
Error	130	0.8382517	0.006448	Prob > F
C. Total	155	1.7920753		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.005284	45.040
Residual	0.006448	54.960
Total	0.011732	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00645	130	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.95382	0.03815	25	5.9169	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-14, Analyte=K
Response Measurement
Summary of Fit

RSquare	0.704586
RSquare Adj	0.647473
Root Mean Square Error	0.072786
Mean of Response	0.159494
Observations (or Sum Wgts)	180

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	29	1.8953768	0.065358	12.3366
Error	150	0.7946802	0.005298	Prob > F
C. Total	179	2.6900570		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.01001	65.391
Residual	0.005298	34.609
Total	0.015308	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.0053	150	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	1.89538	0.06536	29	12.3366	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SRAT, Prep=Cold Chem, ICP=M-14, Analyte=Li
Response Measurement
Summary of Fit

RSquare	0.88956
RSquare Adj	0.86829
Root Mean Square Error	0.00765
Mean of Response	-0.01106
Observations (or Sum Wgts)	162

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	26	0.06363600	0.002448	41.8224
Error	135	0.00790050	0.000059	Prob > F
C. Total	161	0.07153650		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000398	87.186
Residual	0.000059	12.814
Total	0.000457	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00006	135	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.06364	0.00245	26	41.8224	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-14, Analyte=Mg
Response Measurement
Summary of Fit

RSquare	0.614052
RSquare Adj	0.540218
Root Mean Square Error	0.038519
Mean of Response	1.316891
Observations (or Sum Wgts)	138

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	22	0.27147320	0.012340	8.3167
Error	115	0.17062817	0.001484	Prob > F
C. Total	137	0.44210137		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.001809	54.944
Residual	0.001484	45.056
Total	0.003293	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00148	115	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.27147	0.01234	22	8.3167	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-14, Analyte=Mn
Response Measurement
Summary of Fit

RSquare	0.591781
RSquare Adj	0.513402
Root Mean Square Error	0.116172
Mean of Response	3.12864
Observations (or Sum Wgts)	150

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	24	2.4455786	0.101899	7.5503
Error	125	1.6869980	0.013496	Prob > F
C. Total	149	4.1325766		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.014734	52.192
Residual	0.013496	47.808
Total	0.02823	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.0135	125	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	2.44558	0.1019	24	7.5503	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-14, Analyte=Mn/Mg
Response Measurement
Summary of Fit

RSquare	0.296519
RSquare Adj	0.160674
Root Mean Square Error	0.051937
Mean of Response	2.388462
Observations (or Sum Wgts)	174

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	28	0.16486281	0.005888	2.1828
Error	145	0.39113155	0.002697	Prob > F
C. Total	173	0.55599436		0.0015

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000532	16.467
Residual	0.002697	83.533
Total	0.003229	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.0027	145	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.16486	0.00589	28	2.1828	0.0015

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SRAT, Prep=Cold Chem, ICP=M-14, Analyte=Na
Response Measurement
Summary of Fit

RSquare	0.7194
RSquare Adj	0.665831
Root Mean Square Error	0.243501
Mean of Response	10.48891
Observations (or Sum Wgts)	132

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	21	16.721592	0.796266	13.4294
Error	110	6.522213	0.059293	Prob > F
C. Total	131	23.243805		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.122829	67.443
Residual	0.059293	32.557
Total	0.182122	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.05929	110	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	16.7216	0.79627	21	13.4294	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-14, Analyte=Ni
Response Measurement
Summary of Fit

RSquare	0.621063
RSquare Adj	0.548433
Root Mean Square Error	0.036561
Mean of Response	0.852729
Observations (or Sum Wgts)	144

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	23	0.26289727	0.011430	8.5511
Error	120	0.16040517	0.001337	Prob > F
C. Total	143	0.42330244		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.001682	55.723
Residual	0.001337	44.277
Total	0.003019	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00134	120	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.2629	0.01143	23	8.5511	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-14, Analyte=Si
Response Measurement
Summary of Fit

RSquare	0.9169
RSquare Adj	0.900854
Root Mean Square Error	0.060247
Mean of Response	1.078161
Observations (or Sum Wgts)	174

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	28	5.8071805	0.207399	57.1390
Error	145	0.5263110	0.003630	Prob > F
C. Total	173	6.3334915		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.033962	90.344
Residual	0.00363	9.656
Total	0.037591	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00363	145	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	5.80718	0.2074	28	57.1390	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-14, Analyte=Sum of Oxides
Response Measurement
Summary of Fit

RSquare	0.470796
RSquare Adj	0.369189
Root Mean Square Error	2.457654
Mean of Response	62.99344
Observations (or Sum Wgts)	150

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	24	671.6789	27.9866	4.6335
Error	125	755.0080	6.0401	Prob > F
C. Total	149	1426.6869		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	3.657759	37.717
Residual	6.040064	62.283
Total	9.697823	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	6.04006	125	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	671.679	27.9866	24	4.6335	<.0001

Exhibit A7. Analysis of Variance by Preparation Method, ICP, and Analyte *(continued)*

Sample Type=SRAT, Prep=Cold Chem, ICP=M-14, Analyte=Ti
Response Measurement
Summary of Fit

RSquare	0.900313
RSquare Adj	0.881087
Root Mean Square Error	0.001284
Mean of Response	0.016476
Observations (or Sum Wgts)	168

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	27	0.00208324	0.000077	46.8294
Error	140	0.00023067	0.000002	Prob > F
C. Total	167	0.00231390		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000013	88.424
Residual	0.000002	11.576
Total	0.000014	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	1.65e-6	140	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00208	0.00008	27	46.8294	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-14, Analyte=U
Response Measurement
Summary of Fit

RSquare	0.518183
RSquare Adj	0.425526
Root Mean Square Error	0.220675
Mean of Response	5.506865
Observations (or Sum Wgts)	156

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	25	6.808463	0.272339	5.5925
Error	130	6.330653	0.048697	Prob > F
C. Total	155	13.139116		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.037274	43.356
Residual	0.048697	56.644
Total	0.085971	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.0487	130	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	6.80846	0.27234	25	5.5925	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-14, Analyte=U/Ca
Response Measurement
Summary of Fit

RSquare	0.70558
RSquare Adj	0.648799
Root Mean Square Error	0.090182
Mean of Response	4.141391
Observations (or Sum Wgts)	168

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	27	2.7286343	0.101061	12.4263
Error	140	1.1385871	0.008133	Prob > F
C. Total	167	3.8672214		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.015488	65.569
Residual	0.008133	34.431
Total	0.023621	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00813	140	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	2.72863	0.10106	27	12.4263	<.0001

Sample Type=SRAT, Prep=Cold Chem, ICP=M-14, Analyte=Zr
Response Measurement
Summary of Fit

RSquare	0.693503
RSquare Adj	0.634318
Root Mean Square Error	0.004327
Mean of Response	0.07804
Observations (or Sum Wgts)	174

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	28	0.00614355	0.000219	11.7174
Error	145	0.00271517	0.000019	Prob > F
C. Total	173	0.00885872		<.0001

Expected Mean Squares
The Mean Square per row by the Variance Component per column

EMS	Intercept	Batch&Random
Intercept	0	0
Batch&Random	0	6

plus 1.0 times Residual Error Variance

Variance Component Estimates

Component	Var Comp Est	Percent of Total
Batch&Random	0.000033	64.109
Residual	0.000019	35.891
Total	0.000052	100.000

These estimates based on equating Mean Squares to Expected Value.

Test Denominator Synthesis

Source	MS Den	DF Den	Denom MS Synthesis
Batch&Random	0.00002	145	Residual

Tests wrt Random Effects

Source	SS	MS Num	DF Num	F Ratio	Prob > F
Batch&Random	0.00614	0.00022	28	11.7174	<.0001

Exhibit A8. JMP Formulas Used to Conduct Sensitivity Study for Targeting WL at Blending

Formula for Targeted WL Using Uncertainties of M-13 ICP

$$\left(1-\frac{\left(Li2O\ Pounds\ in\ SME\ Heel*\left(\frac{\left(\text{Random Normal}\left(0,\sqrt{1.44^2+\frac{3.41^2}{4}}\right)+1.54\right)}{100}\right)+1\right)+Li2O\ Pounds\ in\ Frit+SRAT\ Li2O\ Pounds*\left(\frac{\left(\text{Random Normal}\left(0,\sqrt{2.67^2+\frac{75.46^2}{4}}\right)+3.11\right)}{100}\right)+1\right)}{\left(Total\ SME\ Heel\ Oxide\ Pounds*\left(\frac{\left(\text{Random Normal}\left(0,\sqrt{1.63^2+\frac{3.38^2}{4}}\right)+0.7\right)}{100}\right)+1\right)+SRAT\ Transfer\ Oxide\ Pounds*\left(\frac{\left(\text{Random Normal}\left(0,\sqrt{1.77^2+\frac{2.96^2}{6}}\right)+1.9\right)}{100}\right)+1\right)+Frit\ Pounds}*\left(\frac{Li2O\ Pounds\ in\ Frit}{Frit\ Pounds}\right)\right)*100$$

Formula for Targeted WL Using Uncertainties of M-14 ICP

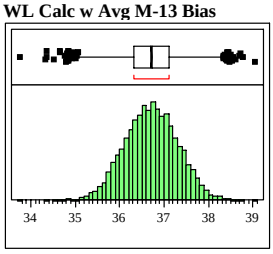
$$\left(1-\frac{\left(Li2O\ Pounds\ in\ SME\ Heel*\left(\frac{\left(\text{Random Normal}\left(0,\sqrt{2.03^2+\frac{6.42^2}{4}}\right)+2.14\right)}{100}\right)+1\right)+Li2O\ Pounds\ in\ Frit+SRAT\ Li2O\ Pounds*\left(\frac{\left(\text{Random Normal}\left(0,\sqrt{1.65^2+\frac{69.45^2}{4}}\right)+2.35\right)}{100}\right)+1\right)}{\left(Total\ SME\ Heel\ Oxide\ Pounds*\left(\frac{\left(\text{Random Normal}\left(0,\sqrt{1.03^2+\frac{6.22^2}{4}}\right)+1.61\right)}{100}\right)+1\right)+SRAT\ Transfer\ Oxide\ Pounds*\left(\frac{\left(\text{Random Normal}\left(0,\sqrt{0+\frac{3.9^2}{6}}\right)+3.14\right)}{100}\right)+1\right)+Frit\ Pounds}*\left(\frac{Li2O\ Pounds\ in\ Frit}{Frit\ Pounds}\right)\right)*100$$

Exhibit A9. Sensitivity of Blending Target WLs to the Uncertainties of This Report

Batch=300

Blending WL = 36.47
WL Calc = 36.51

WL Calc w Avg M-13 Bias



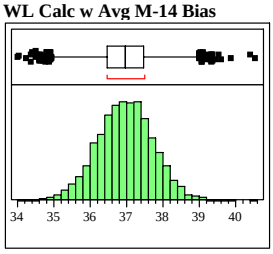
Quantiles

100.0%	maximum	39.053
99.5%		38.241
97.5%		37.855
90.0%		37.482
75.0%	quartile	37.116
50.0%	median	36.715
25.0%	quartile	36.307
10.0%		35.938
2.5%		35.544
0.5%		35.180
0.0%	minimum	33.775

Moments

Mean	36.711588
Std Dev	0.5977405
Std Err Mean	0.0059774
upper 95% Mean	36.723305
lower 95% Mean	36.699871
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	40.536
99.5%		38.954
97.5%		38.446
90.0%		37.926
75.0%	quartile	37.477
50.0%	median	36.973
25.0%	quartile	36.462
10.0%		36.009
2.5%		35.452
0.5%		34.957
0.0%	minimum	34.022

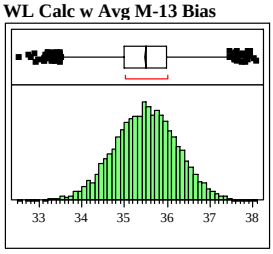
Moments

Mean	36.965906
Std Dev	0.758823
Std Err Mean	0.0075882
upper 95% Mean	36.980781
lower 95% Mean	36.951032
N	10000

Batch=301

Blending WL = 35.31
WL Calc = 35.35

WL Calc w Avg M-13 Bias



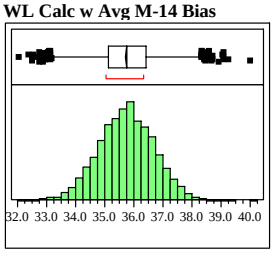
Quantiles

100.0%	maximum	38.091
99.5%		37.338
97.5%		36.894
90.0%		36.413
75.0%	quartile	35.983
50.0%	median	35.498
25.0%	quartile	35.001
10.0%		34.547
2.5%		34.038
0.5%		33.512
0.0%	minimum	32.542

Moments

Mean	35.489434
Std Dev	0.7312574
Std Err Mean	0.0073126
upper 95% Mean	35.503768
lower 95% Mean	35.4751
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	40.028
99.5%		38.184
97.5%		37.599
90.0%		36.949
75.0%	quartile	36.398
50.0%	median	35.759
25.0%	quartile	35.108
10.0%		34.511
2.5%		33.856
0.5%		33.196
0.0%	minimum	32.054

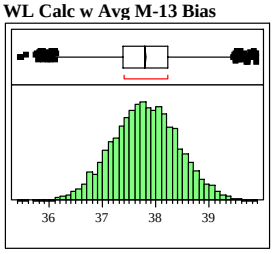
Moments

Mean	35.744969
Std Dev	0.9509611
Std Err Mean	0.0095096
upper 95% Mean	35.76361
lower 95% Mean	35.726328
N	10000

Batch=302

Blending WL = 37.57
WL Calc = 37.61

WL Calc w Avg M-13 Bias



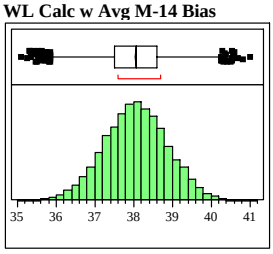
Quantiles

100.0%	maximum	39.897
99.5%		39.355
97.5%		39.010
90.0%		38.583
75.0%	quartile	38.213
50.0%	median	37.795
25.0%	quartile	37.379
10.0%		37.008
2.5%		36.593
0.5%		36.203
0.0%	minimum	35.468

Moments

Mean	37.796737
Std Dev	0.6158182
Std Err Mean	0.0061582
upper 95% Mean	37.808808
lower 95% Mean	37.784666
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	41.028
99.5%		40.120
97.5%		39.628
90.0%		39.108
75.0%	quartile	38.605
50.0%	median	38.056
25.0%	quartile	37.509
10.0%		37.021
2.5%		36.456
0.5%		35.980
0.0%	minimum	35.119

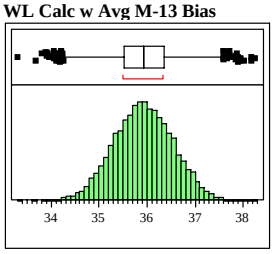
Moments

Mean	38.058718
Std Dev	0.80861
Std Err Mean	0.0080861
upper 95% Mean	38.074568
lower 95% Mean	38.042867
N	10000

Batch=303

Blending WL = 35.70
WL Calc = 35.74

WL Calc w Avg M-13 Bias



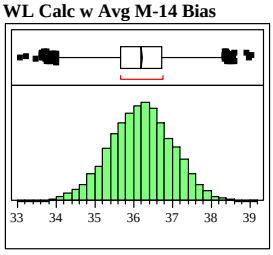
Quantiles

100.0%	maximum	38.266
99.5%		37.477
97.5%		37.109
90.0%		36.711
75.0%	quartile	36.343
50.0%	median	35.923
25.0%	quartile	35.511
10.0%		35.148
2.5%		34.736
0.5%		34.333
0.0%	minimum	33.323

Moments

Mean	35.926397
Std Dev	0.6104064
Std Err Mean	0.0061041
upper 95% Mean	35.938362
lower 95% Mean	35.914431
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	39.067
99.5%		38.263
97.5%		37.751
90.0%		37.241
75.0%	quartile	36.737
50.0%	median	36.208
25.0%	quartile	35.655
10.0%		35.168
2.5%		34.548
0.5%		34.084
0.0%	minimum	33.077

Moments

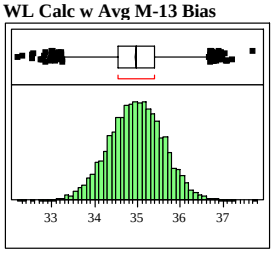
Mean	36.196299
Std Dev	0.8091581
Std Err Mean	0.0080916
upper 95% Mean	36.21216
lower 95% Mean	36.180438
N	10000

Exhibit A9. Sensitivity of Blending Target WLs to the Uncertainties of This Report *(continued)*

Batch=304

Blending WL = 34.73
WL Calc = 34.78

WL Calc w Avg M-13 Bias



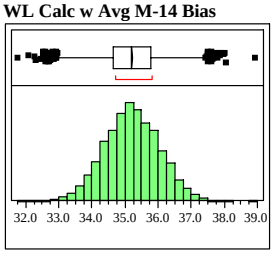
Quantiles

100.0%	maximum	37.714
99.5%		36.586
97.5%		36.178
90.0%		35.755
75.0%	quartile	35.397
50.0%	median	34.973
25.0%	quartile	34.543
10.0%		34.155
2.5%		33.712
0.5%		33.319
0.0%	minimum	32.209

Moments

Mean	34.966868
Std Dev	0.6320947
Std Err Mean	0.0063209
upper 95% Mean	34.979258
lower 95% Mean	34.954478
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	38.932
99.5%		37.271
97.5%		36.811
90.0%		36.275
75.0%	quartile	35.771
50.0%	median	35.196
25.0%	quartile	34.650
10.0%		34.141
2.5%		33.583
0.5%		33.052
0.0%	minimum	31.759

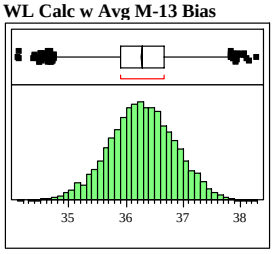
Moments

Mean	35.202991
Std Dev	0.8264575
Std Err Mean	0.0082646
upper 95% Mean	35.219191
lower 95% Mean	35.186791
N	10000

Batch=305

Blending WL = 36.00
WL Calc = 36.05

WL Calc w Avg M-13 Bias



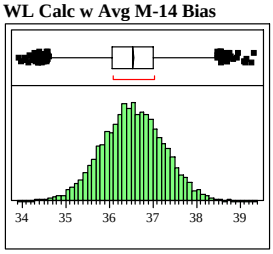
Quantiles

100.0%	maximum	38.283
99.5%		37.711
97.5%		37.384
90.0%		37.018
75.0%	quartile	36.671
50.0%	median	36.276
25.0%	quartile	35.902
10.0%		35.550
2.5%		35.127
0.5%		34.761
0.0%	minimum	34.116

Moments

Mean	36.280693
Std Dev	0.5737744
Std Err Mean	0.0057377
upper 95% Mean	36.291941
lower 95% Mean	36.269446
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	39.329
99.5%		38.382
97.5%		37.918
90.0%		37.446
75.0%	quartile	37.021
50.0%	median	36.540
25.0%	quartile	36.064
10.0%		35.637
2.5%		35.149
0.5%		34.647
0.0%	minimum	33.932

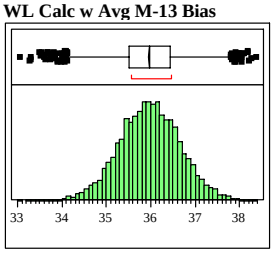
Moments

Mean	36.542283
Std Dev	0.7114382
Std Err Mean	0.0071144
upper 95% Mean	36.556229
lower 95% Mean	36.528338
N	10000

Batch=306

Blending WL = 35.76
WL Calc = 35.81

WL Calc w Avg M-13 Bias



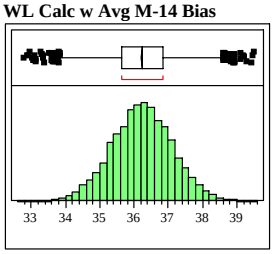
Quantiles

100.0%	maximum	38.386
99.5%		37.737
97.5%		37.326
90.0%		36.841
75.0%	quartile	36.433
50.0%	median	35.975
25.0%	quartile	35.512
10.0%		35.110
2.5%		34.616
0.5%		34.165
0.0%	minimum	33.065

Moments

Mean	35.972202
Std Dev	0.6813711
Std Err Mean	0.0068137
upper 95% Mean	35.985559
lower 95% Mean	35.958846
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	39.527
99.5%		38.559
97.5%		37.964
90.0%		37.359
75.0%	quartile	36.830
50.0%	median	36.236
25.0%	quartile	35.642
10.0%		35.101
2.5%		34.461
0.5%		33.884
0.0%	minimum	32.792

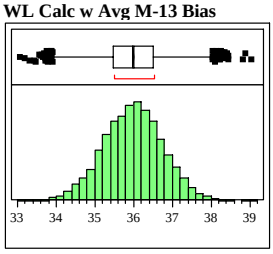
Moments

Mean	36.232027
Std Dev	0.8897052
Std Err Mean	0.0088971
upper 95% Mean	36.249467
lower 95% Mean	36.214587
N	10000

Batch=307

Blending WL =35.84
WL Calc = 35.90

WL Calc w Avg M-13 Bias



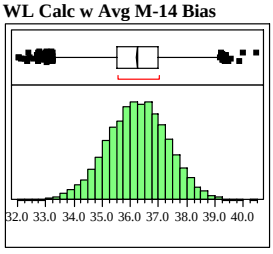
Quantiles

100.0%	maximum	39.074
99.5%		37.922
97.5%		37.432
90.0%		36.935
75.0%	quartile	36.494
50.0%	median	35.991
25.0%	quartile	35.467
10.0%		35.020
2.5%		34.464
0.5%		33.996
0.0%	minimum	33.078

Moments

Mean	35.980431
Std Dev	0.756274
Std Err Mean	0.0075627
upper 95% Mean	35.995256
lower 95% Mean	35.965607
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	40.494
99.5%		38.958
97.5%		38.296
90.0%		37.610
75.0%	quartile	36.985
50.0%	median	36.260
25.0%	quartile	35.518
10.0%		34.858
2.5%		34.065
0.5%		33.357
0.0%	minimum	32.047

Moments

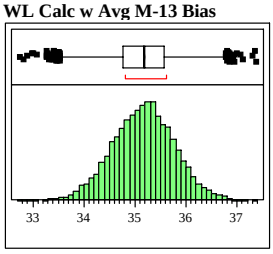
Mean	36.243353
Std Dev	1.0801964
Std Err Mean	0.010802
upper 95% Mean	36.264527
lower 95% Mean	36.222179
N	10000

Exhibit A9. Sensitivity of Blending Target WLs to the Uncertainties of This Report *(continued)*

Batch=308

Blending WL = 34.92
WL Calc = 34.98

WL Calc w Avg M-13 Bias



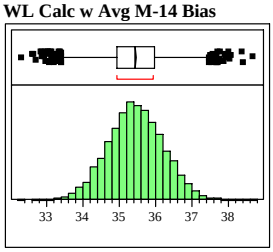
Quantiles

100.0%	maximum	37.389
99.5%		36.716
97.5%		36.359
90.0%		35.928
75.0%	quartile	35.578
50.0%	median	35.181
25.0%	quartile	34.767
10.0%		34.399
2.5%		33.974
0.5%		33.596
0.0%	minimum	32.768

Moments

Mean	35.171119
Std Dev	0.5989475
Std Err Mean	0.0059895
upper 95% Mean	35.182859
lower 95% Mean	35.159378
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	38.699
99.5%		37.397
97.5%		36.922
90.0%		36.429
75.0%	quartile	35.958
50.0%	median	35.441
25.0%	quartile	34.947
10.0%		34.482
2.5%		33.964
0.5%		33.459
0.0%	minimum	32.305

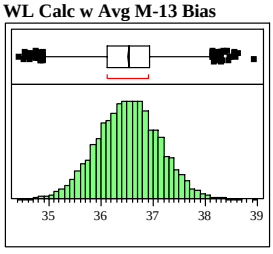
Moments

Mean	35.448336
Std Dev	0.7564367
Std Err Mean	0.0075644
upper 95% Mean	35.463164
lower 95% Mean	35.433508
N	10000

Batch=309

Blending WL = 36.26
WL Calc = 36.32

WL Calc w Avg M-13 Bias



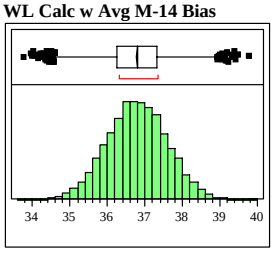
Quantiles

100.0%	maximum	38.937
99.5%		38.065
97.5%		37.690
90.0%		37.304
75.0%	quartile	36.926
50.0%	median	36.532
25.0%	quartile	36.117
10.0%		35.759
2.5%		35.348
0.5%		34.962
0.0%	minimum	34.442

Moments

Mean	36.527967
Std Dev	0.5999852
Std Err Mean	0.0059999
upper 95% Mean	36.539728
lower 95% Mean	36.516206
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	39.800
99.5%		38.796
97.5%		38.339
90.0%		37.820
75.0%	quartile	37.328
50.0%	median	36.785
25.0%	quartile	36.251
10.0%		35.746
2.5%		35.196
0.5%		34.708
0.0%	minimum	33.769

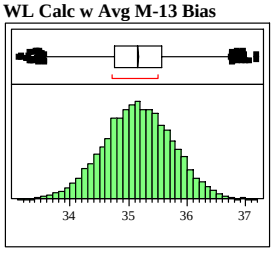
Moments

Mean	36.784099
Std Dev	0.8007519
Std Err Mean	0.0080075
upper 95% Mean	36.799796
lower 95% Mean	36.768403
N	10000

Batch=310

Blending WL = 34.89
WL Calc = 34.94

WL Calc w Avg M-13 Bias



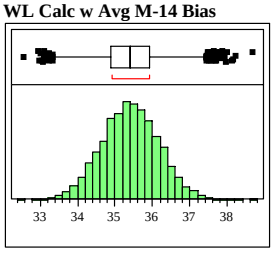
Quantiles

100.0%	maximum	37.195
99.5%		36.624
97.5%		36.292
90.0%		35.907
75.0%	quartile	35.562
50.0%	median	35.160
25.0%	quartile	34.766
10.0%		34.403
2.5%		33.989
0.5%		33.635
0.0%	minimum	33.141

Moments

Mean	35.157705
Std Dev	0.5850875
Std Err Mean	0.0058509
upper 95% Mean	35.169174
lower 95% Mean	35.146236
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	38.698
99.5%		37.360
97.5%		36.917
90.0%		36.371
75.0%	quartile	35.917
50.0%	median	35.406
25.0%	quartile	34.897
10.0%		34.425
2.5%		33.928
0.5%		33.487
0.0%	minimum	32.574

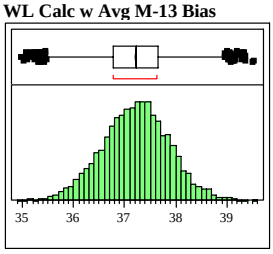
Moments

Mean	35.407026
Std Dev	0.7577035
Std Err Mean	0.007577
upper 95% Mean	35.421879
lower 95% Mean	35.392174
N	10000

Batch=311

Blending WL = 37.00
WL Calc = 37.04

WL Calc w Avg M-13 Bias



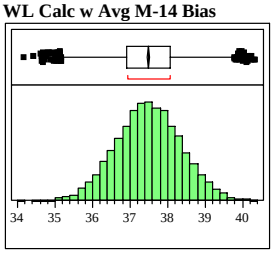
Quantiles

100.0%	maximum	39.538
99.5%		38.903
97.5%		38.503
90.0%		38.025
75.0%	quartile	37.652
50.0%	median	37.232
25.0%	quartile	36.784
10.0%		36.374
2.5%		35.907
0.5%		35.551
0.0%	minimum	34.992

Moments

Mean	37.215757
Std Dev	0.6505755
Std Err Mean	0.0065058
upper 95% Mean	37.228509
lower 95% Mean	37.203004
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	40.363
99.5%		39.707
97.5%		39.192
90.0%		38.600
75.0%	quartile	38.071
50.0%	median	37.492
25.0%	quartile	36.913
10.0%		36.376
2.5%		35.793
0.5%		35.204
0.0%	minimum	34.168

Moments

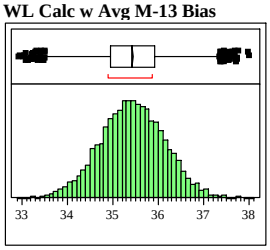
Mean	37.490398
Std Dev	0.8647074
Std Err Mean	0.0086471
upper 95% Mean	37.507348
lower 95% Mean	37.473448
N	10000

Exhibit A9. Sensitivity of Blending Target WLs to the Uncertainties of This Report *(continued)*

Batch=312

Blending WL = 35.24
WL Calc = 35.28

WL Calc w Avg M-13 Bias



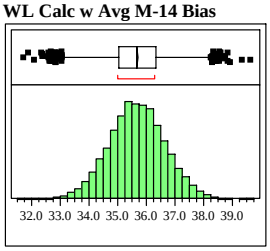
Quantiles

100.0%	maximum	38.002
99.5%		37.267
97.5%		36.816
90.0%		36.339
75.0%	quartile	35.913
50.0%	median	35.432
25.0%	quartile	34.958
10.0%		34.539
2.5%		34.045
0.5%		33.616
0.0%	minimum	32.942

Moments

Mean	35.433703
Std Dev	0.7044119
Std Err Mean	0.0070441
upper 95% Mean	35.447511
lower 95% Mean	35.419895
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	39.654
99.5%		38.154
97.5%		37.602
90.0%		36.926
75.0%	quartile	36.322
50.0%	median	35.673
25.0%	quartile	35.021
10.0%		34.426
2.5%		33.751
0.5%		33.083
0.0%	minimum	31.730

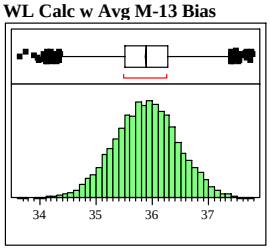
Moments

Mean	35.673155
Std Dev	0.9763361
Std Err Mean	0.0097634
upper 95% Mean	35.692293
lower 95% Mean	35.654017
N	10000

Batch=313

Blending WL = 35.63
WL Calc = 35.67

WL Calc w Avg M-13 Bias



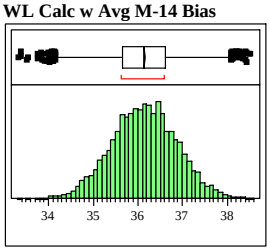
Quantiles

100.0%	maximum	37.799
99.5%		37.350
97.5%		36.982
90.0%		36.621
75.0%	quartile	36.268
50.0%	median	35.895
25.0%	quartile	35.508
10.0%		35.162
2.5%		34.770
0.5%		34.404
0.0%	minimum	33.649

Moments

Mean	35.888287
Std Dev	0.5667491
Std Err Mean	0.0056675
upper 95% Mean	35.899396
lower 95% Mean	35.877177
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	38.546
99.5%		38.009
97.5%		37.579
90.0%		37.068
75.0%	quartile	36.631
50.0%	median	36.146
25.0%	quartile	35.653
10.0%		35.199
2.5%		34.710
0.5%		34.234
0.0%	minimum	33.328

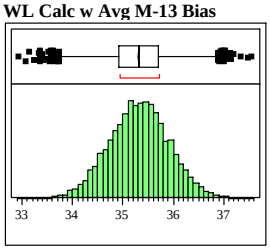
Moments

Mean	36.142442
Std Dev	0.7300782
Std Err Mean	0.0073008
upper 95% Mean	36.156753
lower 95% Mean	36.128131
N	10000

Batch=314

Blending WL = 35.06
WL Calc = 35.11

WL Calc w Avg M-13 Bias



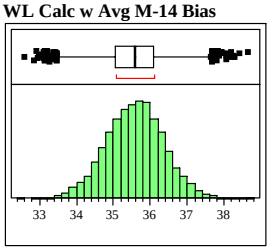
Quantiles

100.0%	maximum	37.554
99.5%		36.841
97.5%		36.477
90.0%		36.070
75.0%	quartile	35.710
50.0%	median	35.325
25.0%	quartile	34.925
10.0%		34.557
2.5%		34.170
0.5%		33.803
0.0%	minimum	32.940

Moments

Mean	35.320641
Std Dev	0.5885449
Std Err Mean	0.0058854
upper 95% Mean	35.332178
lower 95% Mean	35.309104
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	38.648
99.5%		37.558
97.5%		37.090
90.0%		36.550
75.0%	quartile	36.097
50.0%	median	35.596
25.0%	quartile	35.061
10.0%		34.599
2.5%		34.036
0.5%		33.589
0.0%	minimum	32.596

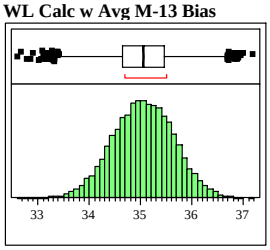
Moments

Mean	35.581796
Std Dev	0.7695542
Std Err Mean	0.0076955
upper 95% Mean	35.596881
lower 95% Mean	35.566711
N	10000

Batch=315

Blending WL = 34.83
WL Calc = 34.85

WL Calc w Avg M-13 Bias



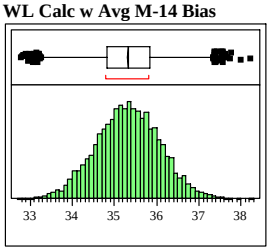
Quantiles

100.0%	maximum	37.191
99.5%		36.504
97.5%		36.183
90.0%		35.792
75.0%	quartile	35.464
50.0%	median	35.054
25.0%	quartile	34.649
10.0%		34.295
2.5%		33.885
0.5%		33.519
0.0%	minimum	32.611

Moments

Mean	35.048861
Std Dev	0.5901808
Std Err Mean	0.0059018
upper 95% Mean	35.060429
lower 95% Mean	35.037292
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	38.218
99.5%		37.248
97.5%		36.776
90.0%		36.275
75.0%	quartile	35.829
50.0%	median	35.322
25.0%	quartile	34.810
10.0%		34.339
2.5%		33.845
0.5%		33.404
0.0%	minimum	32.792

Moments

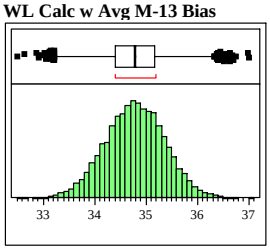
Mean	35.316501
Std Dev	0.7516734
Std Err Mean	0.0075167
upper 95% Mean	35.331235
lower 95% Mean	35.301767
N	10000

Exhibit A9. Sensitivity of Blending Target WLs to the Uncertainties of This Report *(continued)*

Batch=316

Blending WL = 34.53
WL Calc = 34.57

WL Calc w Avg M-13 Bias



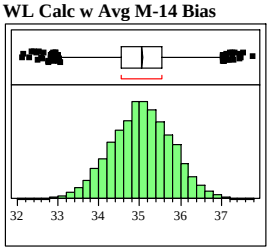
Quantiles

100.0%	maximum	37.010
99.5%		36.292
97.5%		35.906
90.0%		35.517
75.0%	quartile	35.179
50.0%	median	34.790
25.0%	quartile	34.400
10.0%		34.046
2.5%		33.645
0.5%		33.318
0.0%	minimum	32.502

Moments

Mean	34.788381
Std Dev	0.5765944
Std Err Mean	0.0057659
upper 95% Mean	34.799683
lower 95% Mean	34.777078
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	37.792
99.5%		36.898
97.5%		36.472
90.0%		35.989
75.0%	quartile	35.549
50.0%	median	35.058
25.0%	quartile	34.554
10.0%		34.086
2.5%		33.565
0.5%		33.062
0.0%	minimum	32.121

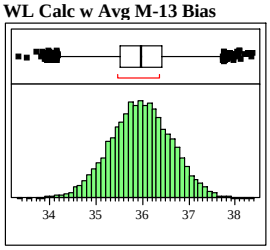
Moments

Mean	35.047785
Std Dev	0.7415025
Std Err Mean	0.007415
upper 95% Mean	35.06232
lower 95% Mean	35.033251
N	10000

Batch=317

Blending WL = 35.75
WL Calc = 35.79

WL Calc w Avg M-13 Bias



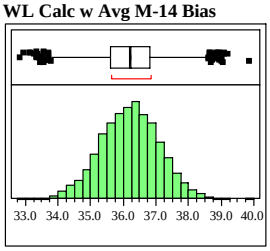
Quantiles

100.0%	maximum	38.387
99.5%		37.583
97.5%		37.241
90.0%		36.799
75.0%	quartile	36.407
50.0%	median	35.967
25.0%	quartile	35.526
10.0%		35.123
2.5%		34.659
0.5%		34.239
0.0%	minimum	33.340

Moments

Mean	35.963065
Std Dev	0.654566
Std Err Mean	0.0065457
upper 95% Mean	35.975896
lower 95% Mean	35.950234
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	39.872
99.5%		38.461
97.5%		37.918
90.0%		37.330
75.0%	quartile	36.811
50.0%	median	36.220
25.0%	quartile	35.601
10.0%		35.075
2.5%		34.431
0.5%		33.952
0.0%	minimum	32.851

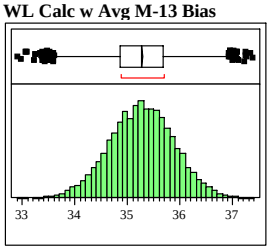
Moments

Mean	36.207791
Std Dev	0.8862807
Std Err Mean	0.0088628
upper 95% Mean	36.225163
lower 95% Mean	36.190418
N	10000

Batch=318

Blending WL = 35.03
WL Calc = 35.07

WL Calc w Avg M-13 Bias



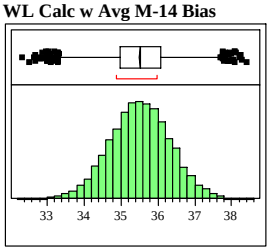
Quantiles

100.0%	maximum	37.381
99.5%		36.818
97.5%		36.466
90.0%		36.047
75.0%	quartile	35.682
50.0%	median	35.271
25.0%	quartile	34.853
10.0%		34.481
2.5%		34.029
0.5%		33.650
0.0%	minimum	32.911

Moments

Mean	35.266595
Std Dev	0.6130712
Std Err Mean	0.0061307
upper 95% Mean	35.278612
lower 95% Mean	35.254577
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	38.423
99.5%		37.590
97.5%		37.112
90.0%		36.552
75.0%	quartile	36.075
50.0%	median	35.522
25.0%	quartile	34.979
10.0%		34.469
2.5%		33.895
0.5%		33.382
0.0%	minimum	32.358

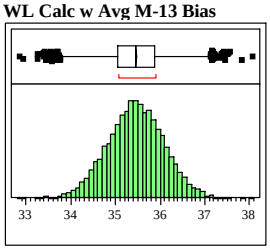
Moments

Mean	35.519981
Std Dev	0.8123312
Std Err Mean	0.0081233
upper 95% Mean	35.535904
lower 95% Mean	35.504057
N	10000

Batch=319

Blending WL = 35.21
WL Calc = 35.26

WL Calc w Avg M-13 Bias



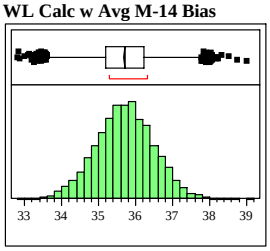
Quantiles

100.0%	maximum	38.098
99.5%		37.037
97.5%		36.677
90.0%		36.247
75.0%	quartile	35.880
50.0%	median	35.455
25.0%	quartile	35.039
10.0%		34.643
2.5%		34.229
0.5%		33.839
0.0%	minimum	32.876

Moments

Mean	35.453781
Std Dev	0.6258832
Std Err Mean	0.0062588
upper 95% Mean	35.46605
lower 95% Mean	35.441512
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	39.019
99.5%		37.712
97.5%		37.213
90.0%		36.712
75.0%	quartile	36.230
50.0%	median	35.715
25.0%	quartile	35.191
10.0%		34.702
2.5%		34.154
0.5%		33.639
0.0%	minimum	32.804

Moments

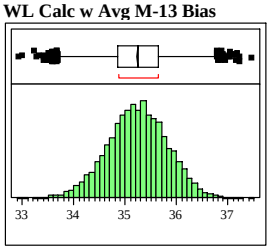
Mean	35.705944
Std Dev	0.7812591
Std Err Mean	0.0078126
upper 95% Mean	35.721258
lower 95% Mean	35.69063
N	10000

Exhibit A9. Sensitivity of Blending Target WLs to the Uncertainties of This Report *(continued)*

Batch=320

Blending WL = 34.96
WL Calc = 35.01

WL Calc w Avg M-13 Bias



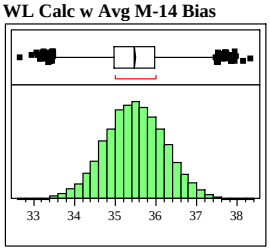
Quantiles

100.0%	maximum	37.463
99.5%		36.711
97.5%		36.338
90.0%		35.981
75.0%	quartile	35.630
50.0%	median	35.245
25.0%	quartile	34.859
10.0%		34.489
2.5%		34.078
0.5%		33.686
0.0%	minimum	32.934

Moments

Mean	35.238056
Std Dev	0.5775652
Std Err Mean	0.0057757
upper 95% Mean	35.249377
lower 95% Mean	35.226735
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	38.325
99.5%		37.353
97.5%		36.936
90.0%		36.425
75.0%	quartile	35.981
50.0%	median	35.479
25.0%	quartile	34.987
10.0%		34.553
2.5%		34.028
0.5%		33.558
0.0%	minimum	32.676

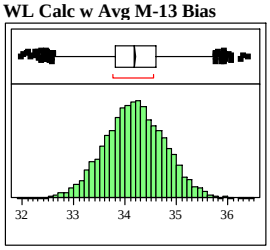
Moments

Mean	35.48289
Std Dev	0.7351337
Std Err Mean	0.0073513
upper 95% Mean	35.4973
lower 95% Mean	35.46848
N	10000

Batch=321

Blending WL = 33.93
WL Calc = 33.98

WL Calc w Avg M-13 Bias



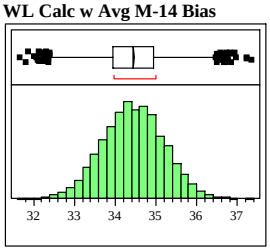
Quantiles

100.0%	maximum	36.404
99.5%		35.652
97.5%		35.330
90.0%		34.934
75.0%	quartile	34.584
50.0%	median	34.182
25.0%	quartile	33.796
10.0%		33.429
2.5%		33.039
0.5%		32.655
0.0%	minimum	31.982

Moments

Mean	34.183913
Std Dev	0.582328
Std Err Mean	0.0058233
upper 95% Mean	34.195328
lower 95% Mean	34.172498
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	37.350
99.5%		36.388
97.5%		35.906
90.0%		35.399
75.0%	quartile	34.950
50.0%	median	34.438
25.0%	quartile	33.931
10.0%		33.476
2.5%		32.970
0.5%		32.497
0.0%	minimum	31.672

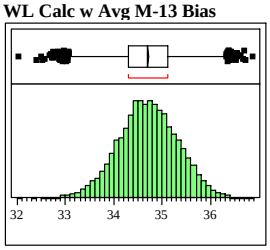
Moments

Mean	34.442822
Std Dev	0.7506428
Std Err Mean	0.0075064
upper 95% Mean	34.457536
lower 95% Mean	34.428108
N	10000

Batch=322

Blending WL = 34.47
WL Calc = 34.52

WL Calc w Avg M-13 Bias



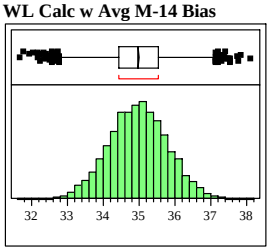
Quantiles

100.0%	maximum	36.884
99.5%		36.248
97.5%		35.886
90.0%		35.499
75.0%	quartile	35.123
50.0%	median	34.705
25.0%	quartile	34.304
10.0%		33.931
2.5%		33.489
0.5%		33.073
0.0%	minimum	32.048

Moments

Mean	34.708521
Std Dev	0.6128189
Std Err Mean	0.0061282
upper 95% Mean	34.720534
lower 95% Mean	34.696509
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	38.112
99.5%		37.045
97.5%		36.570
90.0%		36.020
75.0%	quartile	35.519
50.0%	median	34.972
25.0%	quartile	34.427
10.0%		33.925
2.5%		33.365
0.5%		32.850
0.0%	minimum	31.686

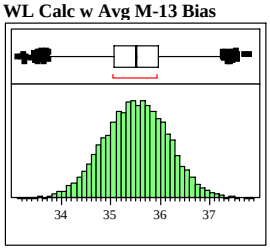
Moments

Mean	34.970667
Std Dev	0.8138692
Std Err Mean	0.0081387
upper 95% Mean	34.98662
lower 95% Mean	34.954714
N	10000

Batch=323

Blending WL = 35.30
WL Calc = 35.35

WL Calc w Avg M-13 Bias



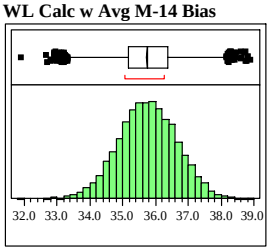
Quantiles

100.0%	maximum	37.813
99.5%		37.150
97.5%		36.751
90.0%		36.324
75.0%	quartile	35.955
50.0%	median	35.513
25.0%	quartile	35.069
10.0%		34.665
2.5%		34.225
0.5%		33.868
0.0%	minimum	33.124

Moments

Mean	35.50699
Std Dev	0.6482447
Std Err Mean	0.0064824
upper 95% Mean	35.519697
lower 95% Mean	35.494283
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	38.913
99.5%		38.041
97.5%		37.474
90.0%		36.897
75.0%	quartile	36.370
50.0%	median	35.759
25.0%	quartile	35.165
10.0%		34.631
2.5%		33.997
0.5%		33.367
0.0%	minimum	31.931

Moments

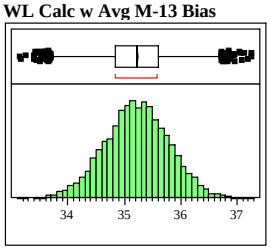
Mean	35.760929
Std Dev	0.8879478
Std Err Mean	0.0088795
upper 95% Mean	35.778334
lower 95% Mean	35.743523
N	10000

Exhibit A9. Sensitivity of Blending Target WLs to the Uncertainties of This Report *(continued)*

Batch=324

Blending WL =34.95
WL Calc = 35.00

WL Calc w Avg M-13 Bias



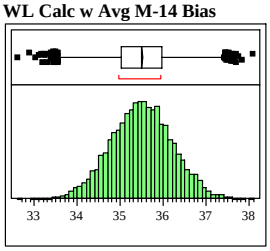
Quantiles

100.0%	maximum	37.272
99.5%		36.677
97.5%		36.315
90.0%		35.945
75.0%	quartile	35.603
50.0%	median	35.225
25.0%	quartile	34.849
10.0%		34.495
2.5%		34.097
0.5%		33.763
0.0%	minimum	33.148

Moments

Mean	35.223016
Std Dev	0.5637165
Std Err Mean	0.0056372
upper 95% Mean	35.234066
lower 95% Mean	35.211966
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	38.091
99.5%		37.296
97.5%		36.866
90.0%		36.400
75.0%	quartile	35.969
50.0%	median	35.490
25.0%	quartile	35.008
10.0%		34.582
2.5%		34.092
0.5%		33.702
0.0%	minimum	32.616

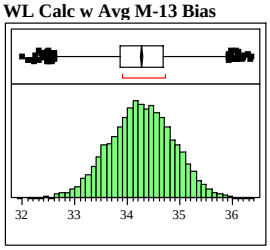
Moments

Mean	35.489628
Std Dev	0.7065612
Std Err Mean	0.0070656
upper 95% Mean	35.503478
lower 95% Mean	35.475778
N	10000

Batch=325

Blending WL = 34.01
WL Calc = 34.06

WL Calc w Avg M-13 Bias



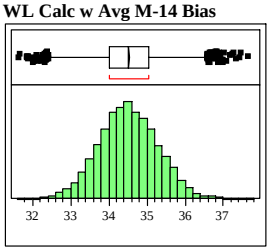
Quantiles

100.0%	maximum	36.357
99.5%		35.802
97.5%		35.434
90.0%		35.041
75.0%	quartile	34.679
50.0%	median	34.267
25.0%	quartile	33.855
10.0%		33.474
2.5%		33.077
0.5%		32.664
0.0%	minimum	31.996

Moments

Mean	34.263573
Std Dev	0.6066981
Std Err Mean	0.006067
upper 95% Mean	34.275465
lower 95% Mean	34.25168
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	37.666
99.5%		36.606
97.5%		36.043
90.0%		35.524
75.0%	quartile	35.030
50.0%	median	34.503
25.0%	quartile	33.996
10.0%		33.533
2.5%		33.000
0.5%		32.540
0.0%	minimum	31.639

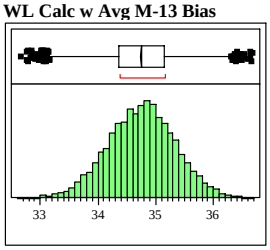
Moments

Mean	34.514609
Std Dev	0.7757651
Std Err Mean	0.0077577
upper 95% Mean	34.529816
lower 95% Mean	34.499402
N	10000

Batch=326

Blending WL = 34.49
WL Calc = 34.54

WL Calc w Avg M-13 Bias



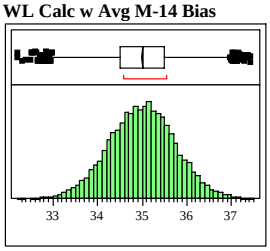
Quantiles

100.0%	maximum	36.680
99.5%		36.216
97.5%		35.878
90.0%		35.486
75.0%	quartile	35.144
50.0%	median	34.760
25.0%	quartile	34.360
10.0%		34.006
2.5%		33.599
0.5%		33.200
0.0%	minimum	32.671

Moments

Mean	34.750432
Std Dev	0.5799365
Std Err Mean	0.0057994
upper 95% Mean	34.7618
lower 95% Mean	34.739064
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	37.445
99.5%		36.902
97.5%		36.447
90.0%		35.946
75.0%	quartile	35.495
50.0%	median	35.007
25.0%	quartile	34.500
10.0%		34.055
2.5%		33.517
0.5%		33.051
0.0%	minimum	32.209

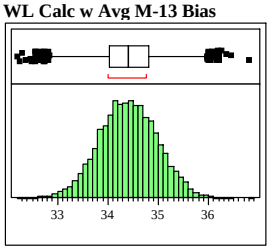
Moments

Mean	34.998293
Std Dev	0.7415456
Std Err Mean	0.0074155
upper 95% Mean	35.012829
lower 95% Mean	34.983758
N	10000

Batch=327

Blending WL = 34.13
WL Calc = 34.19

WL Calc w Avg M-13 Bias



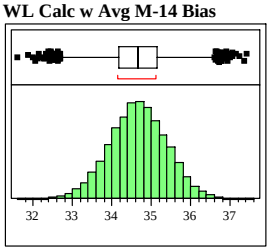
Quantiles

100.0%	maximum	36.829
99.5%		35.890
97.5%		35.522
90.0%		35.144
75.0%	quartile	34.801
50.0%	median	34.405
25.0%	quartile	34.018
10.0%		33.679
2.5%		33.290
0.5%		32.896
0.0%	minimum	32.210

Moments

Mean	34.407664
Std Dev	0.5744645
Std Err Mean	0.0057446
upper 95% Mean	34.418925
lower 95% Mean	34.396403
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	37.420
99.5%		36.556
97.5%		36.071
90.0%		35.589
75.0%	quartile	35.155
50.0%	median	34.663
25.0%	quartile	34.177
10.0%		33.736
2.5%		33.205
0.5%		32.731
0.0%	minimum	31.614

Moments

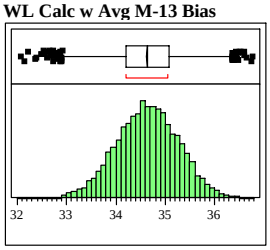
Mean	34.660994
Std Dev	0.728775
Std Err Mean	0.0072878
upper 95% Mean	34.675279
lower 95% Mean	34.646708
N	10000

Exhibit A9. Sensitivity of Blending Target WLs to the Uncertainties of This Report *(continued)*

Batch=328

Blending WL = 34.42
WL Calc = 34.47

WL Calc w Avg M-13 Bias



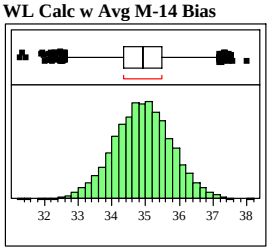
Quantiles

100.0%	maximum	36.785
99.5%		36.212
97.5%		35.841
90.0%		35.445
75.0%	quartile	35.069
50.0%	median	34.645
25.0%	quartile	34.211
10.0%		33.832
2.5%		33.392
0.5%		33.031
0.0%	minimum	32.076

Moments

Mean	34.638822
Std Dev	0.6289779
Std Err Mean	0.0062898
upper 95% Mean	34.651151
lower 95% Mean	34.626492
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	38.020
99.5%		37.074
97.5%		36.583
90.0%		35.989
75.0%	quartile	35.478
50.0%	median	34.917
25.0%	quartile	34.343
10.0%		33.831
2.5%		33.217
0.5%		32.730
0.0%	minimum	31.284

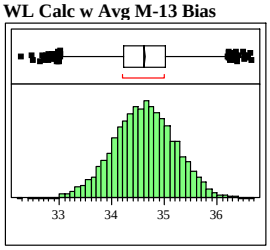
Moments

Mean	34.911755
Std Dev	0.8488435
Std Err Mean	0.0084884
upper 95% Mean	34.928394
lower 95% Mean	34.895116
N	10000

Batch=329

Blending WL = 34.36
WL Calc = 34.41

WL Calc w Avg M-13 Bias



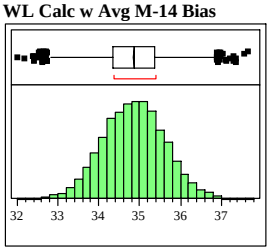
Quantiles

100.0%	maximum	36.670
99.5%		36.109
97.5%		35.743
90.0%		35.369
75.0%	quartile	35.012
50.0%	median	34.620
25.0%	quartile	34.221
10.0%		33.868
2.5%		33.442
0.5%		33.074
0.0%	minimum	32.285

Moments

Mean	34.614745
Std Dev	0.5843498
Std Err Mean	0.0058435
upper 95% Mean	34.6262
lower 95% Mean	34.603291
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	37.676
99.5%		36.771
97.5%		36.326
90.0%		35.817
75.0%	quartile	35.368
50.0%	median	34.871
25.0%	quartile	34.344
10.0%		33.903
2.5%		33.417
0.5%		32.900
0.0%	minimum	32.023

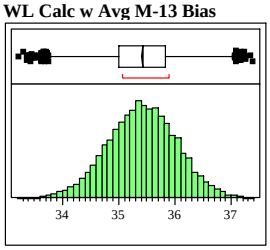
Moments

Mean	34.86294
Std Dev	0.7496004
Std Err Mean	0.007496
upper 95% Mean	34.877634
lower 95% Mean	34.848247
N	10000

Batch=330

Blending WL = 35.18
WL Calc = 35.23

WL Calc w Avg M-13 Bias



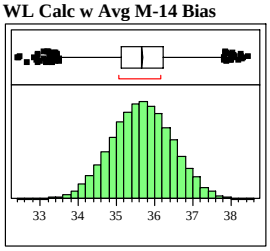
Quantiles

100.0%	maximum	37.386
99.5%		36.940
97.5%		36.601
90.0%		36.192
75.0%	quartile	35.835
50.0%	median	35.421
25.0%	quartile	35.008
10.0%		34.633
2.5%		34.197
0.5%		33.814
0.0%	minimum	33.228

Moments

Mean	35.417247
Std Dev	0.6084637
Std Err Mean	0.0060846
upper 95% Mean	35.429174
lower 95% Mean	35.40532
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	38.455
99.5%		37.649
97.5%		37.212
90.0%		36.701
75.0%	quartile	36.211
50.0%	median	35.668
25.0%	quartile	35.133
10.0%		34.642
2.5%		34.121
0.5%		33.588
0.0%	minimum	32.411

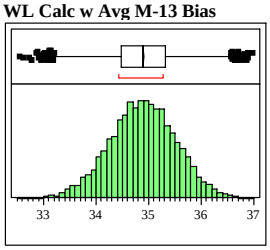
Moments

Mean	35.670001
Std Dev	0.796059
Std Err Mean	0.0079606
upper 95% Mean	35.685606
lower 95% Mean	35.654397
N	10000

Batch=331

Blending WL = 34.65
WL Calc = 34.70

WL Calc w Avg M-13 Bias



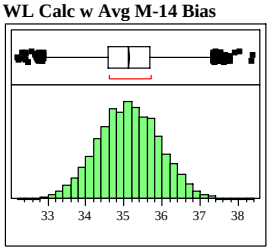
Quantiles

100.0%	maximum	36.997
99.5%		36.470
97.5%		36.108
90.0%		35.694
75.0%	quartile	35.315
50.0%	median	34.893
25.0%	quartile	34.472
10.0%		34.085
2.5%		33.649
0.5%		33.273
0.0%	minimum	32.553

Moments

Mean	34.890965
Std Dev	0.6243943
Std Err Mean	0.0062439
upper 95% Mean	34.903204
lower 95% Mean	34.878726
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	38.393
99.5%		37.231
97.5%		36.695
90.0%		36.166
75.0%	quartile	35.680
50.0%	median	35.123
25.0%	quartile	34.570
10.0%		34.081
2.5%		33.516
0.5%		33.033
0.0%	minimum	32.220

Moments

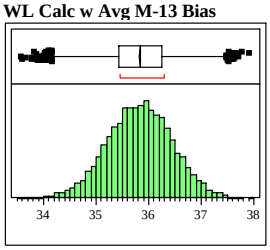
Mean	35.12022
Std Dev	0.8135559
Std Err Mean	0.0081356
upper 95% Mean	35.136167
lower 95% Mean	35.104272
N	10000

Exhibit A9. Sensitivity of Blending Target WLs to the Uncertainties of This Report *(continued)*

Batch=332

Blending WL = 35.58
WL Calc = 35.63

WL Calc w Avg M-13 Bias



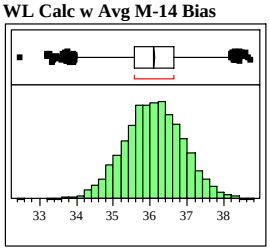
Quantiles

100.0%	maximum	37.925
99.5%		37.358
97.5%		37.023
90.0%		36.617
75.0%	quartile	36.247
50.0%	median	35.837
25.0%	quartile	35.421
10.0%		35.055
2.5%		34.622
0.5%		34.230
0.0%	minimum	33.586

Moments

Mean	35.83223
Std Dev	0.6083728
Std Err Mean	0.0060837
upper 95% Mean	35.844155
lower 95% Mean	35.820304
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	38.715
99.5%		38.135
97.5%		37.616
90.0%		37.094
75.0%	quartile	36.623
50.0%	median	36.091
25.0%	quartile	35.566
10.0%		35.074
2.5%		34.529
0.5%		34.019
0.0%	minimum	32.466

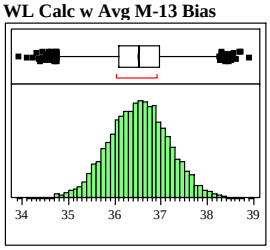
Moments

Mean	36.087406
Std Dev	0.7881357
Std Err Mean	0.0078814
upper 95% Mean	36.102855
lower 95% Mean	36.071957
N	10000

Batch=333

Blending WL = 36.31
WL Calc = 36.36

WL Calc w Avg M-13 Bias



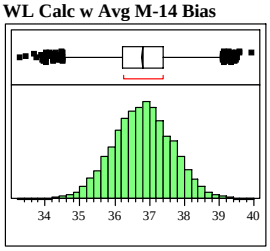
Quantiles

100.0%	maximum	38.909
99.5%		38.191
97.5%		37.800
90.0%		37.355
75.0%	quartile	36.958
50.0%	median	36.531
25.0%	quartile	36.086
10.0%		35.703
2.5%		35.263
0.5%		34.818
0.0%	minimum	33.929

Moments

Mean	36.526689
Std Dev	0.6436873
Std Err Mean	0.0064369
upper 95% Mean	36.539306
lower 95% Mean	36.514071
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	39.936
99.5%		39.016
97.5%		38.468
90.0%		37.896
75.0%	quartile	37.376
50.0%	median	36.809
25.0%	quartile	36.236
10.0%		35.725
2.5%		35.157
0.5%		34.567
0.0%	minimum	33.277

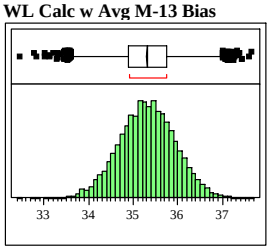
Moments

Mean	36.804888
Std Dev	0.8476697
Std Err Mean	0.0084767
upper 95% Mean	36.821504
lower 95% Mean	36.788272
N	10000

Batch=334

Blending WL = 35.07
WL Calc = 35.12

WL Calc w Avg M-13 Bias



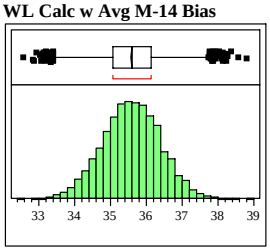
Quantiles

100.0%	maximum	37.659
99.5%		36.918
97.5%		36.515
90.0%		36.113
75.0%	quartile	35.739
50.0%	median	35.313
25.0%	quartile	34.896
10.0%		34.513
2.5%		34.080
0.5%		33.707
0.0%	minimum	32.473

Moments

Mean	35.313305
Std Dev	0.6257863
Std Err Mean	0.0062579
upper 95% Mean	35.325572
lower 95% Mean	35.301038
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	38.808
99.5%		37.707
97.5%		37.151
90.0%		36.613
75.0%	quartile	36.132
50.0%	median	35.590
25.0%	quartile	35.051
10.0%		34.550
2.5%		33.996
0.5%		33.490
0.0%	minimum	32.590

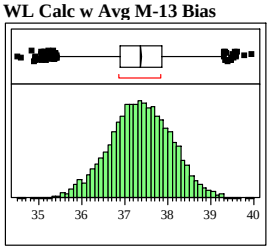
Moments

Mean	35.587147
Std Dev	0.805937
Std Err Mean	0.0080594
upper 95% Mean	35.602945
lower 95% Mean	35.571349
N	10000

Batch=335

Blending WL = 37.19
WL Calc = 37.24

WL Calc w Avg M-13 Bias



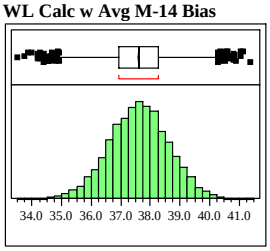
Quantiles

100.0%	maximum	39.945
99.5%		39.152
97.5%		38.736
90.0%		38.268
75.0%	quartile	37.856
50.0%	median	37.365
25.0%	quartile	36.891
10.0%		36.436
2.5%		35.919
0.5%		35.494
0.0%	minimum	34.506

Moments

Mean	37.361858
Std Dev	0.7144185
Std Err Mean	0.0071442
upper 95% Mean	37.375862
lower 95% Mean	37.347854
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	41.417
99.5%		40.176
97.5%		39.551
90.0%		38.902
75.0%	quartile	38.280
50.0%	median	37.614
25.0%	quartile	36.941
10.0%		36.325
2.5%		35.593
0.5%		34.979
0.0%	minimum	33.523

Moments

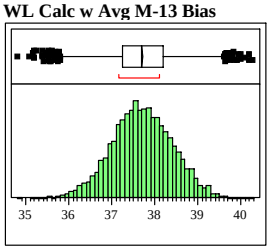
Mean	37.61122
Std Dev	1.0080843
Std Err Mean	0.0100808
upper 95% Mean	37.630981
lower 95% Mean	37.59146
N	10000

Exhibit A9. Sensitivity of Blending Target WLs to the Uncertainties of This Report *(continued)*

Batch=336

Blending WL = 37.52
WL Calc = 37.57

WL Calc w Avg M-13 Bias



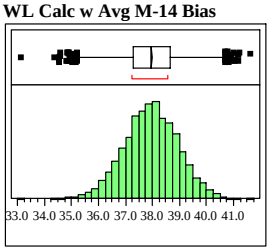
Quantiles

100.0%	maximum	40.296
99.5%		39.484
97.5%		39.082
90.0%		38.614
75.0%	quartile	38.184
50.0%	median	37.694
25.0%	quartile	37.233
10.0%		36.814
2.5%		36.298
0.5%		35.833
0.0%	minimum	34.825

Moments

Mean	37.701507
Std Dev	0.7048085
Std Err Mean	0.0070481
upper 95% Mean	37.715323
lower 95% Mean	37.687692
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	41.618
99.5%		40.455
97.5%		39.892
90.0%		39.225
75.0%	quartile	38.646
50.0%	median	37.964
25.0%	quartile	37.295
10.0%		36.678
2.5%		35.991
0.5%		35.342
0.0%	minimum	33.148

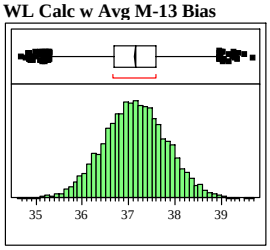
Moments

Mean	37.957142
Std Dev	0.9959028
Std Err Mean	0.009959
upper 95% Mean	37.976664
lower 95% Mean	37.93762
N	10000

Batch=337

Blending WL =36.94
WL Calc = 37.00

WL Calc w Avg M-13 Bias



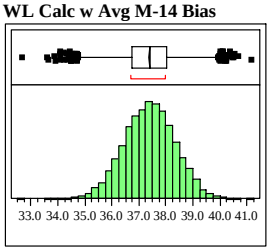
Quantiles

100.0%	maximum	39.691
99.5%		38.837
97.5%		38.465
90.0%		37.999
75.0%	quartile	37.594
50.0%	median	37.142
25.0%	quartile	36.685
10.0%		36.273
2.5%		35.826
0.5%		35.394
0.0%	minimum	34.700

Moments

Mean	37.140182
Std Dev	0.6718426
Std Err Mean	0.0067184
upper 95% Mean	37.153352
lower 95% Mean	37.127013
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	41.178
99.5%		39.811
97.5%		39.206
90.0%		38.610
75.0%	quartile	38.031
50.0%	median	37.398
25.0%	quartile	36.750
10.0%		36.186
2.5%		35.531
0.5%		34.940
0.0%	minimum	32.702

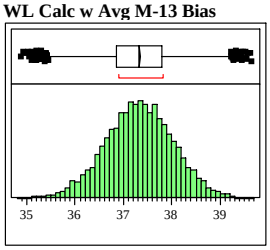
Moments

Mean	37.391795
Std Dev	0.943669
Std Err Mean	0.0094367
upper 95% Mean	37.410293
lower 95% Mean	37.373297
N	10000

Batch=338

Blending WL = 37.13
WL Calc = 37.19

WL Calc w Avg M-13 Bias



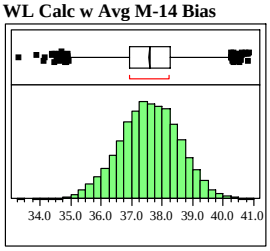
Quantiles

100.0%	maximum	39.666
99.5%		39.099
97.5%		38.669
90.0%		38.215
75.0%	quartile	37.800
50.0%	median	37.331
25.0%	quartile	36.859
10.0%		36.442
2.5%		35.943
0.5%		35.487
0.0%	minimum	34.880

Moments

Mean	37.327356
Std Dev	0.6956868
Std Err Mean	0.0069569
upper 95% Mean	37.340993
lower 95% Mean	37.313719
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	40.843
99.5%		40.098
97.5%		39.455
90.0%		38.828
75.0%	quartile	38.257
50.0%	median	37.598
25.0%	quartile	36.942
10.0%		36.331
2.5%		35.642
0.5%		35.088
0.0%	minimum	33.325

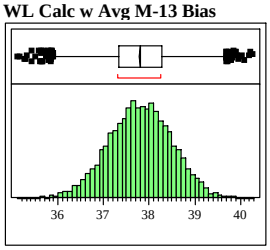
Moments

Mean	37.58998
Std Dev	0.9754458
Std Err Mean	0.0097545
upper 95% Mean	37.609101
lower 95% Mean	37.570859
N	10000

Batch=339

Blending WL = 37.63
WL Calc = 37.66

WL Calc w Avg M-13 Bias



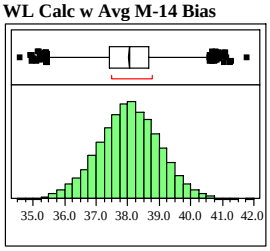
Quantiles

100.0%	maximum	40.277
99.5%		39.557
97.5%		39.121
90.0%		38.683
75.0%	quartile	38.276
50.0%	median	37.806
25.0%	quartile	37.332
10.0%		36.921
2.5%		36.418
0.5%		35.985
0.0%	minimum	35.103

Moments

Mean	37.800504
Std Dev	0.6916879
Std Err Mean	0.0069169
upper 95% Mean	37.814062
lower 95% Mean	37.786945
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	41.800
99.5%		40.500
97.5%		39.928
90.0%		39.264
75.0%	quartile	38.685
50.0%	median	38.051
25.0%	quartile	37.407
10.0%		36.801
2.5%		36.109
0.5%		35.536
0.0%	minimum	34.587

Moments

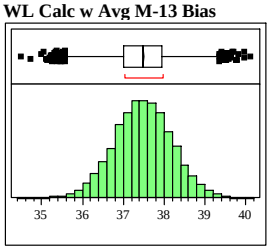
Mean	38.042336
Std Dev	0.9634812
Std Err Mean	0.0096348
upper 95% Mean	38.061222
lower 95% Mean	38.023449
N	10000

Exhibit A9. Sensitivity of Blending Target WLs to the Uncertainties of This Report *(continued)*

Batch=340

Blending WL = 37.32
WL Calc = 37.35

WL Calc w Avg M-13 Bias



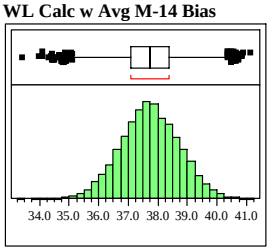
Quantiles

100.0%	maximum	40.141
99.5%		39.311
97.5%		38.875
90.0%		38.380
75.0%	quartile	37.956
50.0%	median	37.486
25.0%	quartile	37.014
10.0%		36.591
2.5%		36.102
0.5%		35.607
0.0%	minimum	34.501

Moments

Mean	37.485803
Std Dev	0.7066824
Std Err Mean	0.0070668
upper 95% Mean	37.499655
lower 95% Mean	37.47195
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	41.147
99.5%		40.206
97.5%		39.648
90.0%		39.005
75.0%	quartile	38.397
50.0%	median	37.730
25.0%	quartile	37.087
10.0%		36.483
2.5%		35.792
0.5%		35.126
0.0%	minimum	33.419

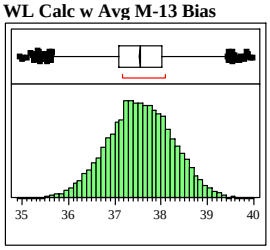
Moments

Mean	37.734291
Std Dev	0.9854045
Std Err Mean	0.009854
upper 95% Mean	37.753607
lower 95% Mean	37.714975
N	10000

Batch=341

Blending WL = 37.37
WL Calc = 37.40

WL Calc w Avg M-13 Bias



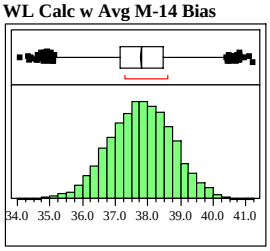
Quantiles

100.0%	maximum	39.988
99.5%		39.260
97.5%		38.885
90.0%		38.447
75.0%	quartile	38.029
50.0%	median	37.549
25.0%	quartile	37.078
10.0%		36.643
2.5%		36.149
0.5%		35.712
0.0%	minimum	34.959

Moments

Mean	37.547454
Std Dev	0.6983935
Std Err Mean	0.0069839
upper 95% Mean	37.561144
lower 95% Mean	37.533764
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	41.230
99.5%		40.154
97.5%		39.659
90.0%		38.998
75.0%	quartile	38.455
50.0%	median	37.810
25.0%	quartile	37.137
10.0%		36.554
2.5%		35.895
0.5%		35.236
0.0%	minimum	34.099

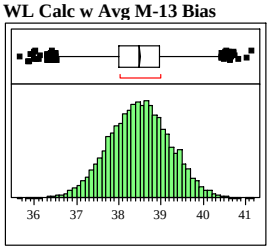
Moments

Mean	37.792132
Std Dev	0.9612397
Std Err Mean	0.0096124
upper 95% Mean	37.810974
lower 95% Mean	37.77329
N	10000

Batch=342

Blending WL = 38.31
WL Calc = 38.34

WL Calc w Avg M-13 Bias



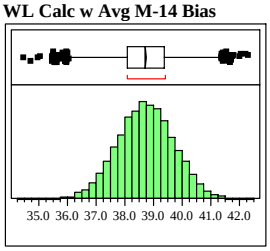
Quantiles

100.0%	maximum	41.163
99.5%		40.292
97.5%		39.874
90.0%		39.430
75.0%	quartile	38.977
50.0%	median	38.497
25.0%	quartile	38.002
10.0%		37.572
2.5%		37.090
0.5%		36.621
0.0%	minimum	35.679

Moments

Mean	38.493739
Std Dev	0.7169546
Std Err Mean	0.0071695
upper 95% Mean	38.507792
lower 95% Mean	38.479685
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	42.318
99.5%		41.211
97.5%		40.612
90.0%		39.998
75.0%	quartile	39.394
50.0%	median	38.728
25.0%	quartile	38.067
10.0%		37.471
2.5%		36.812
0.5%		36.147
0.0%	minimum	34.483

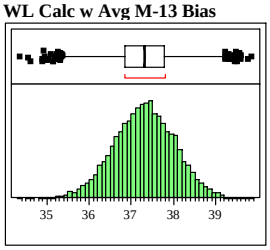
Moments

Mean	38.727618
Std Dev	0.9800105
Std Err Mean	0.0098001
upper 95% Mean	38.746828
lower 95% Mean	38.708408
N	10000

Batch=343

Blending WL = 37.11
WL Calc = 37.17

WL Calc w Avg M-13 Bias



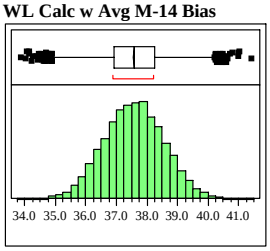
Quantiles

100.0%	maximum	39.866
99.5%		39.072
97.5%		38.673
90.0%		38.204
75.0%	quartile	37.791
50.0%	median	37.317
25.0%	quartile	36.833
10.0%		36.392
2.5%		35.894
0.5%		35.485
0.0%	minimum	34.383

Moments

Mean	37.307618
Std Dev	0.7073936
Std Err Mean	0.0070739
upper 95% Mean	37.321485
lower 95% Mean	37.293752
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	41.433
99.5%		40.030
97.5%		39.454
90.0%		38.824
75.0%	quartile	38.245
50.0%	median	37.584
25.0%	quartile	36.919
10.0%		36.320
2.5%		35.686
0.5%		35.009
0.0%	minimum	33.897

Moments

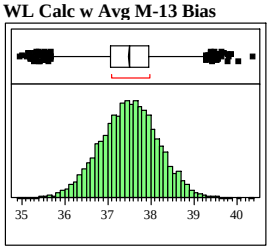
Mean	37.574938
Std Dev	0.9748945
Std Err Mean	0.0097489
upper 95% Mean	37.594048
lower 95% Mean	37.555829
N	10000

Exhibit A9. Sensitivity of Blending Target WLs to the Uncertainties of This Report *(continued)*

Batch=344

Blending WL = 37.29
WL Calc = 37.35

WL Calc w Avg M-13 Bias



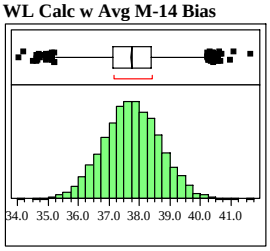
Quantiles

100.0%	maximum	40.383
99.5%		39.231
97.5%		38.799
90.0%		38.345
75.0%	quartile	37.954
50.0%	median	37.516
25.0%	quartile	37.055
10.0%		36.633
2.5%		36.163
0.5%		35.683
0.0%	minimum	34.957

Moments

Mean	37.502828
Std Dev	0.67373
Std Err Mean	0.0067373
upper 95% Mean	37.516035
lower 95% Mean	37.489622
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	41.638
99.5%		40.151
97.5%		39.553
90.0%		38.928
75.0%	quartile	38.376
50.0%	median	37.752
25.0%	quartile	37.129
10.0%		36.559
2.5%		35.963
0.5%		35.392
0.0%	minimum	34.049

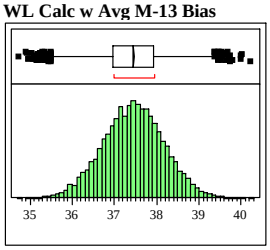
Moments

Mean	37.750636
Std Dev	0.9217905
Std Err Mean	0.0092179
upper 95% Mean	37.768705
lower 95% Mean	37.732567
N	10000

Batch=345

Blending WL = 37.26
WL Calc = 37.32

WL Calc w Avg M-13 Bias



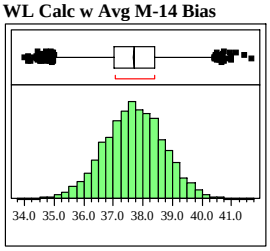
Quantiles

100.0%	maximum	40.234
99.5%		39.288
97.5%		38.847
90.0%		38.375
75.0%	quartile	37.930
50.0%	median	37.452
25.0%	quartile	36.965
10.0%		36.512
2.5%		36.008
0.5%		35.537
0.0%	minimum	34.753

Moments

Mean	37.446664
Std Dev	0.7228752
Std Err Mean	0.0072288
upper 95% Mean	37.460834
lower 95% Mean	37.432494
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	41.676
99.5%		40.269
97.5%		39.671
90.0%		38.986
75.0%	quartile	38.381
50.0%	median	37.706
25.0%	quartile	37.034
10.0%		36.406
2.5%		35.703
0.5%		35.041
0.0%	minimum	33.998

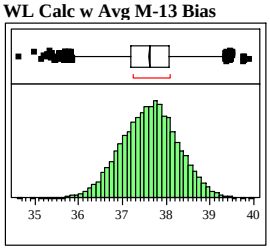
Moments

Mean	37.70126
Std Dev	1.0057604
Std Err Mean	0.0100576
upper 95% Mean	37.720975
lower 95% Mean	37.681545
N	10000

Batch=346

Blending WL = 37.37
WL Calc = 37.43

WL Calc w Avg M-13 Bias



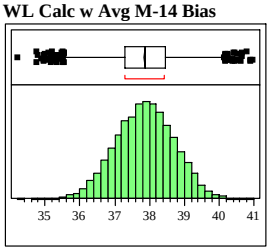
Quantiles

100.0%	maximum	39.910
99.5%		39.231
97.5%		38.861
90.0%		38.442
75.0%	quartile	38.055
50.0%	median	37.635
25.0%	quartile	37.186
10.0%		36.792
2.5%		36.345
0.5%		35.872
0.0%	minimum	34.651

Moments

Mean	37.620042
Std Dev	0.6432744
Std Err Mean	0.0064327
upper 95% Mean	37.632651
lower 95% Mean	37.607432
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	40.999
99.5%		40.047
97.5%		39.471
90.0%		38.949
75.0%	quartile	38.447
50.0%	median	37.883
25.0%	quartile	37.297
10.0%		36.780
2.5%		36.220
0.5%		35.650
0.0%	minimum	34.229

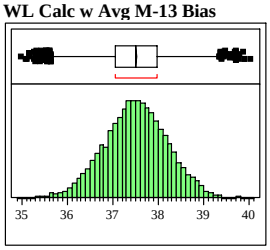
Moments

Mean	37.871106
Std Dev	0.843855
Std Err Mean	0.0084385
upper 95% Mean	37.887648
lower 95% Mean	37.854565
N	10000

Batch=347

Blending WL = 37.30
WL Calc = 37.36

WL Calc w Avg M-13 Bias



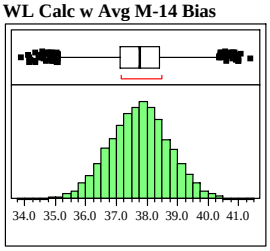
Quantiles

100.0%	maximum	40.044
99.5%		39.304
97.5%		38.855
90.0%		38.395
75.0%	quartile	37.970
50.0%	median	37.509
25.0%	quartile	37.045
10.0%		36.600
2.5%		36.122
0.5%		35.643
0.0%	minimum	34.984

Moments

Mean	37.505217
Std Dev	0.6992
Std Err Mean	0.006992
upper 95% Mean	37.518923
lower 95% Mean	37.491511
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	41.395
99.5%		40.277
97.5%		39.649
90.0%		39.012
75.0%	quartile	38.408
50.0%	median	37.772
25.0%	quartile	37.102
10.0%		36.497
2.5%		35.851
0.5%		35.198
0.0%	minimum	33.889

Moments

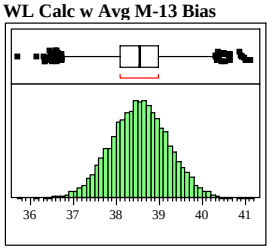
Mean	37.757063
Std Dev	0.9800465
Std Err Mean	0.0098005
upper 95% Mean	37.776274
lower 95% Mean	37.737852
N	10000

Exhibit A9. Sensitivity of Blending Target WLs to the Uncertainties of This Report *(continued)*

Batch=348

Blending WL = 38.32
WL Calc = 38.38

WL Calc w Avg M-13 Bias



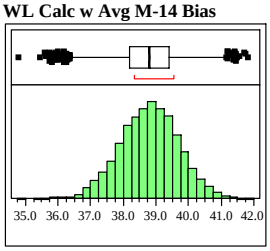
Quantiles

100.0%	maximum	41.127
99.5%		40.198
97.5%		39.831
90.0%		39.391
75.0%	quartile	38.988
50.0%	median	38.548
25.0%	quartile	38.098
10.0%		37.686
2.5%		37.241
0.5%		36.809
0.0%	minimum	35.720

Moments

Mean	38.543872
Std Dev	0.6629853
Std Err Mean	0.0066299
upper 95% Mean	38.556868
lower 95% Mean	38.530877
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	41.843
99.5%		41.058
97.5%		40.527
90.0%		39.926
75.0%	quartile	39.393
50.0%	median	38.809
25.0%	quartile	38.193
10.0%		37.638
2.5%		37.005
0.5%		36.343
0.0%	minimum	34.806

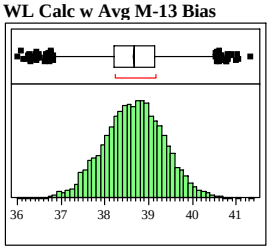
Moments

Mean	38.79365
Std Dev	0.8939885
Std Err Mean	0.0089399
upper 95% Mean	38.811174
lower 95% Mean	38.776126
N	10000

Batch=349

Blending WL = 38.46
WL Calc = 38.52

WL Calc w Avg M-13 Bias



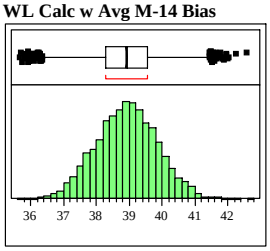
Quantiles

100.0%	maximum	41.344
99.5%		40.412
97.5%		39.994
90.0%		39.526
75.0%	quartile	39.134
50.0%	median	38.679
25.0%	quartile	38.209
10.0%		37.766
2.5%		37.324
0.5%		36.872
0.0%	minimum	36.021

Moments

Mean	38.665304
Std Dev	0.686103
Std Err Mean	0.006861
upper 95% Mean	38.678753
lower 95% Mean	38.651855
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	42.607
99.5%		41.315
97.5%		40.778
90.0%		40.114
75.0%	quartile	39.554
50.0%	median	38.930
25.0%	quartile	38.286
10.0%		37.691
2.5%		37.104
0.5%		36.450
0.0%	minimum	35.690

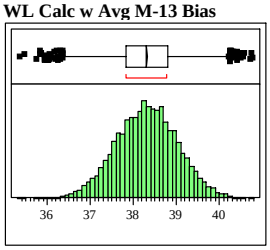
Moments

Mean	38.918496
Std Dev	0.9423808
Std Err Mean	0.0094238
upper 95% Mean	38.936968
lower 95% Mean	38.900023
N	10000

Batch=350

Blending WL = 38.12
WL Calc = 38.17

WL Calc w Avg M-13 Bias



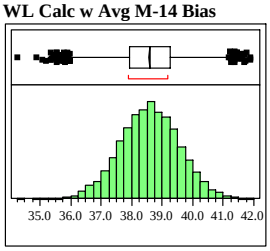
Quantiles

100.0%	maximum	40.775
99.5%		40.097
97.5%		39.668
90.0%		39.214
75.0%	quartile	38.789
50.0%	median	38.312
25.0%	quartile	37.828
10.0%		37.401
2.5%		36.919
0.5%		36.507
0.0%	minimum	35.366

Moments

Mean	38.309033
Std Dev	0.7057071
Std Err Mean	0.0070571
upper 95% Mean	38.322866
lower 95% Mean	38.2952
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	41.912
99.5%		41.064
97.5%		40.471
90.0%		39.823
75.0%	quartile	39.243
50.0%	median	38.593
25.0%	quartile	37.944
10.0%		37.348
2.5%		36.671
0.5%		36.091
0.0%	minimum	34.287

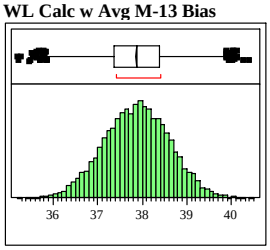
Moments

Mean	38.591852
Std Dev	0.9638818
Std Err Mean	0.0096388
upper 95% Mean	38.610746
lower 95% Mean	38.572958
N	10000

Batch=351

Blending WL = 37.67
WL Calc = 37.73

WL Calc w Avg M-13 Bias



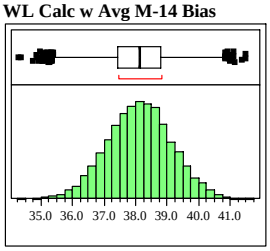
Quantiles

100.0%	maximum	40.407
99.5%		39.693
97.5%		39.264
90.0%		38.807
75.0%	quartile	38.379
50.0%	median	37.885
25.0%	quartile	37.378
10.0%		36.933
2.5%		36.446
0.5%		36.011
0.0%	minimum	35.200

Moments

Mean	37.875372
Std Dev	0.7292861
Std Err Mean	0.0072929
upper 95% Mean	37.889667
lower 95% Mean	37.861076
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	41.505
99.5%		40.616
97.5%		40.098
90.0%		39.420
75.0%	quartile	38.794
50.0%	median	38.136
25.0%	quartile	37.439
10.0%		36.812
2.5%		36.129
0.5%		35.468
0.0%	minimum	34.296

Moments

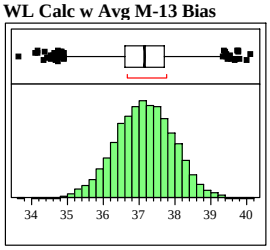
Mean	38.120658
Std Dev	1.0092789
Std Err Mean	0.0100928
upper 95% Mean	38.140442
lower 95% Mean	38.100874
N	10000

Exhibit A9. Sensitivity of Blending Target WLs to the Uncertainties of This Report *(continued)*

Batch=352

Blending WL = 37.00
WL Calc = 37.06

WL Calc w Avg M-13 Bias



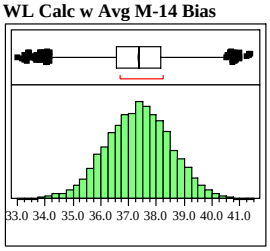
Quantiles

100.0%	maximum	40.114
99.5%		39.181
97.5%		38.687
90.0%		38.175
75.0%	quartile	37.703
50.0%	median	37.162
25.0%	quartile	36.602
10.0%		36.121
2.5%		35.528
0.5%		35.097
0.0%	minimum	33.641

Moments

Mean	37.149665
Std Dev	0.8051325
Std Err Mean	0.0080513
upper 95% Mean	37.165448
lower 95% Mean	37.133883
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	41.405
99.5%		40.257
97.5%		39.600
90.0%		38.847
75.0%	quartile	38.159
50.0%	median	37.382
25.0%	quartile	36.573
10.0%		35.868
2.5%		35.051
0.5%		34.245
0.0%	minimum	33.017

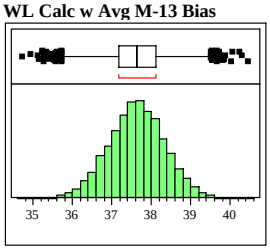
Moments

Mean	37.361936
Std Dev	1.1613708
Std Err Mean	0.0116137
upper 95% Mean	37.384701
lower 95% Mean	37.339171
N	10000

Batch=353

Blending WL = 37.44
WL Calc = 37.50

WL Calc w Avg M-13 Bias



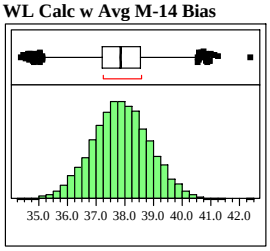
Quantiles

100.0%	maximum	40.458
99.5%		39.431
97.5%		39.006
90.0%		38.539
75.0%	quartile	38.108
50.0%	median	37.635
25.0%	quartile	37.165
10.0%		36.701
2.5%		36.234
0.5%		35.769
0.0%	minimum	34.750

Moments

Mean	37.629678
Std Dev	0.7088292
Std Err Mean	0.0070883
upper 95% Mean	37.643572
lower 95% Mean	37.615783
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	42.393
99.5%		40.333
97.5%		39.821
90.0%		39.153
75.0%	quartile	38.533
50.0%	median	37.854
25.0%	quartile	37.191
10.0%		36.570
2.5%		35.901
0.5%		35.297
0.0%	minimum	34.397

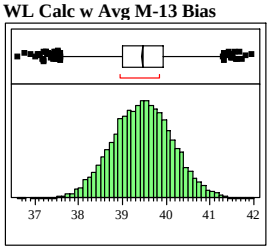
Moments

Mean	37.863049
Std Dev	0.9972616
Std Err Mean	0.0099726
upper 95% Mean	37.882598
lower 95% Mean	37.843501
N	10000

Batch=354

Blending WL = 39.25
WL Calc = 39.30

WL Calc w Avg M-13 Bias



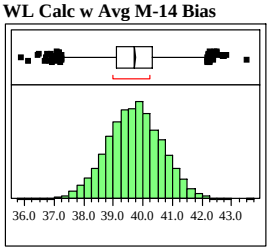
Quantiles

100.0%	maximum	41.958
99.5%		41.156
97.5%		40.777
90.0%		40.322
75.0%	quartile	39.919
50.0%	median	39.462
25.0%	quartile	38.992
10.0%		38.577
2.5%		38.141
0.5%		37.716
0.0%	minimum	36.625

Moments

Mean	39.456477
Std Dev	0.6781991
Std Err Mean	0.006782
upper 95% Mean	39.469771
lower 95% Mean	39.443183
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	43.508
99.5%		42.004
97.5%		41.455
90.0%		40.896
75.0%	quartile	40.332
50.0%	median	39.727
25.0%	quartile	39.102
10.0%		38.546
2.5%		37.889
0.5%		37.358
0.0%	minimum	35.911

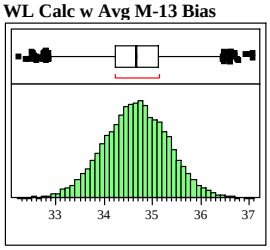
Moments

Mean	39.71459
Std Dev	0.9097609
Std Err Mean	0.0090976
upper 95% Mean	39.732423
lower 95% Mean	39.696757
N	10000

Batch=355

Blending WL = 34.45
WL Calc = 34.50

WL Calc w Avg M-13 Bias



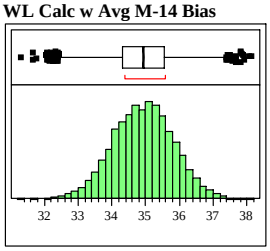
Quantiles

100.0%	maximum	37.096
99.5%		36.373
97.5%		35.939
90.0%		35.499
75.0%	quartile	35.116
50.0%	median	34.672
25.0%	quartile	34.217
10.0%		33.808
2.5%		33.354
0.5%		32.982
0.0%	minimum	32.232

Moments

Mean	34.662102
Std Dev	0.65988
Std Err Mean	0.0065988
upper 95% Mean	34.675037
lower 95% Mean	34.649167
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	38.146
99.5%		37.164
97.5%		36.675
90.0%		36.067
75.0%	quartile	35.537
50.0%	median	34.939
25.0%	quartile	34.306
10.0%		33.777
2.5%		33.131
0.5%		32.567
0.0%	minimum	31.322

Moments

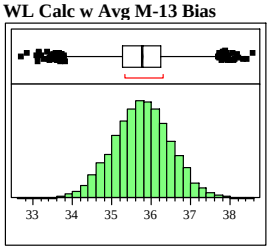
Mean	34.92513
Std Dev	0.897837
Std Err Mean	0.0089784
upper 95% Mean	34.94273
lower 95% Mean	34.907531
N	10000

Exhibit A9. Sensitivity of Blending Target WLs to the Uncertainties of This Report *(continued)*

Batch=356

Blending WL = 35.57
WL Calc = 35.63

WL Calc w Avg M-13 Bias



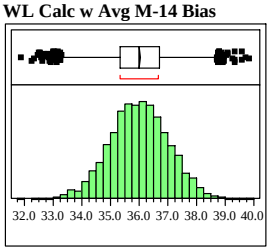
Quantiles

100.0%	maximum	38.586
99.5%		37.618
97.5%		37.163
90.0%		36.689
75.0%	quartile	36.247
50.0%	median	35.771
25.0%	quartile	35.275
10.0%		34.809
2.5%		34.330
0.5%		33.869
0.0%	minimum	32.719

Moments

Mean	35.758188
Std Dev	0.7241482
Std Err Mean	0.0072415
upper 95% Mean	35.772383
lower 95% Mean	35.743993
N	10000

WL Calc w Avg M-14 Bias



Quantiles

100.0%	maximum	39.839
99.5%		38.561
97.5%		37.969
90.0%		37.312
75.0%	quartile	36.697
50.0%	median	36.007
25.0%	quartile	35.337
10.0%		34.718
2.5%		34.017
0.5%		33.356
0.0%	minimum	31.882

Moments

Mean	36.008355
Std Dev	1.0125709
Std Err Mean	0.0101257
upper 95% Mean	36.028203
lower 95% Mean	35.988506
N	10000

Exhibit A10. JMP Formulas Used to Conduct Sensitivity Study for Estimating WL at the SME

Formula for Estimating WL Using Uncertainties of M-13 ICP

$$\frac{100}{4*Li2O\ in\ Frit}*\left(4*Li2O\ in\ Frit-100*2.1529*\frac{\left(\frac{\left(\text{Random Normal}\left(0,\sqrt[2]{1.44^2}\right)+1.54\right)}{100}\right)+1}{\left(\frac{\left(\text{Random Normal}\left(0,\sqrt[2]{1.63^2}\right)+0.7\right)}{100}\right)+1}\right)*\left(\frac{Sample\ 1\ Li}{Sample\ 1\ Sum}+\frac{Sample\ 2\ Li}{Sample\ 2\ Sum}+\frac{Sample\ 3\ Li}{Sample\ 3\ Sum}+\frac{Sample\ 4\ Li}{Sample\ 4\ Sum}\right)$$

Formula for Estimating WL Using Uncertainties of M-14 ICP

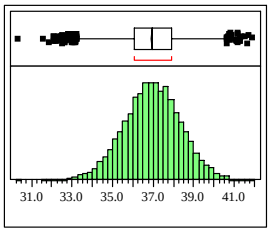
$$\frac{100}{4*Li2O\ in\ Frit}*\left(4*Li2O\ in\ Frit-100*2.1529*\frac{\left(\frac{\left(\text{Random Normal}\left(0,\sqrt[2]{2.03^2}\right)+2.14\right)}{100}\right)+1}{\left(\frac{\left(\text{Random Normal}\left(0,\sqrt[2]{1.03^2}\right)+1.61\right)}{100}\right)+1}\right)*\left(\frac{Sample\ 1\ Li}{Sample\ 1\ Sum}+\frac{Sample\ 2\ Li}{Sample\ 2\ Sum}+\frac{Sample\ 3\ Li}{Sample\ 3\ Sum}+\frac{Sample\ 4\ Li}{Sample\ 4\ Sum}\right)$$

Exhibit A11. Sensitivity of SME WL Estimations to the Uncertainties of This Report

Batch=300

SME Estimated WL = 37.54
WL Re-Calc = 37.50

Estimated WL w M-13 Unc



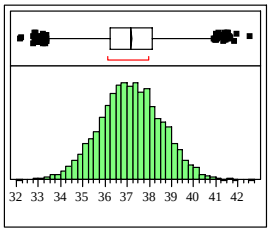
Quantiles

100.0%	maximum	41.940
99.5%		40.497
97.5%		39.661
90.0%		38.720
75.0%	quartile	37.892
50.0%	median	36.967
25.0%	quartile	36.043
10.0%		35.184
2.5%		34.137
0.5%		33.249
0.0%	minimum	30.352

Moments

Mean	36.951464
Std Dev	1.3905389
Std Err Mean	0.0139054
upper 95% Mean	36.978721
lower 95% Mean	36.924207
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	42.538
99.5%		40.755
97.5%		39.911
90.0%		38.972
75.0%	quartile	38.121
50.0%	median	37.162
25.0%	quartile	36.241
10.0%		35.349
2.5%		34.422
0.5%		33.546
0.0%	minimum	32.164

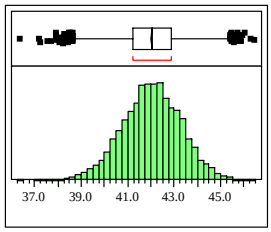
Moments

Mean	37.170269
Std Dev	1.4019099
Std Err Mean	0.0140191
upper 95% Mean	37.197749
lower 95% Mean	37.142789
N	10000

Batch=301

SME Estimated WL = 42.54
WL Re-Calc = 42.53

Estimated WL w M-13 Unc



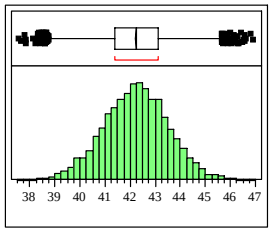
Quantiles

100.0%	maximum	46.495
99.5%		45.190
97.5%		44.482
90.0%		43.627
75.0%	quartile	42.895
50.0%	median	42.047
25.0%	quartile	41.206
10.0%		40.417
2.5%		39.491
0.5%		38.703
0.0%	minimum	36.371

Moments

Mean	42.035008
Std Dev	1.2539394
Std Err Mean	0.0125394
upper 95% Mean	42.059588
lower 95% Mean	42.010429
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	46.919
99.5%		45.606
97.5%		44.727
90.0%		43.862
75.0%	quartile	43.098
50.0%	median	42.249
25.0%	quartile	41.369
10.0%		40.579
2.5%		39.668
0.5%		38.932
0.0%	minimum	37.594

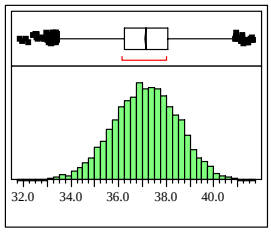
Moments

Mean	42.230713
Std Dev	1.2893342
Std Err Mean	0.0128933
upper 95% Mean	42.255986
lower 95% Mean	42.205439
N	10000

Batch=302

SME Estimated WL = 37.66
WL Re-Calc = 37.65

Estimated WL w M-13 Unc



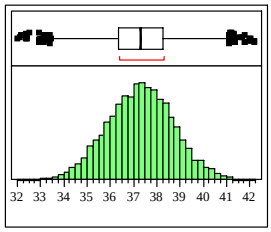
Quantiles

100.0%	maximum	41.660
99.5%		40.525
97.5%		39.733
90.0%		38.852
75.0%	quartile	38.079
50.0%	median	37.164
25.0%	quartile	36.225
10.0%		35.378
2.5%		34.384
0.5%		33.506
0.0%	minimum	31.881

Moments

Mean	37.136433
Std Dev	1.3594666
Std Err Mean	0.0135947
upper 95% Mean	37.163081
lower 95% Mean	37.109785
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	42.215
99.5%		40.928
97.5%		40.092
90.0%		39.080
75.0%	quartile	38.260
50.0%	median	37.318
25.0%	quartile	36.339
10.0%		35.449
2.5%		34.509
0.5%		33.616
0.0%	minimum	32.002

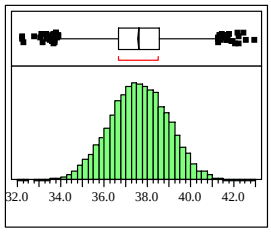
Moments

Mean	37.294863
Std Dev	1.4161349
Std Err Mean	0.0141613
upper 95% Mean	37.322622
lower 95% Mean	37.267104
N	10000

Batch=303

SME Estimated WL = 38.12
WL Re-Calc = 38.11

Estimated WL w M-13 Unc



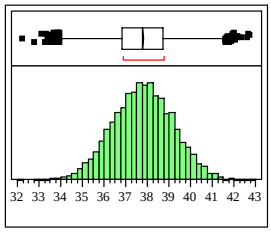
Quantiles

100.0%	maximum	42.952
99.5%		40.937
97.5%		40.159
90.0%		39.328
75.0%	quartile	38.538
50.0%	median	37.600
25.0%	quartile	36.694
10.0%		35.854
2.5%		34.947
0.5%		34.144
0.0%	minimum	32.245

Moments

Mean	37.602201
Std Dev	1.3462434
Std Err Mean	0.0134624
upper 95% Mean	37.62859
lower 95% Mean	37.575812
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	42.756
99.5%		41.268
97.5%		40.498
90.0%		39.571
75.0%	quartile	38.735
50.0%	median	37.791
25.0%	quartile	36.840
10.0%		35.997
2.5%		35.042
0.5%		34.178
0.0%	minimum	32.247

Moments

Mean	37.784194
Std Dev	1.3928957
Std Err Mean	0.013929
upper 95% Mean	37.811497
lower 95% Mean	37.75689
N	10000

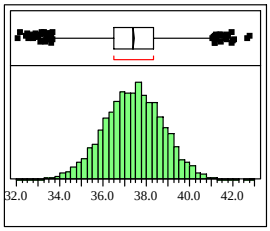
Exhibit A11. Sensitivity of SME WL Estimations to the Uncertainties of This Report

(continued)

Batch=304

SME Estimated WL = 37.95
WL Re-Calc = 37.94

Estimated WL w M-13 Unc



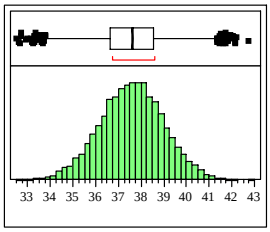
Quantiles

100.0%	maximum	42.779
99.5%		40.722
97.5%		40.015
90.0%		39.121
75.0%	quartile	38.328
50.0%	median	37.411
25.0%	quartile	36.487
10.0%		35.657
2.5%		34.689
0.5%		33.875
0.0%	minimum	32.106

Moments

Mean	37.394614
Std Dev	1.353142
Std Err Mean	0.0135314
upper 95% Mean	37.421138
lower 95% Mean	37.36809
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	42.752
99.5%		41.204
97.5%		40.345
90.0%		39.391
75.0%	quartile	38.542
50.0%	median	37.624
25.0%	quartile	36.657
10.0%		35.784
2.5%		34.774
0.5%		33.993
0.0%	minimum	32.523

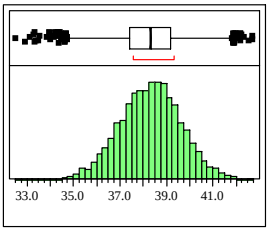
Moments

Mean	37.596502
Std Dev	1.4038819
Std Err Mean	0.0140388
upper 95% Mean	37.624021
lower 95% Mean	37.568983
N	10000

Batch=305

SME Estimated WL = 38.85
WL Re-Calc = 38.84

Estimated WL w M-13 Unc



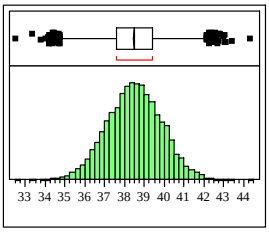
Quantiles

100.0%	maximum	42.730
99.5%		41.571
97.5%		40.854
90.0%		39.961
75.0%	quartile	39.200
50.0%	median	38.335
25.0%	quartile	37.428
10.0%		36.606
2.5%		35.693
0.5%		34.898
0.0%	minimum	32.527

Moments

Mean	38.304485
Std Dev	1.311878
Std Err Mean	0.0131188
upper 95% Mean	38.3302
lower 95% Mean	38.278769
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	44.331
99.5%		42.041
97.5%		41.166
90.0%		40.239
75.0%	quartile	39.414
50.0%	median	38.497
25.0%	quartile	37.574
10.0%		36.731
2.5%		35.785
0.5%		34.928
0.0%	minimum	32.540

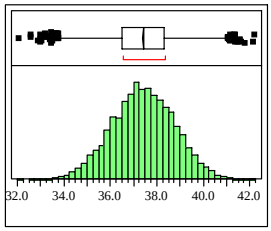
Moments

Mean	38.495289
Std Dev	1.3743208
Std Err Mean	0.0137432
upper 95% Mean	38.522229
lower 95% Mean	38.46835
N	10000

Batch=306

SME Estimated WL = 37.96
WL Re-Calc = 37.95

Estimated WL w M-13 Unc



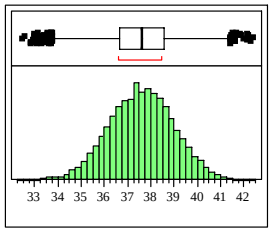
Quantiles

100.0%	maximum	42.217
99.5%		40.689
97.5%		39.994
90.0%		39.121
75.0%	quartile	38.341
50.0%	median	37.413
25.0%	quartile	36.528
10.0%		35.700
2.5%		34.777
0.5%		33.987
0.0%	minimum	32.100

Moments

Mean	37.414021
Std Dev	1.3335459
Std Err Mean	0.0133355
upper 95% Mean	37.440161
lower 95% Mean	37.387881
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	42.403
99.5%		41.102
97.5%		40.295
90.0%		39.373
75.0%	quartile	38.543
50.0%	median	37.609
25.0%	quartile	36.658
10.0%		35.829
2.5%		34.890
0.5%		33.862
0.0%	minimum	32.462

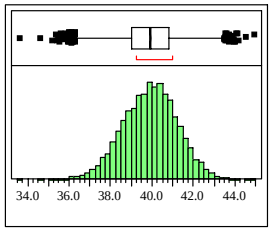
Moments

Mean	37.600109
Std Dev	1.3865897
Std Err Mean	0.0138659
upper 95% Mean	37.627289
lower 95% Mean	37.572929
N	10000

Batch=307

SME Estimated WL = 40.44
WL Re-Calc = 40.43

Estimated WL w M-13 Unc



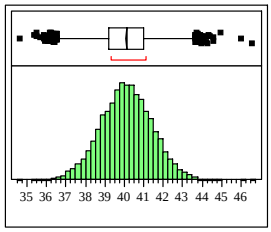
Quantiles

100.0%	maximum	44.999
99.5%		43.166
97.5%		42.396
90.0%		41.548
75.0%	quartile	40.804
50.0%	median	39.953
25.0%	quartile	39.027
10.0%		38.233
2.5%		37.298
0.5%		36.424
0.0%	minimum	33.637

Moments

Mean	39.915059
Std Dev	1.299532
Std Err Mean	0.0129953
upper 95% Mean	39.940533
lower 95% Mean	39.889586
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	46.594
99.5%		43.484
97.5%		42.715
90.0%		41.812
75.0%	quartile	40.999
50.0%	median	40.107
25.0%	quartile	39.226
10.0%		38.440
2.5%		37.502
0.5%		36.691
0.0%	minimum	34.666

Moments

Mean	40.115134
Std Dev	1.3214571
Std Err Mean	0.0132146
upper 95% Mean	40.141037
lower 95% Mean	40.08923
N	10000

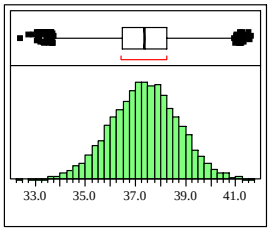
Exhibit A11. Sensitivity of SME WL Estimations to the Uncertainties of This Report

(continued)

Batch=308

SME Estimated WL = 37.89
WL Re-Calc = 37.88

Estimated WL w M-13 Unc



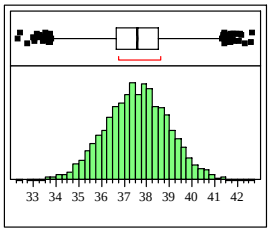
Quantiles

100.0%	maximum	41.635
99.5%		40.735
97.5%		39.939
90.0%		39.058
75.0%	quartile	38.264
50.0%	median	37.364
25.0%	quartile	36.460
10.0%		35.623
2.5%		34.682
0.5%		33.793
0.0%	minimum	32.431

Moments

Mean	37.357202
Std Dev	1.3392101
Std Err Mean	0.0133921
upper 95% Mean	37.383453
lower 95% Mean	37.33095
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	42.646
99.5%		41.127
97.5%		40.273
90.0%		39.319
75.0%	quartile	38.524
50.0%	median	37.596
25.0%	quartile	36.635
10.0%		35.759
2.5%		34.839
0.5%		33.950
0.0%	minimum	32.311

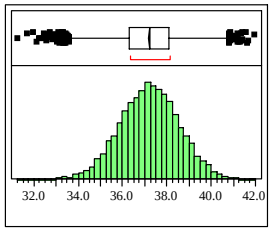
Moments

Mean	37.571247
Std Dev	1.3862602
Std Err Mean	0.0138626
upper 95% Mean	37.59842
lower 95% Mean	37.544073
N	10000

Batch=309

SME Estimated WL = 37.75
WL Re-Calc = 37.74

Estimated WL w M-13 Unc



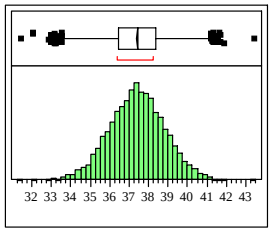
Quantiles

100.0%	maximum	41.965
99.5%		40.671
97.5%		39.835
90.0%		38.926
75.0%	quartile	38.112
50.0%	median	37.221
25.0%	quartile	36.318
10.0%		35.481
2.5%		34.515
0.5%		33.446
0.0%	minimum	31.262

Moments

Mean	37.210615
Std Dev	1.3498274
Std Err Mean	0.0134983
upper 95% Mean	37.237074
lower 95% Mean	37.184156
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	43.464
99.5%		40.895
97.5%		40.184
90.0%		39.217
75.0%	quartile	38.363
50.0%	median	37.418
25.0%	quartile	36.466
10.0%		35.607
2.5%		34.604
0.5%		33.758
0.0%	minimum	31.463

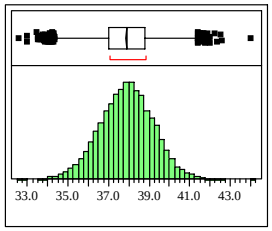
Moments

Mean	37.411252
Std Dev	1.4035765
Std Err Mean	0.0140358
upper 95% Mean	37.438765
lower 95% Mean	37.38374
N	10000

Batch=310

SME Estimated WL = 38.41
WL Re-Calc = 38.40

Estimated WL w M-13 Unc



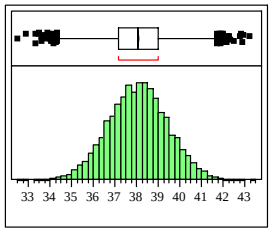
Quantiles

100.0%	maximum	44.063
99.5%		41.280
97.5%		40.476
90.0%		39.562
75.0%	quartile	38.771
50.0%	median	37.913
25.0%	quartile	37.010
10.0%		36.195
2.5%		35.222
0.5%		34.317
0.0%	minimum	32.581

Moments

Mean	37.889748
Std Dev	1.3240635
Std Err Mean	0.0132406
upper 95% Mean	37.915702
lower 95% Mean	37.863794
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	43.265
99.5%		41.579
97.5%		40.753
90.0%		39.837
75.0%	quartile	38.976
50.0%	median	38.081
25.0%	quartile	37.140
10.0%		36.310
2.5%		35.354
0.5%		34.446
0.0%	minimum	32.519

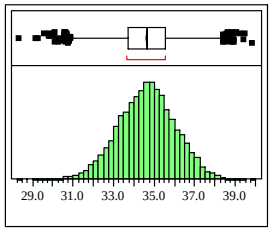
Moments

Mean	38.064339
Std Dev	1.3730231
Std Err Mean	0.0137302
upper 95% Mean	38.091253
lower 95% Mean	38.037425
N	10000

Batch=311

SME Estimated WL = 35.19
WL Re-Calc = 35.18

Estimated WL w M-13 Unc



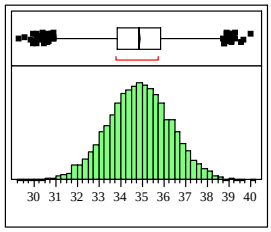
Quantiles

100.0%	maximum	39.839
99.5%		38.130
97.5%		37.325
90.0%		36.451
75.0%	quartile	35.566
50.0%	median	34.664
25.0%	quartile	33.691
10.0%		32.835
2.5%		31.823
0.5%		30.878
0.0%	minimum	28.336

Moments

Mean	34.63441
Std Dev	1.4065654
Std Err Mean	0.0140657
upper 95% Mean	34.661982
lower 95% Mean	34.606839
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	40.068
99.5%		38.478
97.5%		37.697
90.0%		36.707
75.0%	quartile	35.847
50.0%	median	34.862
25.0%	quartile	33.889
10.0%		33.022
2.5%		31.970
0.5%		31.085
0.0%	minimum	29.321

Moments

Mean	34.861684
Std Dev	1.4440609
Std Err Mean	0.0144406
upper 95% Mean	34.88999
lower 95% Mean	34.833377
N	10000

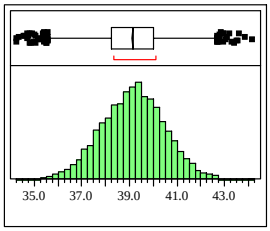
Exhibit A11. Sensitivity of SME WL Estimations to the Uncertainties of This Report

(continued)

Batch=312

SME Estimated WL = 39.68
WL Re-Calc = 39.67

Estimated WL w M-13 Unc



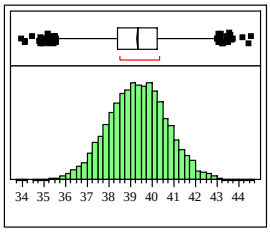
Quantiles

100.0%	maximum	44.187
99.5%		42.494
97.5%		41.702
90.0%		40.821
75.0%	quartile	40.032
50.0%	median	39.170
25.0%	quartile	38.265
10.0%		37.436
2.5%		36.529
0.5%		35.707
0.0%	minimum	34.259

Moments

Mean	39.143758
Std Dev	1.3196433
Std Err Mean	0.0131964
upper 95% Mean	39.169626
lower 95% Mean	39.117891
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	44.639
99.5%		42.797
97.5%		41.970
90.0%		41.070
75.0%	quartile	40.256
50.0%	median	39.340
25.0%	quartile	38.408
10.0%		37.574
2.5%		36.654
0.5%		35.857
0.0%	minimum	33.975

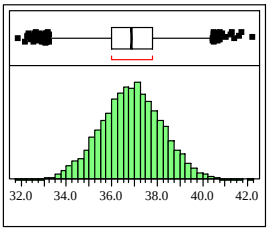
Moments

Mean	39.337947
Std Dev	1.3625463
Std Err Mean	0.0136255
upper 95% Mean	39.364655
lower 95% Mean	39.311238
N	10000

Batch=313

SME Estimated WL = 37.40
WL Re-Calc = 37.39

Estimated WL w M-13 Unc



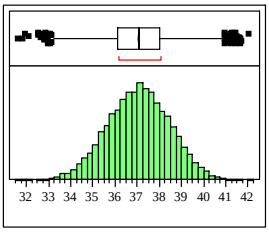
Quantiles

100.0%	maximum	42.244
99.5%		40.278
97.5%		39.490
90.0%		38.600
75.0%	quartile	37.776
50.0%	median	36.879
25.0%	quartile	35.973
10.0%		35.141
2.5%		34.167
0.5%		33.418
0.0%	minimum	31.894

Moments

Mean	36.86741
Std Dev	1.3476589
Std Err Mean	0.0134766
upper 95% Mean	36.893827
lower 95% Mean	36.840993
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	42.083
99.5%		40.640
97.5%		39.784
90.0%		38.870
75.0%	quartile	38.035
50.0%	median	37.089
25.0%	quartile	36.107
10.0%		35.254
2.5%		34.294
0.5%		33.475
0.0%	minimum	31.654

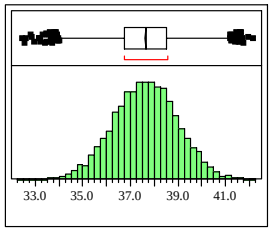
Moments

Mean	37.071328
Std Dev	1.4087612
Std Err Mean	0.0140876
upper 95% Mean	37.098943
lower 95% Mean	37.043714
N	10000

Batch=314

SME Estimated WL = 38.19
WL Re-Calc = 38.18

Estimated WL w M-13 Unc



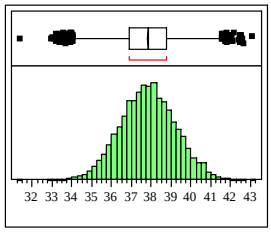
Quantiles

100.0%	maximum	42.169
99.5%		41.067
97.5%		40.215
90.0%		39.330
75.0%	quartile	38.527
50.0%	median	37.641
25.0%	quartile	36.729
10.0%		35.914
2.5%		34.945
0.5%		34.189
0.0%	minimum	32.465

Moments

Mean	37.629142
Std Dev	1.3329946
Std Err Mean	0.0133299
upper 95% Mean	37.655272
lower 95% Mean	37.603013
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	43.073
99.5%		41.380
97.5%		40.587
90.0%		39.617
75.0%	quartile	38.764
50.0%	median	37.834
25.0%	quartile	36.885
10.0%		36.068
2.5%		35.130
0.5%		34.171
0.0%	minimum	31.376

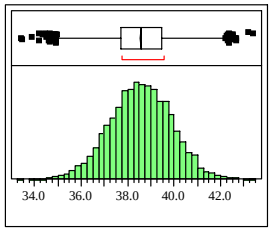
Moments

Mean	37.832113
Std Dev	1.3916569
Std Err Mean	0.0139166
upper 95% Mean	37.859393
lower 95% Mean	37.804834
N	10000

Batch=315

SME Estimated WL = 39.11
WL Re-Calc = 39.10

Estimated WL w M-13 Unc



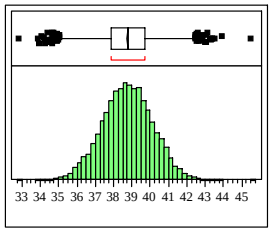
Quantiles

100.0%	maximum	43.441
99.5%		41.960
97.5%		41.066
90.0%		40.230
75.0%	quartile	39.483
50.0%	median	38.577
25.0%	quartile	37.682
10.0%		36.869
2.5%		35.901
0.5%		35.079
0.0%	minimum	33.408

Moments

Mean	38.560447
Std Dev	1.3196455
Std Err Mean	0.0131965
upper 95% Mean	38.586314
lower 95% Mean	38.534579
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	45.532
99.5%		42.250
97.5%		41.418
90.0%		40.525
75.0%	quartile	39.686
50.0%	median	38.761
25.0%	quartile	37.839
10.0%		36.999
2.5%		36.032
0.5%		35.229
0.0%	minimum	32.841

Moments

Mean	38.757848
Std Dev	1.3709395
Std Err Mean	0.0137094
upper 95% Mean	38.784721
lower 95% Mean	38.730975
N	10000

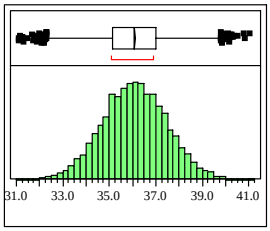
Exhibit A11. Sensitivity of SME WL Estimations to the Uncertainties of This Report

(continued)

Batch=316

SME Estimated WL = 36.66
WL Re-Calc = 36.65

Estimated WL w M-13 Unc



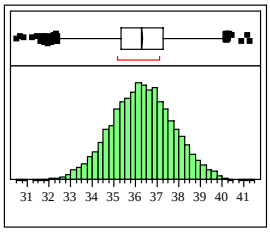
Quantiles

100.0%	maximum	41.069
99.5%		39.639
97.5%		38.809
90.0%		37.856
75.0%	quartile	37.020
50.0%	median	36.089
25.0%	quartile	35.153
10.0%		34.336
2.5%		33.413
0.5%		32.494
0.0%	minimum	31.121

Moments

Mean	36.090261
Std Dev	1.3756626
Std Err Mean	0.0137566
upper 95% Mean	36.117227
lower 95% Mean	36.063295
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	41.296
99.5%		39.755
97.5%		39.116
90.0%		38.148
75.0%	quartile	37.265
50.0%	median	36.296
25.0%	quartile	35.326
10.0%		34.463
2.5%		33.459
0.5%		32.651
0.0%	minimum	30.541

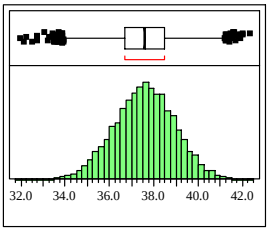
Moments

Mean	36.297665
Std Dev	1.4279314
Std Err Mean	0.0142793
upper 95% Mean	36.325655
lower 95% Mean	36.269675
N	10000

Batch=317

SME Estimated WL = 38.14
WL Re-Calc = 38.12

Estimated WL w M-13 Unc



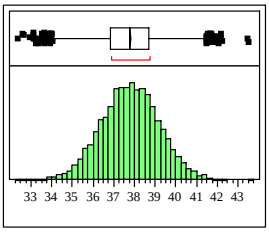
Quantiles

100.0%	maximum	42.379
99.5%		40.990
97.5%		40.189
90.0%		39.290
75.0%	quartile	38.498
50.0%	median	37.613
25.0%	quartile	36.685
10.0%		35.809
2.5%		34.906
0.5%		34.021
0.0%	minimum	31.978

Moments

Mean	37.58321
Std Dev	1.353587
Std Err Mean	0.0135359
upper 95% Mean	37.609743
lower 95% Mean	37.556677
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	43.538
99.5%		41.350
97.5%		40.490
90.0%		39.541
75.0%	quartile	38.720
50.0%	median	37.795
25.0%	quartile	36.864
10.0%		36.011
2.5%		35.098
0.5%		34.171
0.0%	minimum	32.378

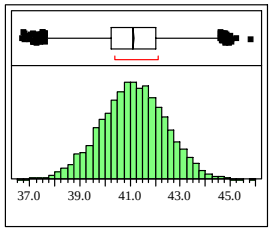
Moments

Mean	37.789871
Std Dev	1.3854777
Std Err Mean	0.0138548
upper 95% Mean	37.817029
lower 95% Mean	37.762713
N	10000

Batch=318

SME Estimated WL = 41.64
WL Re-Calc = 41.63

Estimated WL w M-13 Unc



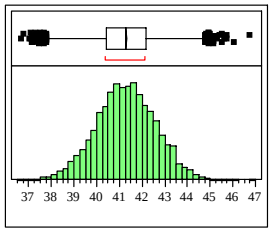
Quantiles

100.0%	maximum	45.820
99.5%		44.289
97.5%		43.585
90.0%		42.773
75.0%	quartile	42.002
50.0%	median	41.129
25.0%	quartile	40.262
10.0%		39.457
2.5%		38.549
0.5%		37.818
0.0%	minimum	36.708

Moments

Mean	41.12148
Std Dev	1.287708
Std Err Mean	0.0128771
upper 95% Mean	41.146721
lower 95% Mean	41.096238
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	46.777
99.5%		44.615
97.5%		43.819
90.0%		42.966
75.0%	quartile	42.175
50.0%	median	41.292
25.0%	quartile	40.435
10.0%		39.633
2.5%		38.721
0.5%		37.862
0.0%	minimum	36.711

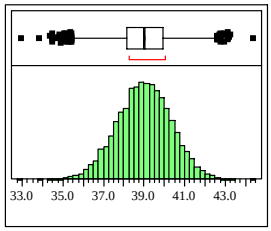
Moments

Mean	41.292436
Std Dev	1.2985365
Std Err Mean	0.0129854
upper 95% Mean	41.317889
lower 95% Mean	41.266982
N	10000

Batch=319

SME Estimated WL = 39.53
WL Re-Calc = 39.52

Estimated WL w M-13 Unc



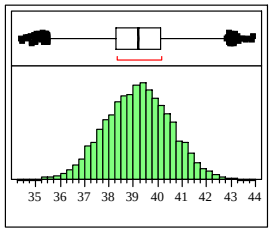
Quantiles

100.0%	maximum	44.400
99.5%		42.288
97.5%		41.511
90.0%		40.675
75.0%	quartile	39.901
50.0%	median	39.016
25.0%	quartile	38.123
10.0%		37.306
2.5%		36.368
0.5%		35.521
0.0%	minimum	32.932

Moments

Mean	39.000303
Std Dev	1.3153234
Std Err Mean	0.0131532
upper 95% Mean	39.026086
lower 95% Mean	38.97452
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	43.907
99.5%		42.591
97.5%		41.783
90.0%		40.916
75.0%	quartile	40.103
50.0%	median	39.210
25.0%	quartile	38.276
10.0%		37.448
2.5%		36.550
0.5%		35.589
0.0%	minimum	34.411

Moments

Mean	39.186375
Std Dev	1.3469502
Std Err Mean	0.0134695
upper 95% Mean	39.212778
lower 95% Mean	39.159972
N	10000

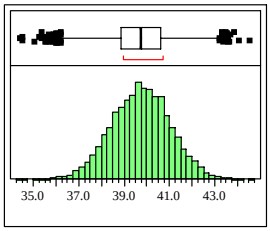
Exhibit A11. Sensitivity of SME WL Estimations to the Uncertainties of This Report

(continued)

Batch=320

SME Estimated WL = 40.26
WL Re-Calc = 40.25

Estimated WL w M-13 Unc



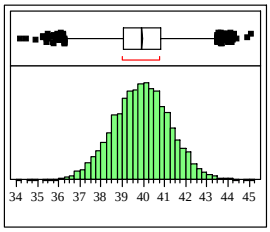
Quantiles

100.0%	maximum	44.573
99.5%		42.984
97.5%		42.223
90.0%		41.372
75.0%	quartile	40.618
50.0%	median	39.755
25.0%	quartile	38.865
10.0%		38.066
2.5%		37.177
0.5%		36.237
0.0%	minimum	34.460

Moments

Mean	39.736706
Std Dev	1.293499
Std Err Mean	0.012935
upper 95% Mean	39.762061
lower 95% Mean	39.711351
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	45.088
99.5%		43.457
97.5%		42.550
90.0%		41.623
75.0%	quartile	40.810
50.0%	median	39.935
25.0%	quartile	39.031
10.0%		38.212
2.5%		37.285
0.5%		36.471
0.0%	minimum	34.175

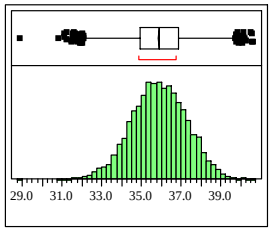
Moments

Mean	39.924359
Std Dev	1.3415177
Std Err Mean	0.0134152
upper 95% Mean	39.950656
lower 95% Mean	39.898063
N	10000

Batch=321

SME Estimated WL = 36.44
WL Re-Calc = 36.43

Estimated WL w M-13 Unc



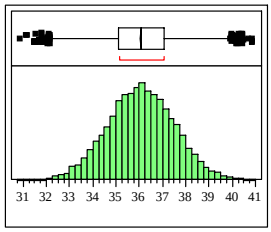
Quantiles

100.0%	maximum	40.666
99.5%		39.373
97.5%		38.576
90.0%		37.689
75.0%	quartile	36.847
50.0%	median	35.896
25.0%	quartile	34.958
10.0%		34.123
2.5%		33.110
0.5%		32.180
0.0%	minimum	28.889

Moments

Mean	35.895942
Std Dev	1.3888317
Std Err Mean	0.0138883
upper 95% Mean	35.923166
lower 95% Mean	35.868718
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	40.894
99.5%		39.697
97.5%		38.831
90.0%		37.893
75.0%	quartile	37.045
50.0%	median	36.065
25.0%	quartile	35.114
10.0%		34.233
2.5%		33.271
0.5%		32.452
0.0%	minimum	30.883

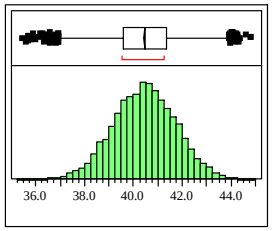
Moments

Mean	36.070001
Std Dev	1.4186111
Std Err Mean	0.0141861
upper 95% Mean	36.097809
lower 95% Mean	36.042193
N	10000

Batch=322

SME Estimated WL = 40.97
WL Re-Calc = 40.96

Estimated WL w M-13 Unc



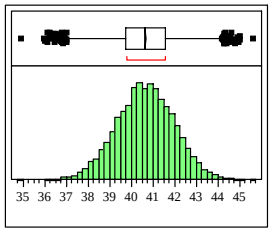
Quantiles

100.0%	maximum	44.824
99.5%		43.658
97.5%		42.954
90.0%		42.077
75.0%	quartile	41.334
50.0%	median	40.462
25.0%	quartile	39.590
10.0%		38.796
2.5%		37.888
0.5%		36.997
0.0%	minimum	35.481

Moments

Mean	40.450431
Std Dev	1.2843562
Std Err Mean	0.0128436
upper 95% Mean	40.475607
lower 95% Mean	40.425255
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	45.680
99.5%		44.144
97.5%		43.246
90.0%		42.344
75.0%	quartile	41.556
50.0%	median	40.651
25.0%	quartile	39.762
10.0%		38.944
2.5%		38.001
0.5%		37.165
0.0%	minimum	34.938

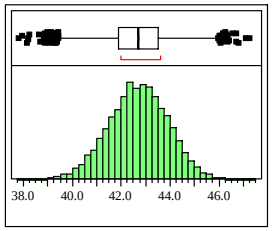
Moments

Mean	40.649999
Std Dev	1.3364622
Std Err Mean	0.0133646
upper 95% Mean	40.676196
lower 95% Mean	40.623801
N	10000

Batch=323

SME Estimated WL = 43.18
WL Re-Calc = 43.17

Estimated WL w M-13 Unc



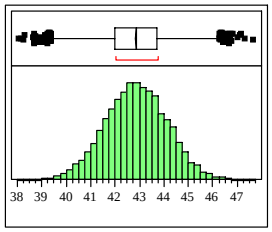
Quantiles

100.0%	maximum	47.257
99.5%		45.727
97.5%		45.013
90.0%		44.239
75.0%	quartile	43.531
50.0%	median	42.718
25.0%	quartile	41.896
10.0%		41.115
2.5%		40.267
0.5%		39.430
0.0%	minimum	37.809

Moments

Mean	42.69832
Std Dev	1.2157632
Std Err Mean	0.0121576
upper 95% Mean	42.722152
lower 95% Mean	42.674489
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	47.662
99.5%		46.116
97.5%		45.350
90.0%		44.480
75.0%	quartile	43.723
50.0%	median	42.864
25.0%	quartile	42.001
10.0%		41.233
2.5%		40.342
0.5%		39.519
0.0%	minimum	38.068

Moments

Mean	42.859422
Std Dev	1.2738397
Std Err Mean	0.0127384
upper 95% Mean	42.884392
lower 95% Mean	42.834452
N	10000

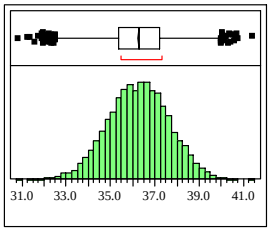
Exhibit A11. Sensitivity of SME WL Estimations to the Uncertainties of This Report

(continued)

Batch=324

SME Estimated WL = 36.82
WL Re-Calc = 36.80

Estimated WL w M-13 Unc



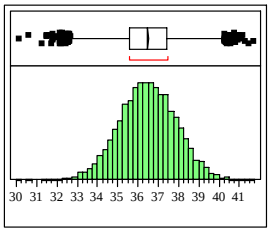
Quantiles

100.0%	maximum	41.405
99.5%		39.565
97.5%		38.883
90.0%		38.035
75.0%	quartile	37.203
50.0%	median	36.283
25.0%	quartile	35.341
10.0%		34.502
2.5%		33.599
0.5%		32.701
0.0%	minimum	30.822

Moments

Mean	36.265971
Std Dev	1.3682013
Std Err Mean	0.013682
upper 95% Mean	36.29279
lower 95% Mean	36.239151
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	41.748
99.5%		40.064
97.5%		39.219
90.0%		38.271
75.0%	quartile	37.441
50.0%	median	36.479
25.0%	quartile	35.549
10.0%		34.693
2.5%		33.714
0.5%		32.823
0.0%	minimum	30.156

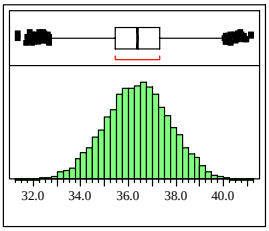
Moments

Mean	36.485249
Std Dev	1.4027897
Std Err Mean	0.0140279
upper 95% Mean	36.512746
lower 95% Mean	36.457751
N	10000

Batch=325

SME Estimated WL = 36.91
WL Re-Calc = 36.90

Estimated WL w M-13 Unc



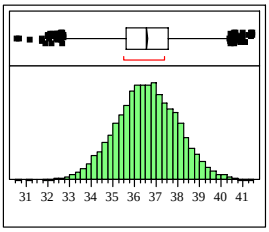
Quantiles

100.0%	maximum	41.175
99.5%		39.867
97.5%		38.996
90.0%		38.139
75.0%	quartile	37.290
50.0%	median	36.387
25.0%	quartile	35.467
10.0%		34.607
2.5%		33.652
0.5%		32.784
0.0%	minimum	31.380

Moments

Mean	36.371246
Std Dev	1.3757693
Std Err Mean	0.0137577
upper 95% Mean	36.398214
lower 95% Mean	36.344278
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	41.485
99.5%		40.253
97.5%		39.310
90.0%		38.362
75.0%	quartile	37.538
50.0%	median	36.570
25.0%	quartile	35.627
10.0%		34.743
2.5%		33.777
0.5%		32.886
0.0%	minimum	30.566

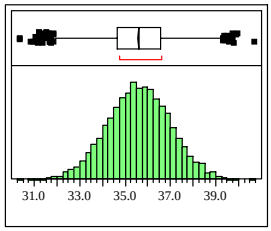
Moments

Mean	36.566826
Std Dev	1.415802
Std Err Mean	0.014158
upper 95% Mean	36.594579
lower 95% Mean	36.539073
N	10000

Batch=326

SME Estimated WL = 36.15
WL Re-Calc = 36.13

Estimated WL w M-13 Unc



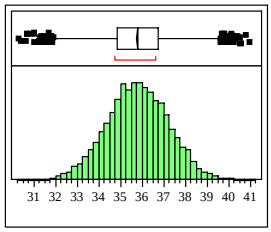
Quantiles

100.0%	maximum	40.746
99.5%		39.010
97.5%		38.315
90.0%		37.372
75.0%	quartile	36.550
50.0%	median	35.610
25.0%	quartile	34.677
10.0%		33.817
2.5%		32.873
0.5%		31.968
0.0%	minimum	30.377

Moments

Mean	35.603994
Std Dev	1.3783281
Std Err Mean	0.0137833
upper 95% Mean	35.631012
lower 95% Mean	35.576976
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	41.018
99.5%		39.509
97.5%		38.556
90.0%		37.631
75.0%	quartile	36.767
50.0%	median	35.787
25.0%	quartile	34.837
10.0%		33.958
2.5%		32.938
0.5%		32.100
0.0%	minimum	30.313

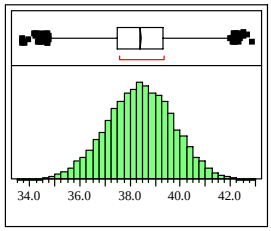
Moments

Mean	35.789996
Std Dev	1.4306256
Std Err Mean	0.0143063
upper 95% Mean	35.818039
lower 95% Mean	35.761953
N	10000

Batch=327

SME Estimated WL = 38.92
WL Re-Calc = 38.91

Estimated WL w M-13 Unc



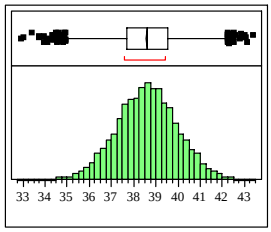
Quantiles

100.0%	maximum	42.879
99.5%		41.718
97.5%		40.941
90.0%		40.095
75.0%	quartile	39.308
50.0%	median	38.405
25.0%	quartile	37.502
10.0%		36.670
2.5%		35.774
0.5%		34.987
0.0%	minimum	33.718

Moments

Mean	38.397045
Std Dev	1.325846
Std Err Mean	0.0132585
upper 95% Mean	38.423034
lower 95% Mean	38.371055
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	43.402
99.5%		42.091
97.5%		41.322
90.0%		40.367
75.0%	quartile	39.514
50.0%	median	38.611
25.0%	quartile	37.694
10.0%		36.839
2.5%		35.884
0.5%		34.946
0.0%	minimum	32.923

Moments

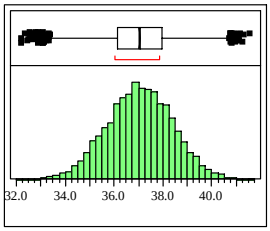
Mean	38.604571
Std Dev	1.3707112
Std Err Mean	0.0137071
upper 95% Mean	38.63144
lower 95% Mean	38.577702
N	10000

Exhibit A11. Sensitivity of SME WL Estimations to the Uncertainties of This Report
(continued)

Batch=328

SME Estimated WL = 37.58
WL Re-Calc = 37.57

Estimated WL w M-13 Unc



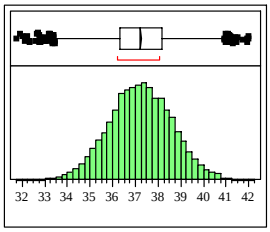
Quantiles

100.0%	maximum	41.562
99.5%		40.446
97.5%		39.657
90.0%		38.765
75.0%	quartile	37.979
50.0%	median	37.049
25.0%	quartile	36.146
10.0%		35.260
2.5%		34.359
0.5%		33.466
0.0%	minimum	32.231

Moments

Mean	37.041449
Std Dev	1.3566958
Std Err Mean	0.013567
upper 95% Mean	37.068043
lower 95% Mean	37.014855
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	42.032
99.5%		40.717
97.5%		39.936
90.0%		38.984
75.0%	quartile	38.171
50.0%	median	37.229
25.0%	quartile	36.303
10.0%		35.455
2.5%		34.482
0.5%		33.602
0.0%	minimum	31.785

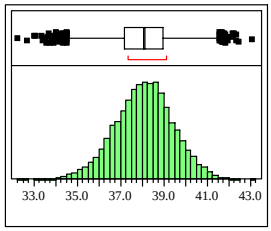
Moments

Mean	37.225888
Std Dev	1.383576
Std Err Mean	0.0138358
upper 95% Mean	37.253009
lower 95% Mean	37.198767
N	10000

Batch=329

SME Estimated WL = 38.62
WL Re-Calc = 38.61

Estimated WL w M-13 Unc



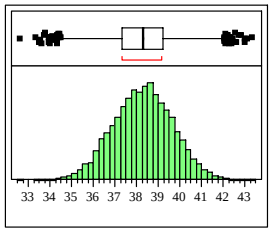
Quantiles

100.0%	maximum	43.126
99.5%		41.360
97.5%		40.682
90.0%		39.784
75.0%	quartile	38.962
50.0%	median	38.116
25.0%	quartile	37.210
10.0%		36.361
2.5%		35.326
0.5%		34.463
0.0%	minimum	32.277

Moments

Mean	38.083757
Std Dev	1.3395347
Std Err Mean	0.0133953
upper 95% Mean	38.110015
lower 95% Mean	38.0575
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	43.346
99.5%		41.766
97.5%		40.943
90.0%		40.034
75.0%	quartile	39.227
50.0%	median	38.310
25.0%	quartile	37.351
10.0%		36.487
2.5%		35.553
0.5%		34.721
0.0%	minimum	32.646

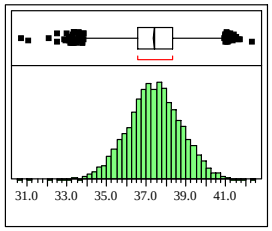
Moments

Mean	38.281371
Std Dev	1.3779735
Std Err Mean	0.0137797
upper 95% Mean	38.308382
lower 95% Mean	38.25436
N	10000

Batch=330

SME Estimated WL = 37.96
WL Re-Calc = 37.94

Estimated WL w M-13 Unc



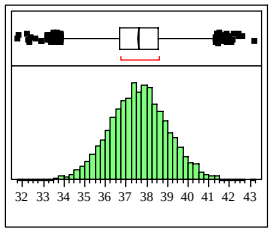
Quantiles

100.0%	maximum	42.357
99.5%		40.736
97.5%		39.988
90.0%		39.134
75.0%	quartile	38.303
50.0%	median	37.411
25.0%	quartile	36.536
10.0%		35.663
2.5%		34.727
0.5%		33.949
0.0%	minimum	30.720

Moments

Mean	37.403451
Std Dev	1.3390252
Std Err Mean	0.0133903
upper 95% Mean	37.429699
lower 95% Mean	37.377204
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	43.242
99.5%		41.262
97.5%		40.357
90.0%		39.424
75.0%	quartile	38.540
50.0%	median	37.613
25.0%	quartile	36.680
10.0%		35.810
2.5%		34.855
0.5%		33.862
0.0%	minimum	31.805

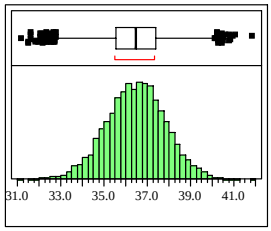
Moments

Mean	37.614431
Std Dev	1.4020567
Std Err Mean	0.0140206
upper 95% Mean	37.641914
lower 95% Mean	37.586948
N	10000

Batch=331

SME Estimated WL = 37.01
WL Re-Calc = 37.00

Estimated WL w M-13 Unc



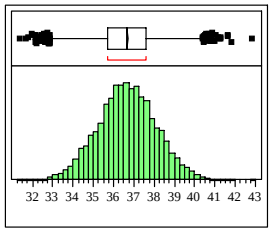
Quantiles

100.0%	maximum	41.853
99.5%		39.874
97.5%		39.112
90.0%		38.166
75.0%	quartile	37.387
50.0%	median	36.493
25.0%	quartile	35.563
10.0%		34.722
2.5%		33.705
0.5%		32.687
0.0%	minimum	31.189

Moments

Mean	36.462992
Std Dev	1.362866
Std Err Mean	0.0136287
upper 95% Mean	36.489707
lower 95% Mean	36.436277
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	42.862
99.5%		40.227
97.5%		39.473
90.0%		38.492
75.0%	quartile	37.598
50.0%	median	36.649
25.0%	quartile	35.714
10.0%		34.803
2.5%		33.825
0.5%		32.947
0.0%	minimum	31.394

Moments

Mean	36.653935
Std Dev	1.4286004
Std Err Mean	0.014286
upper 95% Mean	36.681938
lower 95% Mean	36.625931
N	10000

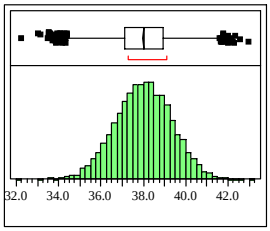
Exhibit A11. Sensitivity of SME WL Estimations to the Uncertainties of This Report

(continued)

Batch=332

SME Estimated WL = 38.56
WL Re-Calc = 38.54

Estimated WL w M-13 Unc



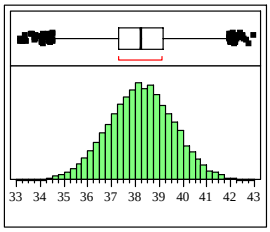
Quantiles

100.0%	maximum	43.005
99.5%		41.378
97.5%		40.575
90.0%		39.719
75.0%	quartile	38.923
50.0%	median	38.025
25.0%	quartile	37.112
10.0%		36.284
2.5%		35.329
0.5%		34.405
0.0%	minimum	32.246

Moments

Mean	38.004291
Std Dev	1.3386673
Std Err Mean	0.0133867
upper 95% Mean	38.030531
lower 95% Mean	37.97805
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	42.967
99.5%		41.723
97.5%		40.902
90.0%		39.973
75.0%	quartile	39.151
50.0%	median	38.234
25.0%	quartile	37.311
10.0%		36.436
2.5%		35.465
0.5%		34.609
0.0%	minimum	33.175

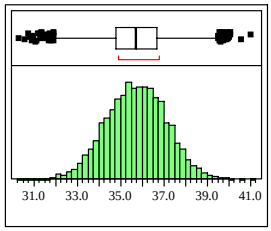
Moments

Mean	38.224194
Std Dev	1.3828483
Std Err Mean	0.0138285
upper 95% Mean	38.251301
lower 95% Mean	38.197088
N	10000

Batch=333

SME Estimated WL = 36.25
WL Re-Calc = 36.24

Estimated WL w M-13 Unc



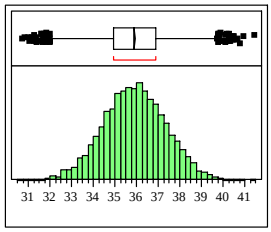
Quantiles

100.0%	maximum	41.083
99.5%		39.209
97.5%		38.361
90.0%		37.452
75.0%	quartile	36.682
50.0%	median	35.735
25.0%	quartile	34.785
10.0%		33.960
2.5%		33.026
0.5%		32.077
0.0%	minimum	30.332

Moments

Mean	35.72104
Std Dev	1.3762476
Std Err Mean	0.0137625
upper 95% Mean	35.748017
lower 95% Mean	35.694063
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	41.500
99.5%		39.535
97.5%		38.666
90.0%		37.759
75.0%	quartile	36.870
50.0%	median	35.890
25.0%	quartile	34.938
10.0%		34.067
2.5%		33.068
0.5%		32.183
0.0%	minimum	30.744

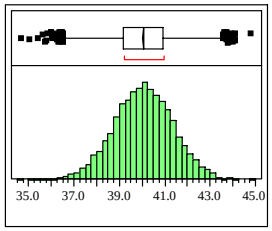
Moments

Mean	35.899514
Std Dev	1.4312406
Std Err Mean	0.0143124
upper 95% Mean	35.927569
lower 95% Mean	35.871459
N	10000

Batch=334

SME Estimated WL = 40.56
WL Re-Calc = 40.55

Estimated WL w M-13 Unc



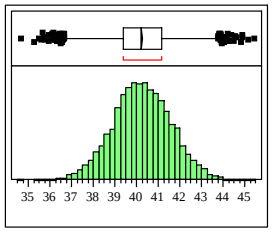
Quantiles

100.0%	maximum	44.800
99.5%		43.203
97.5%		42.558
90.0%		41.703
75.0%	quartile	40.940
50.0%	median	40.064
25.0%	quartile	39.193
10.0%		38.423
2.5%		37.500
0.5%		36.657
0.0%	minimum	34.697

Moments

Mean	40.06149
Std Dev	1.2863239
Std Err Mean	0.0128632
upper 95% Mean	40.086705
lower 95% Mean	40.036276
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	45.465
99.5%		43.717
97.5%		42.874
90.0%		41.943
75.0%	quartile	41.151
50.0%	median	40.229
25.0%	quartile	39.368
10.0%		38.550
2.5%		37.617
0.5%		36.764
0.0%	minimum	34.696

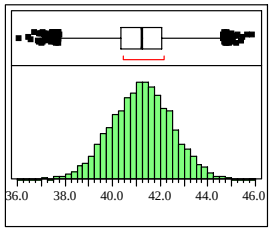
Moments

Mean	40.243954
Std Dev	1.336991
Std Err Mean	0.0133699
upper 95% Mean	40.270162
lower 95% Mean	40.217746
N	10000

Batch=335

SME Estimated WL = 41.73
WL Re-Calc = 41.72

Estimated WL w M-13 Unc



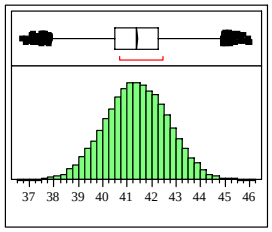
Quantiles

100.0%	maximum	45.875
99.5%		44.582
97.5%		43.746
90.0%		42.834
75.0%	quartile	42.077
50.0%	median	41.240
25.0%	quartile	40.358
10.0%		39.562
2.5%		38.669
0.5%		37.764
0.0%	minimum	36.052

Moments

Mean	41.215031
Std Dev	1.2838864
Std Err Mean	0.0128389
upper 95% Mean	41.240198
lower 95% Mean	41.189864
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	46.028
99.5%		44.799
97.5%		43.922
90.0%		43.060
75.0%	quartile	42.281
50.0%	median	41.393
25.0%	quartile	40.510
10.0%		39.695
2.5%		38.811
0.5%		37.874
0.0%	minimum	36.720

Moments

Mean	41.385617
Std Dev	1.3123099
Std Err Mean	0.0131231
upper 95% Mean	41.411341
lower 95% Mean	41.359893
N	10000

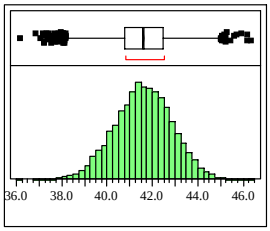
Exhibit A11. Sensitivity of SME WL Estimations to the Uncertainties of This Report

(continued)

Batch=336

SME Estimated WL = 42.11
WL Re-Calc = 42.10

Estimated WL w M-13 Unc



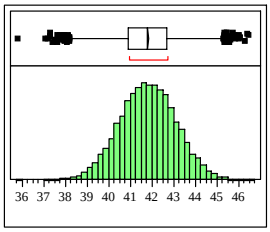
Quantiles

100.0%	maximum	46.347
99.5%		44.656
97.5%		43.964
90.0%		43.200
75.0%	quartile	42.467
50.0%	median	41.604
25.0%	quartile	40.759
10.0%		39.969
2.5%		39.088
0.5%		38.181
0.0%	minimum	36.178

Moments

Mean	41.594316
Std Dev	1.2617997
Std Err Mean	0.012618
upper 95% Mean	41.61905
lower 95% Mean	41.569582
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	46.506
99.5%		45.079
97.5%		44.333
90.0%		43.456
75.0%	quartile	42.692
50.0%	median	41.812
25.0%	quartile	40.921
10.0%		40.141
2.5%		39.256
0.5%		38.469
0.0%	minimum	35.857

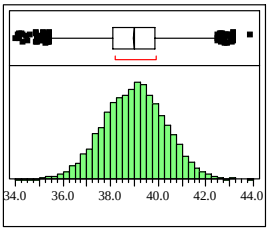
Moments

Mean	41.808405
Std Dev	1.2996823
Std Err Mean	0.0129968
upper 95% Mean	41.833881
lower 95% Mean	41.782928
N	10000

Batch=337

SME Estimated WL = 39.53
WL Re-Calc = 39.52

Estimated WL w M-13 Unc



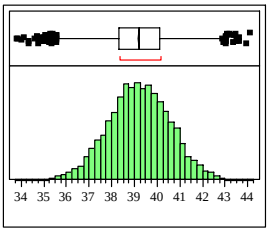
Quantiles

100.0%	maximum	43.891
99.5%		42.321
97.5%		41.515
90.0%		40.653
75.0%	quartile	39.872
50.0%	median	39.019
25.0%	quartile	38.107
10.0%		37.337
2.5%		36.414
0.5%		35.444
0.0%	minimum	34.047

Moments

Mean	38.992986
Std Dev	1.3030834
Std Err Mean	0.0130308
upper 95% Mean	39.018529
lower 95% Mean	38.967443
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	44.136
99.5%		42.551
97.5%		41.858
90.0%		40.923
75.0%	quartile	40.138
50.0%	median	39.204
25.0%	quartile	38.314
10.0%		37.456
2.5%		36.507
0.5%		35.696
0.0%	minimum	33.805

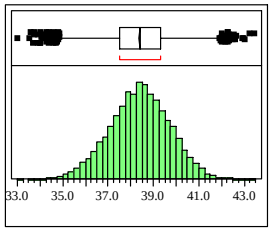
Moments

Mean	39.204436
Std Dev	1.3554619
Std Err Mean	0.0135546
upper 95% Mean	39.231006
lower 95% Mean	39.177867
N	10000

Batch=338

SME Estimated WL = 38.92
WL Re-Calc = 38.91

Estimated WL w M-13 Unc



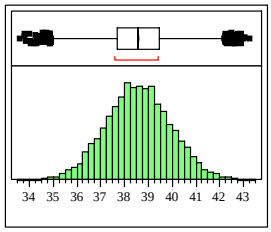
Quantiles

100.0%	maximum	43.482
99.5%		41.772
97.5%		40.948
90.0%		40.080
75.0%	quartile	39.288
50.0%	median	38.409
25.0%	quartile	37.530
10.0%		36.649
2.5%		35.679
0.5%		34.780
0.0%	minimum	33.045

Moments

Mean	38.392877
Std Dev	1.3332897
Std Err Mean	0.0133329
upper 95% Mean	38.419012
lower 95% Mean	38.366742
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	43.266
99.5%		42.167
97.5%		41.251
90.0%		40.347
75.0%	quartile	39.484
50.0%	median	38.568
25.0%	quartile	37.668
10.0%		36.813
2.5%		35.878
0.5%		34.971
0.0%	minimum	33.651

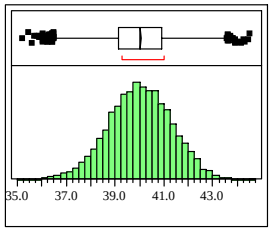
Moments

Mean	38.574156
Std Dev	1.3702144
Std Err Mean	0.0137021
upper 95% Mean	38.601015
lower 95% Mean	38.547297
N	10000

Batch=339

SME Estimated WL = 40.55
WL Re-Calc = 40.53

Estimated WL w M-13 Unc



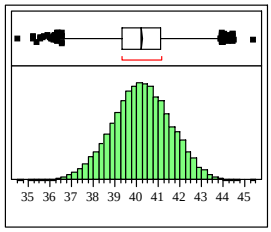
Quantiles

100.0%	maximum	44.553
99.5%		43.234
97.5%		42.468
90.0%		41.693
75.0%	quartile	40.921
50.0%	median	40.032
25.0%	quartile	39.157
10.0%		38.370
2.5%		37.432
0.5%		36.574
0.0%	minimum	35.204

Moments

Mean	40.024368
Std Dev	1.2926916
Std Err Mean	0.0129269
upper 95% Mean	40.049707
lower 95% Mean	39.999029
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	45.410
99.5%		43.566
97.5%		42.798
90.0%		41.975
75.0%	quartile	41.134
50.0%	median	40.223
25.0%	quartile	39.329
10.0%		38.487
2.5%		37.556
0.5%		36.776
0.0%	minimum	34.544

Moments

Mean	40.224528
Std Dev	1.3444281
Std Err Mean	0.0134443
upper 95% Mean	40.250881
lower 95% Mean	40.198174
N	10000

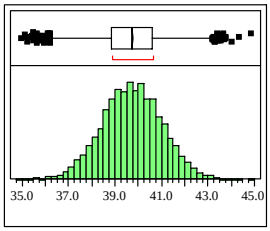
Exhibit A11. Sensitivity of SME WL Estimations to the Uncertainties of This Report

(continued)

Batch=340

SME Estimated WL = 40.28
WL Re-Calc = 40.27

Estimated WL w M-13 Unc



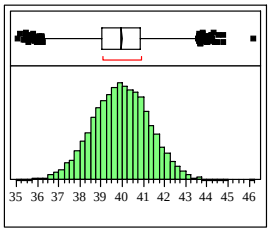
Quantiles

100.0%	maximum	44.886
99.5%		43.079
97.5%		42.239
90.0%		41.376
75.0%	quartile	40.608
50.0%	median	39.727
25.0%	quartile	38.865
10.0%		38.102
2.5%		37.205
0.5%		36.287
0.0%	minimum	34.988

Moments

Mean	39.732825
Std Dev	1.2871393
Std Err Mean	0.0128714
upper 95% Mean	39.758055
lower 95% Mean	39.707594
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	46.243
99.5%		43.392
97.5%		42.559
90.0%		41.667
75.0%	quartile	40.865
50.0%	median	39.960
25.0%	quartile	39.034
10.0%		38.224
2.5%		37.309
0.5%		36.490
0.0%	minimum	35.088

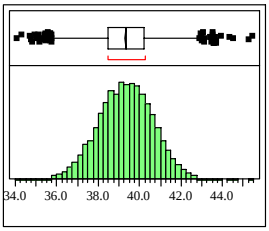
Moments

Mean	39.948903
Std Dev	1.3431169
Std Err Mean	0.0134312
upper 95% Mean	39.97523
lower 95% Mean	39.922575
N	10000

Batch=341

SME Estimated WL = 39.86
WL Re-Calc = 39.85

Estimated WL w M-13 Unc



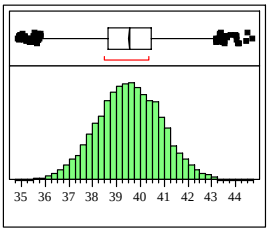
Quantiles

100.0%	maximum	45.448
99.5%		42.609
97.5%		41.855
90.0%		40.995
75.0%	quartile	40.238
50.0%	median	39.354
25.0%	quartile	38.453
10.0%		37.637
2.5%		36.721
0.5%		35.928
0.0%	minimum	34.083

Moments

Mean	39.33531
Std Dev	1.3143443
Std Err Mean	0.0131434
upper 95% Mean	39.361073
lower 95% Mean	39.309546
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	44.707
99.5%		43.018
97.5%		42.176
90.0%		41.224
75.0%	quartile	40.463
50.0%	median	39.529
25.0%	quartile	38.631
10.0%		37.803
2.5%		36.890
0.5%		36.086
0.0%	minimum	34.864

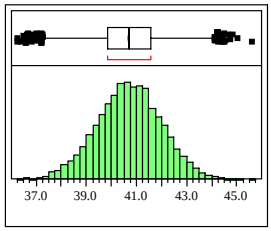
Moments

Mean	39.534948
Std Dev	1.3456378
Std Err Mean	0.0134564
upper 95% Mean	39.561325
lower 95% Mean	39.508571
N	10000

Batch=342

SME Estimated WL = 41.24
WL Re-Calc = 41.23

Estimated WL w M-13 Unc



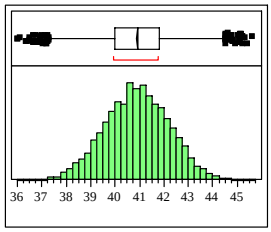
Quantiles

100.0%	maximum	45.643
99.5%		43.957
97.5%		43.190
90.0%		42.355
75.0%	quartile	41.560
50.0%	median	40.722
25.0%	quartile	39.859
10.0%		39.045
2.5%		38.099
0.5%		37.324
0.0%	minimum	36.288

Moments

Mean	40.705986
Std Dev	1.2900784
Std Err Mean	0.0129008
upper 95% Mean	40.731275
lower 95% Mean	40.680698
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	45.616
99.5%		44.330
97.5%		43.479
90.0%		42.605
75.0%	quartile	41.812
50.0%	median	40.905
25.0%	quartile	40.004
10.0%		39.191
2.5%		38.272
0.5%		37.477
0.0%	minimum	36.013

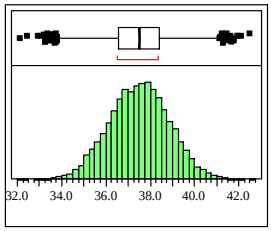
Moments

Mean	40.902757
Std Dev	1.3254158
Std Err Mean	0.0132542
upper 95% Mean	40.928737
lower 95% Mean	40.876776
N	10000

Batch=343

SME Estimated WL = 38.04
WL Re-Calc = 38.03

Estimated WL w M-13 Unc



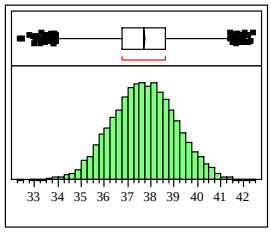
Quantiles

100.0%	maximum	42.509
99.5%		40.904
97.5%		40.084
90.0%		39.222
75.0%	quartile	38.414
50.0%	median	37.521
25.0%	quartile	36.586
10.0%		35.746
2.5%		34.875
0.5%		34.000
0.0%	minimum	32.162

Moments

Mean	37.498542
Std Dev	1.3461819
Std Err Mean	0.0134618
upper 95% Mean	37.52493
lower 95% Mean	37.472155
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	42.402
99.5%		41.133
97.5%		40.381
90.0%		39.476
75.0%	quartile	38.630
50.0%	median	37.697
25.0%	quartile	36.762
10.0%		35.914
2.5%		35.042
0.5%		34.035
0.0%	minimum	32.405

Moments

Mean	37.697049
Std Dev	1.3806992
Std Err Mean	0.013807
upper 95% Mean	37.724114
lower 95% Mean	37.669985
N	10000

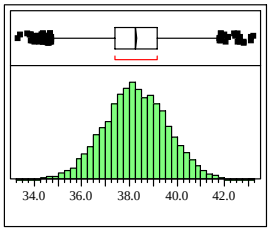
Exhibit A11. Sensitivity of SME WL Estimations to the Uncertainties of This Report

(continued)

Batch=344

SME Estimated WL = 38.79
WL Re-Calc = 38.78

Estimated WL w M-13 Unc



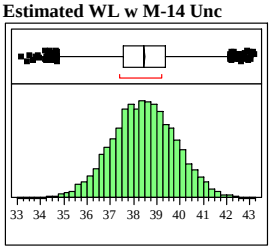
Quantiles

100.0%	maximum	43.218
99.5%		41.588
97.5%		40.839
90.0%		39.930
75.0%	quartile	39.155
50.0%	median	38.240
25.0%	quartile	37.387
10.0%		36.551
2.5%		35.668
0.5%		34.716
0.0%	minimum	33.302

Moments

Mean	38.251403
Std Dev	1.3231393
Std Err Mean	0.0132314
upper 95% Mean	38.277339
lower 95% Mean	38.225466
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	43.203
99.5%		42.051
97.5%		41.127
90.0%		40.205
75.0%	quartile	39.386
50.0%	median	38.439
25.0%	quartile	37.536
10.0%		36.690
2.5%		35.724
0.5%		34.870
0.0%	minimum	33.196

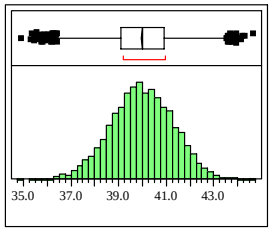
Moments

Mean	38.446137
Std Dev	1.3747659
Std Err Mean	0.0137477
upper 95% Mean	38.473086
lower 95% Mean	38.419189
N	10000

Batch=345

SME Estimated WL = 40.50
WL Re-Calc = 40.48

Estimated WL w M-13 Unc



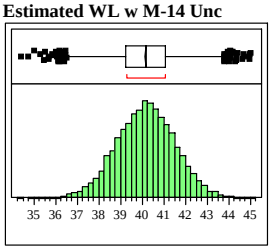
Quantiles

100.0%	maximum	44.650
99.5%		43.220
97.5%		42.486
90.0%		41.646
75.0%	quartile	40.887
50.0%	median	39.978
25.0%	quartile	39.115
10.0%		38.308
2.5%		37.367
0.5%		36.544
0.0%	minimum	34.951

Moments

Mean	39.982432
Std Dev	1.3052784
Std Err Mean	0.0130528
upper 95% Mean	40.008018
lower 95% Mean	39.956846
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	45.034
99.5%		43.604
97.5%		42.785
90.0%		41.878
75.0%	quartile	41.079
50.0%	median	40.181
25.0%	quartile	39.268
10.0%		38.450
2.5%		37.502
0.5%		36.680
0.0%	minimum	34.457

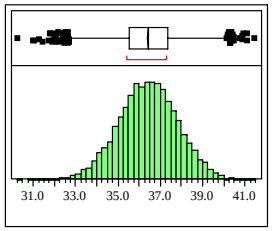
Moments

Mean	40.168676
Std Dev	1.3411464
Std Err Mean	0.0134115
upper 95% Mean	40.194965
lower 95% Mean	40.142387
N	10000

Batch=346

SME Estimated WL = 36.96
WL Re-Calc = 36.95

Estimated WL w M-13 Unc



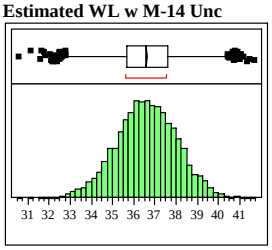
Quantiles

100.0%	maximum	41.460
99.5%		39.766
97.5%		39.085
90.0%		38.201
75.0%	quartile	37.361
50.0%	median	36.446
25.0%	quartile	35.507
10.0%		34.652
2.5%		33.668
0.5%		32.784
0.0%	minimum	30.276

Moments

Mean	36.419605
Std Dev	1.3766034
Std Err Mean	0.013766
upper 95% Mean	36.446589
lower 95% Mean	36.392621
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	41.741
99.5%		40.142
97.5%		39.332
90.0%		38.393
75.0%	quartile	37.576
50.0%	median	36.604
25.0%	quartile	35.661
10.0%		34.791
2.5%		33.790
0.5%		32.981
0.0%	minimum	30.558

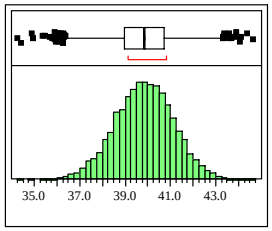
Moments

Mean	36.60582
Std Dev	1.4083675
Std Err Mean	0.0140837
upper 95% Mean	36.633427
lower 95% Mean	36.578213
N	10000

Batch=347

SME Estimated WL = 40.35
WL Re-Calc = 40.34

Estimated WL w M-13 Unc



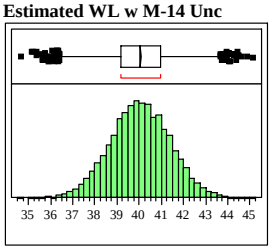
Quantiles

100.0%	maximum	44.677
99.5%		42.996
97.5%		42.323
90.0%		41.471
75.0%	quartile	40.722
50.0%	median	39.860
25.0%	quartile	38.987
10.0%		38.197
2.5%		37.277
0.5%		36.477
0.0%	minimum	34.277

Moments

Mean	39.842721
Std Dev	1.2802691
Std Err Mean	0.0128027
upper 95% Mean	39.867817
lower 95% Mean	39.817625
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	45.146
99.5%		43.559
97.5%		42.681
90.0%		41.765
75.0%	quartile	40.953
50.0%	median	40.039
25.0%	quartile	39.143
10.0%		38.300
2.5%		37.348
0.5%		36.531
0.0%	minimum	34.707

Moments

Mean	40.044351
Std Dev	1.349572
Std Err Mean	0.0134957
upper 95% Mean	40.070806
lower 95% Mean	40.017897
N	10000

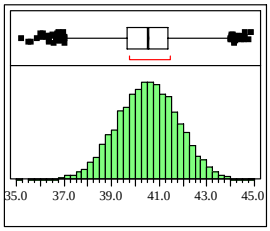
Exhibit A11. Sensitivity of SME WL Estimations to the Uncertainties of This Report

(continued)

Batch=348

SME Estimated WL = 41.02
WL Re-Calc = 41.01

Estimated WL w M-13 Unc



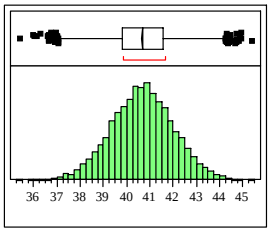
Quantiles

100.0%	maximum	44.852
99.5%		43.733
97.5%		42.986
90.0%		42.148
75.0%	quartile	41.386
50.0%	median	40.531
25.0%	quartile	39.659
10.0%		38.867
2.5%		38.004
0.5%		37.162
0.0%	minimum	35.216

Moments

Mean	40.5205
Std Dev	1.2764725
Std Err Mean	0.0127647
upper 95% Mean	40.545522
lower 95% Mean	40.495479
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	45.407
99.5%		44.068
97.5%		43.301
90.0%		42.403
75.0%	quartile	41.574
50.0%	median	40.694
25.0%	quartile	39.781
10.0%		38.967
2.5%		38.052
0.5%		37.255
0.0%	minimum	35.434

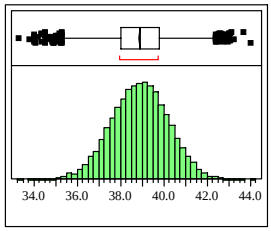
Moments

Mean	40.681689
Std Dev	1.3289177
Std Err Mean	0.0132892
upper 95% Mean	40.707738
lower 95% Mean	40.655639
N	10000

Batch=349

SME Estimated WL = 39.43
WL Re-Calc = 39.41

Estimated WL w M-13 Unc



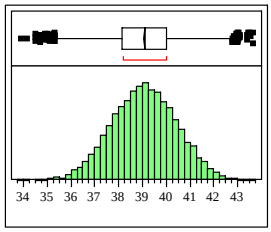
Quantiles

100.0%	maximum	44.060
99.5%		42.304
97.5%		41.433
90.0%		40.551
75.0%	quartile	39.783
50.0%	median	38.915
25.0%	quartile	38.008
10.0%		37.210
2.5%		36.315
0.5%		35.408
0.0%	minimum	33.348

Moments

Mean	38.892635
Std Dev	1.3149853
Std Err Mean	0.0131499
upper 95% Mean	38.918412
lower 95% Mean	38.866859
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	43.679
99.5%		42.476
97.5%		41.711
90.0%		40.834
75.0%	quartile	40.006
50.0%	median	39.078
25.0%	quartile	38.149
10.0%		37.355
2.5%		36.403
0.5%		35.515
0.0%	minimum	33.903

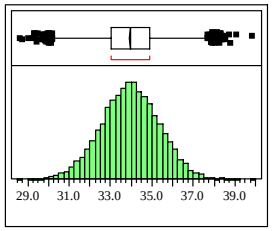
Moments

Mean	39.081219
Std Dev	1.3570407
Std Err Mean	0.0135704
upper 95% Mean	39.10782
lower 95% Mean	39.054618
N	10000

Batch=350

SME Estimated WL = 34.55
WL Re-Calc = 34.53

Estimated WL w M-13 Unc



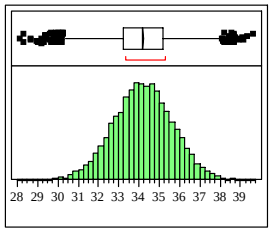
Quantiles

100.0%	maximum	39.871
99.5%		37.567
97.5%		36.650
90.0%		35.747
75.0%	quartile	34.888
50.0%	median	33.949
25.0%	quartile	33.017
10.0%		32.163
2.5%		31.158
0.5%		30.235
0.0%	minimum	28.665

Moments

Mean	33.947793
Std Dev	1.4006253
Std Err Mean	0.0140063
upper 95% Mean	33.975248
lower 95% Mean	33.920338
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	39.647
99.5%		37.841
97.5%		37.067
90.0%		36.067
75.0%	quartile	35.185
50.0%	median	34.198
25.0%	quartile	33.228
10.0%		32.332
2.5%		31.266
0.5%		30.252
0.0%	minimum	28.120

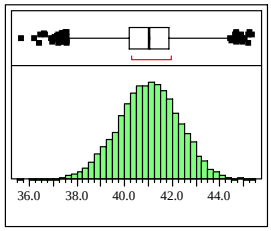
Moments

Mean	34.195258
Std Dev	1.4666471
Std Err Mean	0.0146665
upper 95% Mean	34.224007
lower 95% Mean	34.166509
N	10000

Batch=351

SME Estimated WL = 41.51
WL Re-Calc = 41.50

Estimated WL w M-13 Unc



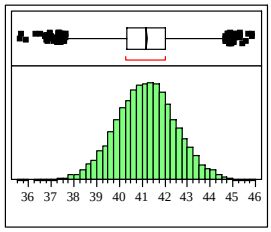
Quantiles

100.0%	maximum	45.363
99.5%		44.171
97.5%		43.425
90.0%		42.638
75.0%	quartile	41.889
50.0%	median	41.040
25.0%	quartile	40.179
10.0%		39.363
2.5%		38.485
0.5%		37.709
0.0%	minimum	35.687

Moments

Mean	41.019467
Std Dev	1.2658359
Std Err Mean	0.0126584
upper 95% Mean	41.04428
lower 95% Mean	40.994654
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	45.863
99.5%		44.545
97.5%		43.776
90.0%		42.857
75.0%	quartile	42.047
50.0%	median	41.185
25.0%	quartile	40.303
10.0%		39.511
2.5%		38.560
0.5%		37.747
0.0%	minimum	35.653

Moments

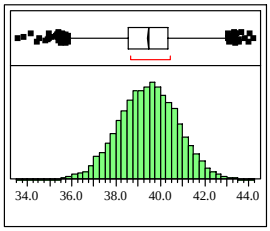
Mean	41.175532
Std Dev	1.3125268
Std Err Mean	0.0131253
upper 95% Mean	41.20126
lower 95% Mean	41.149804
N	10000

Exhibit A11. Sensitivity of SME WL Estimations to the Uncertainties of This Report
(continued)

Batch=352

SME Estimated WL = 39.99
WL Re-Calc = 39.98

Estimated WL w M-13 Unc



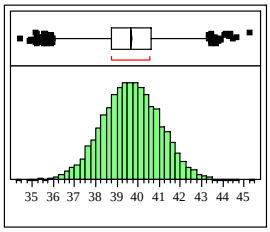
Quantiles

100.0%	maximum	44.218
99.5%		42.756
97.5%		41.983
90.0%		41.114
75.0%	quartile	40.365
50.0%	median	39.472
25.0%	quartile	38.562
10.0%		37.753
2.5%		36.849
0.5%		35.946
0.0%	minimum	33.584

Moments

Mean	39.450994
Std Dev	1.3216104
Std Err Mean	0.0132161
upper 95% Mean	39.476901
lower 95% Mean	39.425088
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	45.324
99.5%		43.099
97.5%		42.305
90.0%		41.420
75.0%	quartile	40.601
50.0%	median	39.648
25.0%	quartile	38.758
10.0%		37.932
2.5%		36.964
0.5%		36.119
0.0%	minimum	34.461

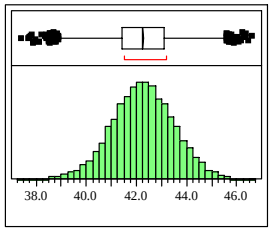
Moments

Mean	39.666925
Std Dev	1.3588557
Std Err Mean	0.0135886
upper 95% Mean	39.693561
lower 95% Mean	39.640288
N	10000

Batch=353

SME Estimated WL = 42.76
WL Re-Calc = 42.75

Estimated WL w M-13 Unc



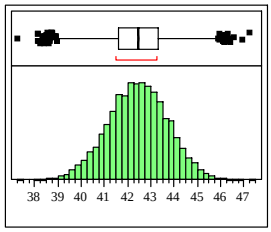
Quantiles

100.0%	maximum	46.640
99.5%		45.448
97.5%		44.683
90.0%		43.852
75.0%	quartile	43.097
50.0%	median	42.262
25.0%	quartile	41.428
10.0%		40.688
2.5%		39.737
0.5%		38.826
0.0%	minimum	37.395

Moments

Mean	42.25785
Std Dev	1.2520271
Std Err Mean	0.0125203
upper 95% Mean	42.282392
lower 95% Mean	42.233308
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	47.266
99.5%		45.639
97.5%		44.908
90.0%		44.071
75.0%	quartile	43.316
50.0%	median	42.455
25.0%	quartile	41.580
10.0%		40.790
2.5%		39.847
0.5%		39.111
0.0%	minimum	37.284

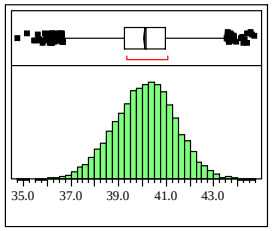
Moments

Mean	42.441143
Std Dev	1.2820422
Std Err Mean	0.0128204
upper 95% Mean	42.466273
lower 95% Mean	42.416012
N	10000

Batch=354

SME Estimated WL = 40.62
WL Re-Calc = 40.61

Estimated WL w M-13 Unc



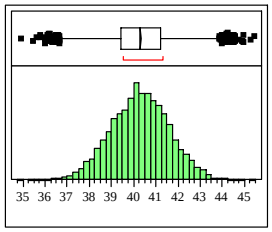
Quantiles

100.0%	maximum	44.702
99.5%		43.341
97.5%		42.567
90.0%		41.722
75.0%	quartile	40.972
50.0%	median	40.144
25.0%	quartile	39.257
10.0%		38.428
2.5%		37.484
0.5%		36.648
0.0%	minimum	34.754

Moments

Mean	40.101928
Std Dev	1.2871999
Std Err Mean	0.012872
upper 95% Mean	40.12716
lower 95% Mean	40.076696
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	45.480
99.5%		43.759
97.5%		42.884
90.0%		41.967
75.0%	quartile	41.187
50.0%	median	40.298
25.0%	quartile	39.398
10.0%		38.589
2.5%		37.718
0.5%		36.787
0.0%	minimum	34.916

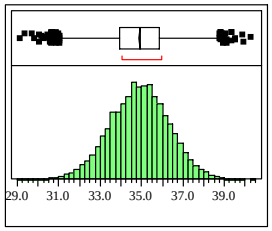
Moments

Mean	40.29488
Std Dev	1.3206315
Std Err Mean	0.0132063
upper 95% Mean	40.320767
lower 95% Mean	40.268992
N	10000

Batch=355

SME Estimated WL = 35.47
WL Re-Calc = 35.46

Estimated WL w M-13 Unc



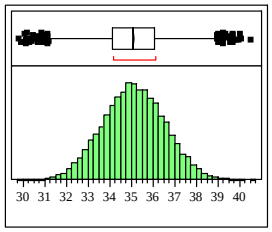
Quantiles

100.0%	maximum	40.277
99.5%		38.483
97.5%		37.668
90.0%		36.717
75.0%	quartile	35.852
50.0%	median	34.922
25.0%	quartile	33.939
10.0%		33.089
2.5%		32.110
0.5%		31.230
0.0%	minimum	29.174

Moments

Mean	34.905662
Std Dev	1.4154448
Std Err Mean	0.0141544
upper 95% Mean	34.933407
lower 95% Mean	34.877916
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	40.528
99.5%		38.828
97.5%		37.918
90.0%		36.945
75.0%	quartile	36.076
50.0%	median	35.104
25.0%	quartile	34.133
10.0%		33.230
2.5%		32.312
0.5%		31.467
0.0%	minimum	29.810

Moments

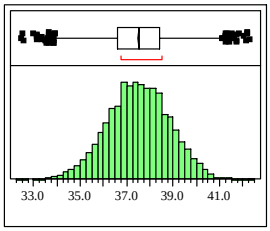
Mean	35.105589
Std Dev	1.4408918
Std Err Mean	0.0144089
upper 95% Mean	35.133834
lower 95% Mean	35.077345
N	10000

Exhibit A11. Sensitivity of SME WL Estimations to the Uncertainties of This Report
(continued)

Batch=356

SME Estimated WL = 38.05
WL Re-Calc = 38.04

Estimated WL w M-13 Unc



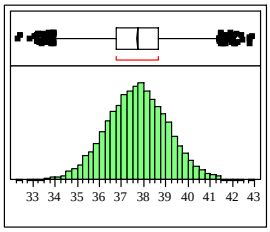
Quantiles

100.0%	maximum	42.338
99.5%		40.823
97.5%		40.077
90.0%		39.229
75.0%	quartile	38.418
50.0%	median	37.512
25.0%	quartile	36.618
10.0%		35.798
2.5%		34.848
0.5%		34.005
0.0%	minimum	32.457

Moments

Mean	37.511667
Std Dev	1.33572
Std Err Mean	0.0133572
upper 95% Mean	37.53785
lower 95% Mean	37.485484
N	10000

Estimated WL w M-14 Unc



Quantiles

100.0%	maximum	42.909
99.5%		41.320
97.5%		40.477
90.0%		39.476
75.0%	quartile	38.640
50.0%	median	37.720
25.0%	quartile	36.778
10.0%		35.934
2.5%		34.946
0.5%		33.945
0.0%	minimum	32.340

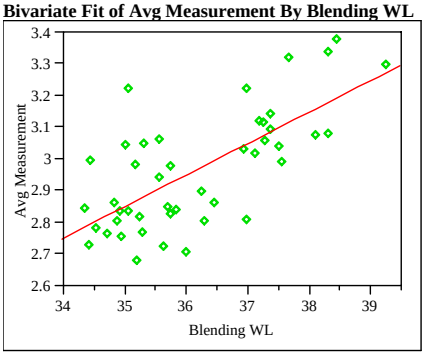
Moments

Mean	37.711754
Std Dev	1.3955528
Std Err Mean	0.0139555
upper 95% Mean	37.73911
lower 95% Mean	37.684399
N	10000

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte

Prep=Fusion, Sample Type=SME, ICP=M-13, Analyte=Al

Bivariate Fit of Avg Measurement By Blending WL



Linear Fit

Avg Measurement = -0.619798 + 0.099138 Blending WL

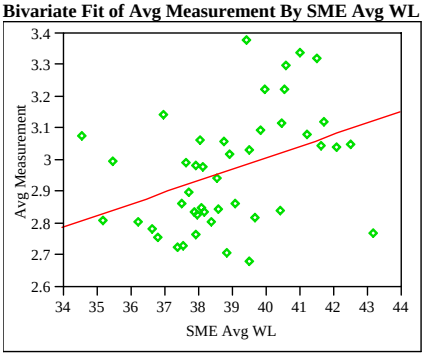
Summary of Fit

RSquare	0.48735
RSquare Adj	0.475428
Root Mean Square Error	0.132834
Mean of Response	2.967059
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.7212865	0.721286	40.8778
Error	43	0.7587320	0.017645	Prob > F
C. Total	44	1.4800185		<.0001

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit

Avg Measurement = 1.5478012 + 0.0364864 SME Avg WL

Summary of Fit

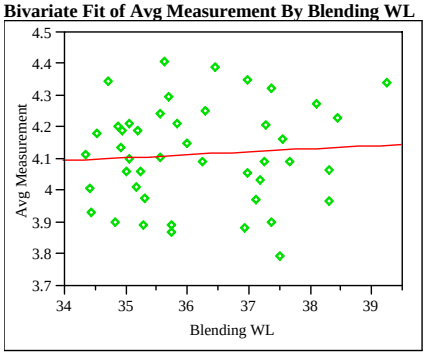
RSquare	0.151545
RSquare Adj	0.131814
Root Mean Square Error	0.170889
Mean of Response	2.967059
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.2242900	0.224290	7.6804
Error	43	1.2557285	0.029203	Prob > F
C. Total	44	1.4800185		0.0082

Prep=Fusion, Sample Type=SME, ICP=M-13, Analyte=Al/Ca

Bivariate Fit of Avg Measurement By Blending WL



Linear Fit

Avg Measurement = 3.7743621 + 0.0094478 Blending WL

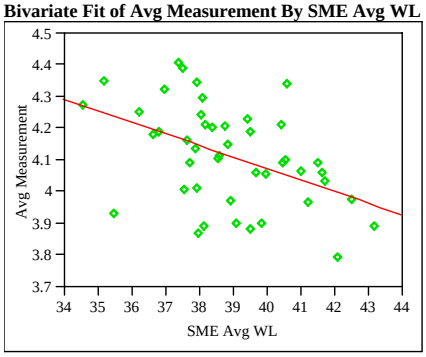
Summary of Fit

RSquare	0.006098
RSquare Adj	-0.01702
Root Mean Square Error	0.157577
Mean of Response	4.116189
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.0065508	0.006551	0.2638
Error	43	1.0677109	0.024830	Prob > F
C. Total	44	1.0742617		0.6101

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit

Avg Measurement = 5.53256 - 0.0364122 SME Avg WL

Summary of Fit

RSquare	0.207937
RSquare Adj	0.189517
Root Mean Square Error	0.14067
Mean of Response	4.116189
Observations (or Sum Wgts)	45

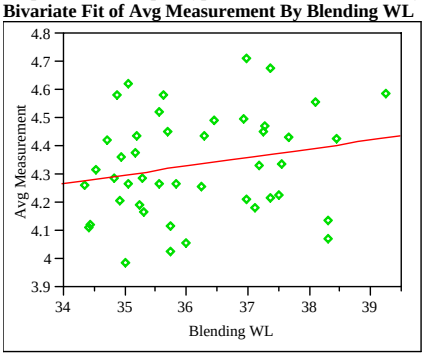
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.2233786	0.223379	11.2886
Error	43	0.8508831	0.019788	Prob > F
C. Total	44	1.0742617		0.0016

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Fusion, Sample Type=SME, ICP=M-13, Analyte=Al/Mg

Bivariate Fit of Avg Measurement By Blending WL



Linear Fit

Avg Measurement = 3.223925 + 0.0306901 Blending WL

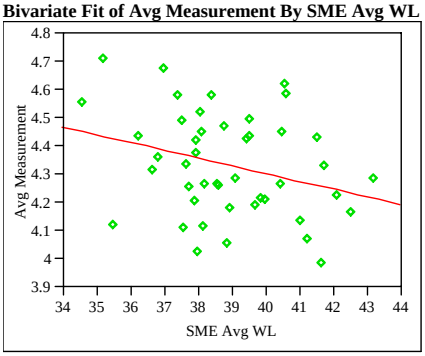
Summary of Fit

RSquare	0.047329
RSquare Adj	0.025173
Root Mean Square Error	0.179882
Mean of Response	4.334306
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.0691232	0.069123	2.1362
Error	43	1.3913715	0.032357	Prob > F
C. Total	44	1.4604947		0.1511

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit

Avg Measurement = 5.4069199 - 0.0275748 SME Avg WL

Summary of Fit

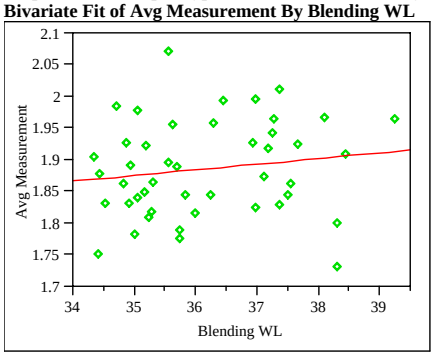
RSquare	0.087715
RSquare Adj	0.066499
Root Mean Square Error	0.176028
Mean of Response	4.334306
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.1281072	0.128107	4.1344
Error	43	1.3323874	0.030986	Prob > F
C. Total	44	1.4604947		0.0482

Prep=Fusion, Sample Type=SME, ICP=M-13, Analyte=Al/Mn

Bivariate Fit of Avg Measurement By Blending WL



Linear Fit

Avg Measurement = 1.5664396 + 0.0088446 Blending WL

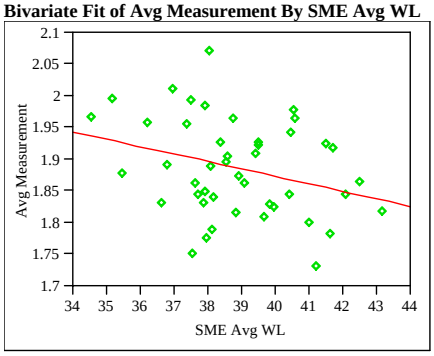
Summary of Fit

RSquare	0.022824
RSquare Adj	0.000099
Root Mean Square Error	0.075604
Mean of Response	1.88644
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00574091	0.005741	1.0044
Error	43	0.24578791	0.005716	Prob > F
C. Total	44	0.25152881		0.3219

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit

Avg Measurement = 2.3464365 - 0.0118256 SME Avg WL

Summary of Fit

RSquare	0.093672
RSquare Adj	0.072594
Root Mean Square Error	0.072812
Mean of Response	1.88644
Observations (or Sum Wgts)	45

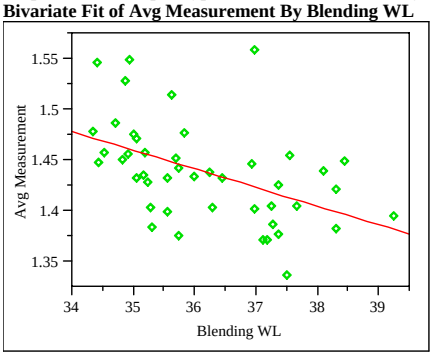
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.02356113	0.023561	4.4442
Error	43	0.22796768	0.005302	Prob > F
C. Total	44	0.25152881		0.0409

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Fusion, Sample Type=SME, ICP=M-13, Analyte=B

Bivariate Fit of Avg Measurement By Blending WL



Linear Fit

Avg Measurement = 2.1047036 - 0.0184191 Blending WL

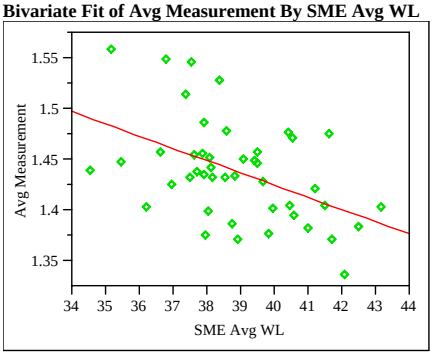
Summary of Fit

RSquare	0.230363
RSquare Adj	0.212465
Root Mean Square Error	0.043983
Mean of Response	1.438293
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.02489793	0.024898	12.8705
Error	43	0.08318331	0.001934	Prob > F
C. Total	44	0.10808124		0.0008

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit

Avg Measurement = 1.9083612 - 0.0120846 SME Avg WL

Summary of Fit

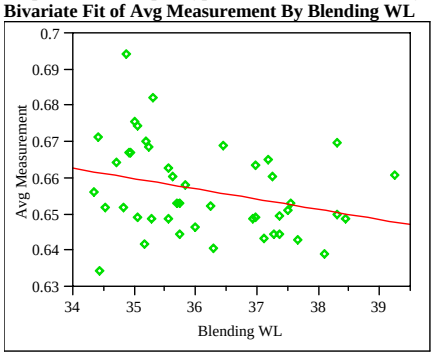
RSquare	0.227645
RSquare Adj	0.209683
Root Mean Square Error	0.04406
Mean of Response	1.438293
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.02460418	0.024604	12.6739
Error	43	0.08347707	0.001941	Prob > F
C. Total	44	0.10808124		0.0009

Prep=Fusion, Sample Type=SME, ICP=M-13, Analyte=B/Li

Bivariate Fit of Avg Measurement By Blending WL



Linear Fit

Avg Measurement = 0.7588217 - 0.0028257 Blending WL

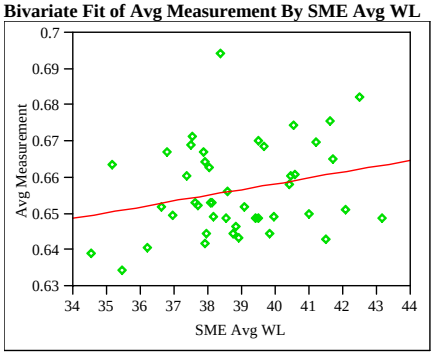
Summary of Fit

RSquare	0.085629
RSquare Adj	0.064365
Root Mean Square Error	0.012063
Mean of Response	0.656588
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00058596	0.000586	4.0269
Error	43	0.00625703	0.000146	Prob > F
C. Total	44	0.00684299		0.0511

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit

Avg Measurement = 0.5945972 + 0.0015937 SME Avg WL

Summary of Fit

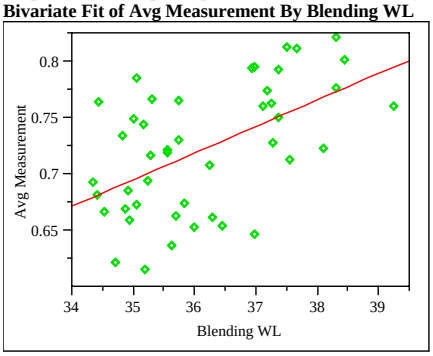
RSquare	0.062531
RSquare Adj	0.040729
Root Mean Square Error	0.012214
Mean of Response	0.656588
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00042790	0.000428	2.8682
Error	43	0.00641509	0.000149	Prob > F
C. Total	44	0.00684299		0.0976

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Fusion, Sample Type=SME, ICP=M-13, Analyte=Ca
Bivariate Fit of Avg Measurement By Blending WL



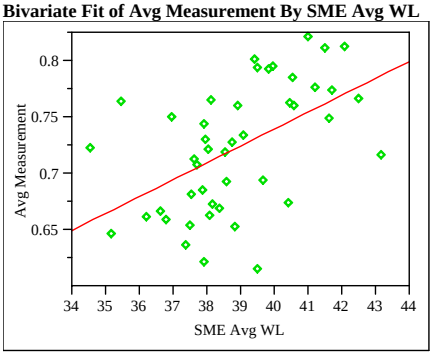
Linear Fit
Avg Measurement = -0.127574 + 0.0235141 Blending WL
Summary of Fit

RSquare	0.287989
RSquare Adj	0.271431
Root Mean Square Error	0.048302
Mean of Response	0.723177
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.04057734	0.040577	17.3923
Error	43	0.10032159	0.002333	Prob > F
C. Total	44	0.14089893		0.0001

Bivariate Fit of Avg Measurement By SME Avg WL



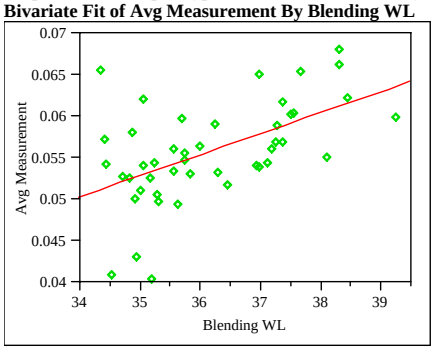
Linear Fit
Avg Measurement = 0.1408496 + 0.0149705 SME Avg WL
Summary of Fit

RSquare	0.267987
RSquare Adj	0.250963
Root Mean Square Error	0.048976
Mean of Response	0.723177
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.03775905	0.037759	15.7421
Error	43	0.10313988	0.002399	Prob > F
C. Total	44	0.14089893		0.0003

Prep=Fusion, Sample Type=SME, ICP=M-13, Analyte=Cr
Bivariate Fit of Avg Measurement By Blending WL



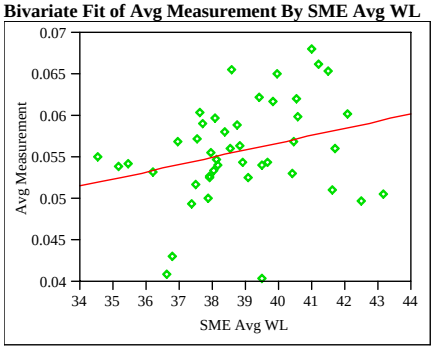
Linear Fit
Avg Measurement = -0.035616 + 0.0025265 Blending WL
Summary of Fit

RSquare	0.290283
RSquare Adj	0.273778
Root Mean Square Error	0.005161
Mean of Response	0.055794
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00046845	0.000468	17.5875
Error	43	0.00114532	0.000027	Prob > F
C. Total	44	0.00161376		0.0001

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 0.0218908 + 0.0008716 SME Avg WL
Summary of Fit

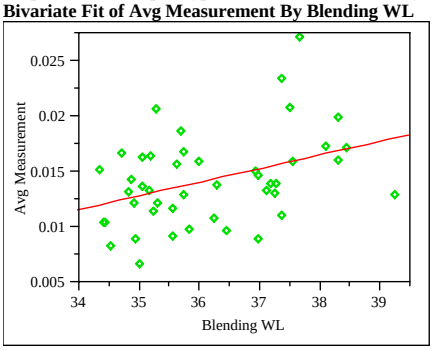
RSquare	0.079309
RSquare Adj	0.057898
Root Mean Square Error	0.005878
Mean of Response	0.055794
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00012799	0.000128	3.7041
Error	43	0.00148578	0.000035	Prob > F
C. Total	44	0.00161376		0.0609

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Fusion, Sample Type=SME, ICP=M-13, Analyte=Cu
Bivariate Fit of Avg Measurement By Blending WL



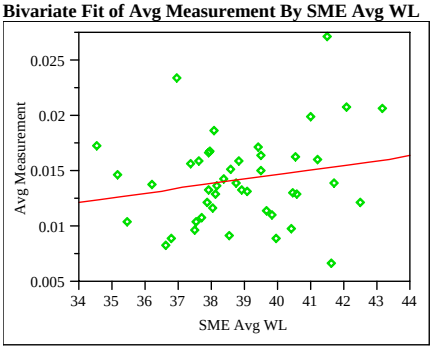
Linear Fit
Avg Measurement = -0.030247 + 0.0012298 Blending WL
Summary of Fit

RSquare	0.150607
RSquare Adj	0.130854
Root Mean Square Error	0.003815
Mean of Response	0.014247
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00011099	0.000111	7.6244
Error	43	0.00062595	0.000015	Prob > F
C. Total	44	0.00073694		0.0084

Bivariate Fit of Avg Measurement By SME Avg WL



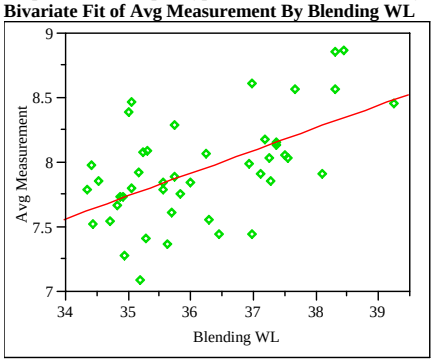
Linear Fit
Avg Measurement = -0.002042 + 0.0004188 SME Avg WL
Summary of Fit

RSquare	0.040089
RSquare Adj	0.017766
Root Mean Square Error	0.004056
Mean of Response	0.014247
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00002954	0.000030	1.7958
Error	43	0.00070740	0.000016	Prob > F
C. Total	44	0.00073694		0.1873

Prep=Fusion, Sample Type=SME, ICP=M-13, Analyte=Fe
Bivariate Fit of Avg Measurement By Blending WL



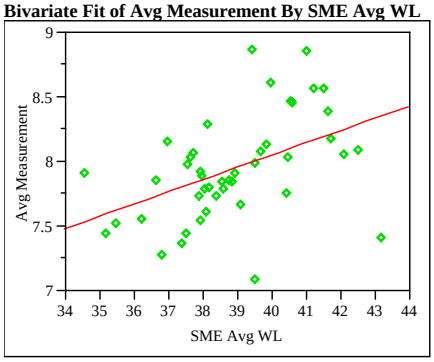
Linear Fit
Avg Measurement = 1.6024992 + 0.1753911 Blending WL
Summary of Fit

RSquare	0.313804
RSquare Adj	0.297846
Root Mean Square Error	0.33883
Mean of Response	7.948228
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	2.2575772	2.25758	19.6643
Error	43	4.9366480	0.11481	Prob > F
C. Total	44	7.1942252		<.0001

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 4.2572473 + 0.0948881 SME Avg WL
Summary of Fit

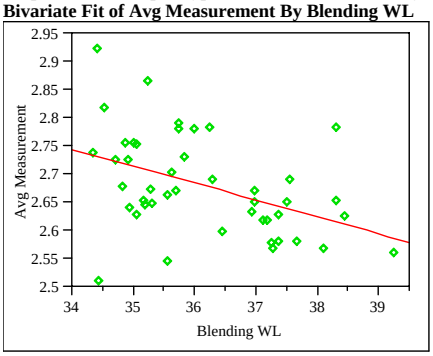
RSquare	0.210856
RSquare Adj	0.192504
Root Mean Square Error	0.363359
Mean of Response	7.948228
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	1.5169484	1.51695	11.4894
Error	43	5.6772768	0.13203	Prob > F
C. Total	44	7.1942252		0.0015

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Fusion, Sample Type=SME, ICP=M-13, Analyte=Fe/Al
Bivariate Fit of Avg Measurement By Blending WL



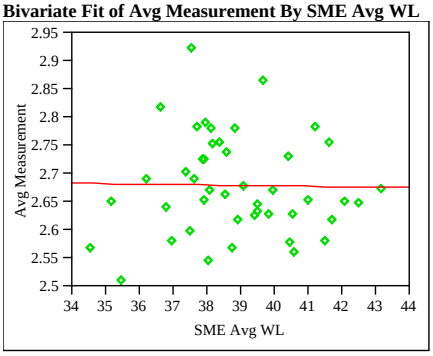
Linear Fit
Avg Measurement = 3.7669182 - 0.03006 Blending WL
Summary of Fit

RSquare	0.193989
RSquare Adj	0.175245
Root Mean Square Error	0.080048
Mean of Response	2.679332
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.06631420	0.066314	10.3492
Error	43	0.27553056	0.006408	Prob > F
C. Total	44	0.34184476		0.0025

Bivariate Fit of Avg Measurement By SME Avg WL



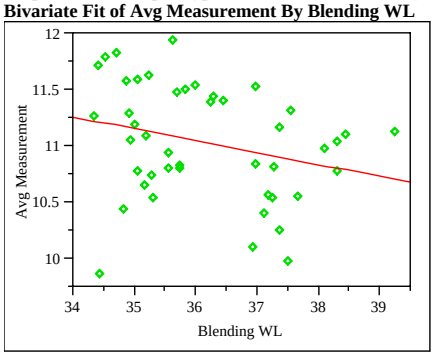
Linear Fit
Avg Measurement = 2.7108928 - 0.0008114 SME Avg WL
Summary of Fit

RSquare	0.000324
RSquare Adj	-0.02292
Root Mean Square Error	0.089148
Mean of Response	2.679332
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00011091	0.000111	0.0140
Error	43	0.34173385	0.007947	Prob > F
C. Total	44	0.34184476		0.9065

Prep=Fusion, Sample Type=SME, ICP=M-13, Analyte=Fe/Ca
Bivariate Fit of Avg Measurement By Blending WL



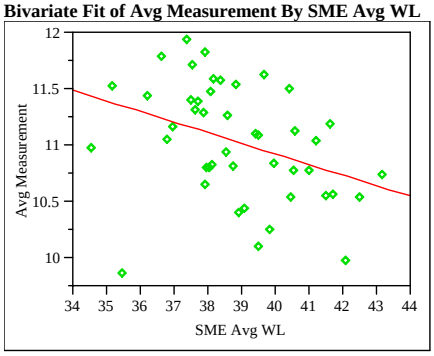
Linear Fit
Avg Measurement = 14.852943 - 0.1056533 Blending WL
Summary of Fit

RSquare	0.072473
RSquare Adj	0.050903
Root Mean Square Error	0.493785
Mean of Response	11.03036
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.819207	0.819207	3.3598
Error	43	10.484408	0.243823	Prob > F
C. Total	44	11.303615		0.0737

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 14.692184 - 0.0941385 SME Avg WL
Summary of Fit

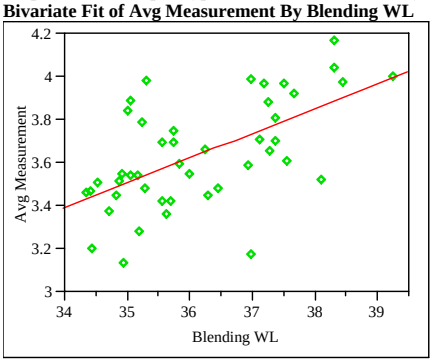
RSquare	0.132089
RSquare Adj	0.111905
Root Mean Square Error	0.477653
Mean of Response	11.03036
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	1.493078	1.49308	6.5442
Error	43	9.810537	0.22815	Prob > F
C. Total	44	11.303615		0.0141

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Fusion, Sample Type=SME, ICP=M-13, Analyte=Fe/Li
Bivariate Fit of Avg Measurement By Blending WL



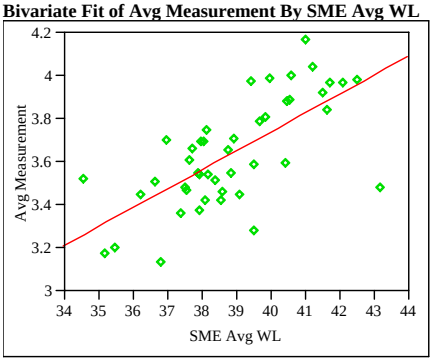
Linear Fit
Avg Measurement = -0.505118 + 0.1145928 Blending WL
Summary of Fit

RSquare	0.348549
RSquare Adj	0.333399
Root Mean Square Error	0.204666
Mean of Response	3.640902
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.9637011	0.963701	23.0065
Error	43	1.8011940	0.041888	Prob > F
C. Total	44	2.7648952		<.0001

Bivariate Fit of Avg Measurement By SME Avg WL



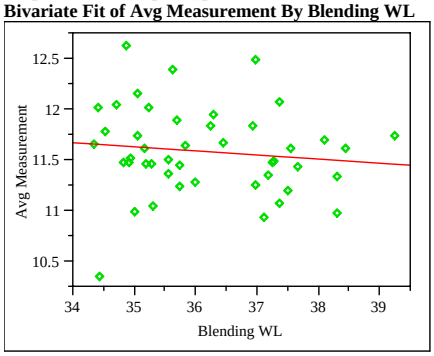
Linear Fit
Avg Measurement = 0.2197905 + 0.0879502 SME Avg WL
Summary of Fit

RSquare	0.471349
RSquare Adj	0.459055
Root Mean Square Error	0.18437
Mean of Response	3.640902
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	1.3032318	1.30323	38.3392
Error	43	1.4616633	0.03399	Prob > F
C. Total	44	2.7648952		<.0001

Prep=Fusion, Sample Type=SME, ICP=M-13, Analyte=Fe/Mg
Bivariate Fit of Avg Measurement By Blending WL



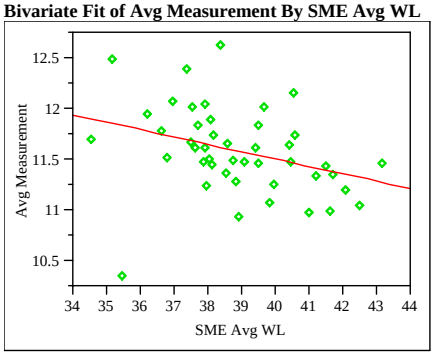
Linear Fit
Avg Measurement = 13.009 - 0.0393189 Blending WL
Summary of Fit

RSquare	0.013854
RSquare Adj	-0.00908
Root Mean Square Error	0.433382
Mean of Response	11.58642
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.1134569	0.113457	0.6041
Error	43	8.0762689	0.187820	Prob > F
C. Total	44	8.1897257		0.4413

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 14.413721 - 0.0726844 SME Avg WL
Summary of Fit

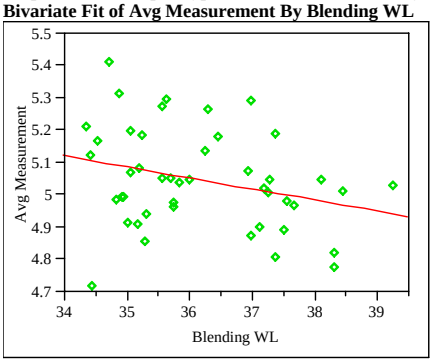
RSquare	0.108683
RSquare Adj	0.087955
Root Mean Square Error	0.412018
Mean of Response	11.58642
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.8900826	0.890083	5.2432
Error	43	7.2996432	0.169759	Prob > F
C. Total	44	8.1897257		0.0270

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Fusion, Sample Type=SME, ICP=M-13, Analyte=Fe/Mn
Bivariate Fit of Avg Measurement By Blending WL



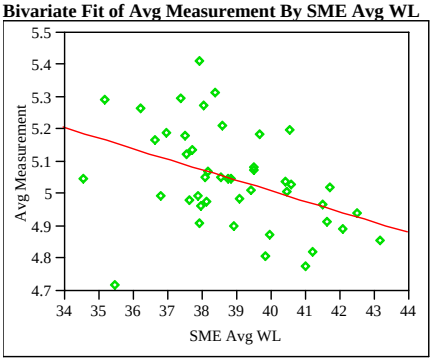
Linear Fit
Avg Measurement = 6.2802096 - 0.034052 Blending WL
Summary of Fit

RSquare	0.08105
RSquare Adj	0.059679
Root Mean Square Error	0.149793
Mean of Response	5.048195
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.0850965	0.085096	3.7925
Error	43	0.9648323	0.022438	Prob > F
C. Total	44	1.0499287		0.0580

Bivariate Fit of Avg Measurement By SME Avg WL



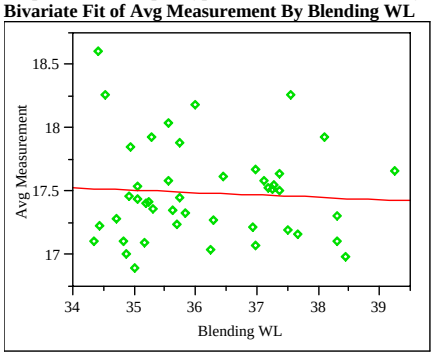
Linear Fit
Avg Measurement = 6.3135279 - 0.0325293 SME Avg WL
Summary of Fit

RSquare	0.1698
RSquare Adj	0.150493
Root Mean Square Error	0.142376
Mean of Response	5.048195
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.1782777	0.178278	8.7947
Error	43	0.8716510	0.020271	Prob > F
C. Total	44	1.0499287		0.0049

Prep=Fusion, Sample Type=SME, ICP=M-13, Analyte=Fe/Ni
Bivariate Fit of Avg Measurement By Blending WL



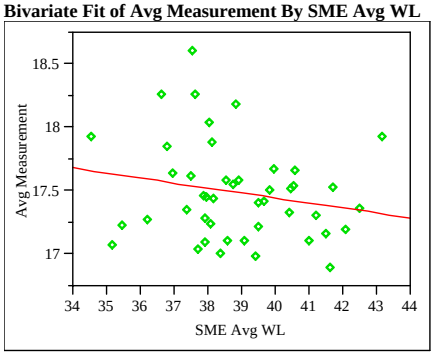
Linear Fit
Avg Measurement = 18.147833 - 0.0181432 Blending WL
Summary of Fit

RSquare	0.003753
RSquare Adj	-0.01942
Root Mean Square Error	0.386177
Mean of Response	17.4914
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.0241577	0.024158	0.1620
Error	43	6.4126971	0.149132	Prob > F
C. Total	44	6.4368548		0.6893

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 19.01807 - 0.0392477 SME Avg WL
Summary of Fit

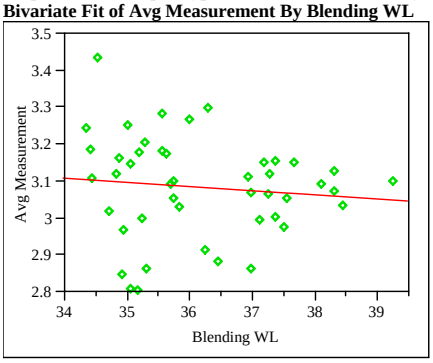
RSquare	0.040318
RSquare Adj	0.018
Root Mean Square Error	0.379024
Mean of Response	17.4914
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.2595225	0.259522	1.8065
Error	43	6.1773323	0.143659	Prob > F
C. Total	44	6.4368548		0.1860

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Fusion, Sample Type=SME, ICP=M-13, Analyte=Fe/U
Bivariate Fit of Avg Measurement By Blending WL



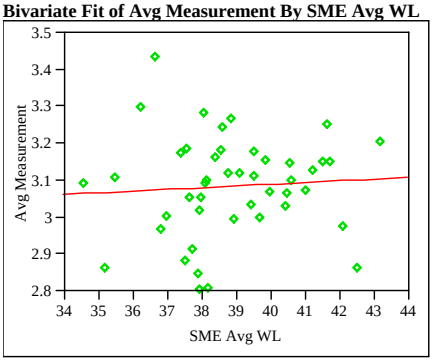
Linear Fit
Avg Measurement = 3.5000042 - 0.011474 Blending WL
Summary of Fit

RSquare	0.011873
RSquare Adj	-0.01111
Root Mean Square Error	0.136746
Mean of Response	3.084871
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00966173	0.009662	0.5167
Error	43	0.80407308	0.018699	Prob > F
C. Total	44	0.81373481		0.4761

Bivariate Fit of Avg Measurement By SME Avg WL



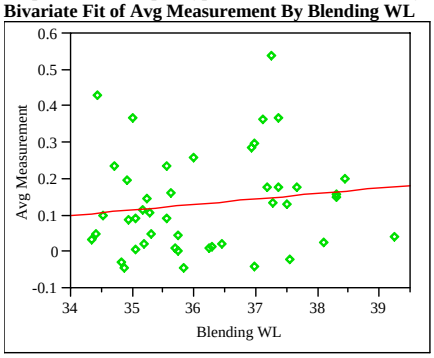
Linear Fit
Avg Measurement = 2.9006635 + 0.0047356 SME Avg WL
Summary of Fit

RSquare	0.004643
RSquare Adj	-0.0185
Root Mean Square Error	0.137245
Mean of Response	3.084871
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00377834	0.003778	0.2006
Error	43	0.80995647	0.018836	Prob > F
C. Total	44	0.81373481		0.6565

Prep=Fusion, Sample Type=SME, ICP=M-13, Analyte=K
Bivariate Fit of Avg Measurement By Blending WL



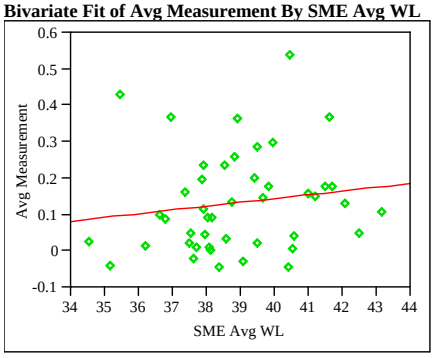
Linear Fit
Avg Measurement = -0.412548 + 0.0150687 Blending WL
Summary of Fit

RSquare	0.020247
RSquare Adj	-0.00254
Root Mean Square Error	0.13694
Mean of Response	0.132644
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.01666398	0.016664	0.8886
Error	43	0.80635478	0.018752	Prob > F
C. Total	44	0.82301876		0.3511

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = -0.271244 + 0.0103832 SME Avg WL
Summary of Fit

RSquare	0.02207
RSquare Adj	-0.00067
Root Mean Square Error	0.136812
Mean of Response	0.132644
Observations (or Sum Wgts)	45

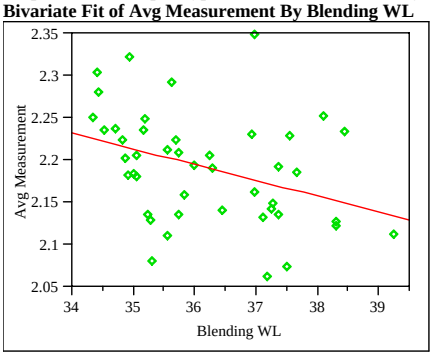
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.01816394	0.018164	0.9704
Error	43	0.80485481	0.018718	Prob > F
C. Total	44	0.82301876		0.3301

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Fusion, Sample Type=SME, ICP=M-13, Analyte=Li

Bivariate Fit of Avg Measurement By Blending WL



Linear Fit

Avg Measurement = 2.8630616 - 0.0185598 Blending WL

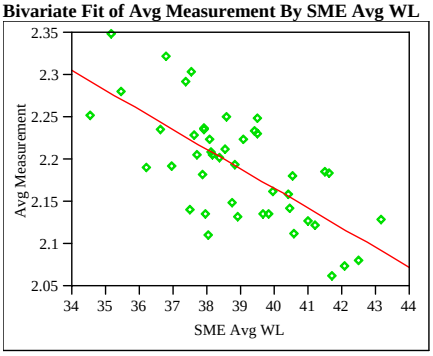
Summary of Fit

RSquare	0.134904
RSquare Adj	0.114785
Root Mean Square Error	0.061401
Mean of Response	2.191558
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.02527993	0.025280	6.7055
Error	43	0.16211242	0.003770	Prob > F
C. Total	44	0.18739236		0.0131

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit

Avg Measurement = 3.0955876 - 0.0232409 SME Avg WL

Summary of Fit

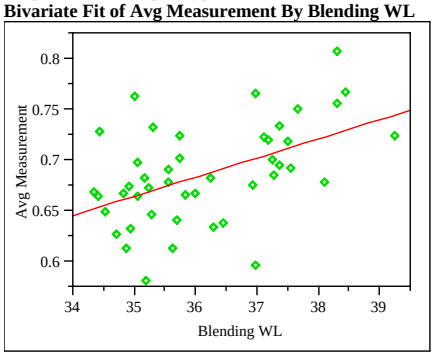
RSquare	0.485624
RSquare Adj	0.473662
Root Mean Square Error	0.047346
Mean of Response	2.191558
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.09100227	0.091002	40.5965
Error	43	0.09639009	0.002242	Prob > F
C. Total	44	0.18739236		<.0001

Prep=Fusion, Sample Type=SME, ICP=M-13, Analyte=Mg

Bivariate Fit of Avg Measurement By Blending WL



Linear Fit

Avg Measurement = 0.0018135 + 0.0189274 Blending WL

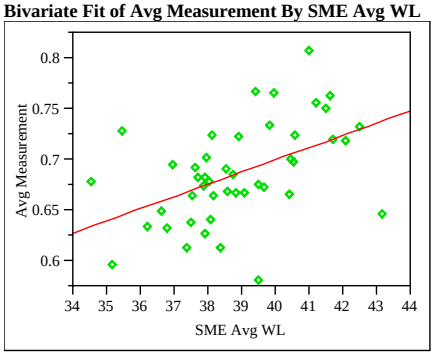
Summary of Fit

RSquare	0.249392
RSquare Adj	0.231936
Root Mean Square Error	0.042898
Mean of Response	0.686616
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.02629121	0.026291	14.2869
Error	43	0.07913003	0.001840	Prob > F
C. Total	44	0.10542124		0.0005

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit

Avg Measurement = 0.216652 + 0.0120819 SME Avg WL

Summary of Fit

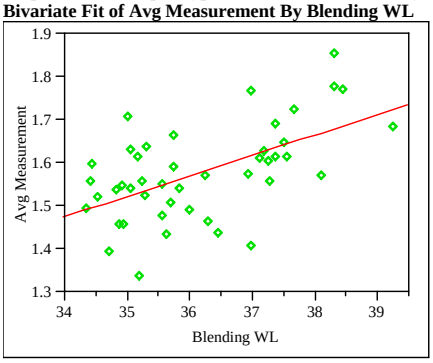
RSquare	0.233286
RSquare Adj	0.215456
Root Mean Square Error	0.043356
Mean of Response	0.686616
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.02459331	0.024593	13.0835
Error	43	0.08082793	0.001880	Prob > F
C. Total	44	0.10542124		0.0008

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Fusion, Sample Type=SME, ICP=M-13, Analyte=Mn
Bivariate Fit of Avg Measurement By Blending WL



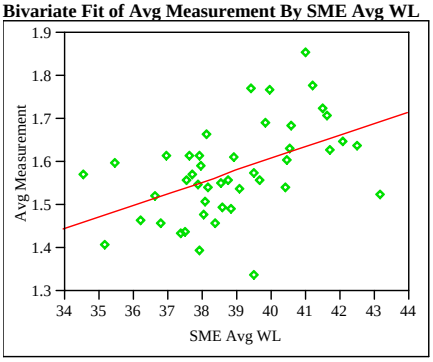
Linear Fit
Avg Measurement = -0.142173 + 0.0475279 Blending WL
Summary of Fit

RSquare	0.316029
RSquare Adj	0.300122
Root Mean Square Error	0.091345
Mean of Response	1.577408
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.16577723	0.165777	19.8681
Error	43	0.35878656	0.008344	Prob > F
C. Total	44	0.52456379		<.0001

Bivariate Fit of Avg Measurement By SME Avg WL



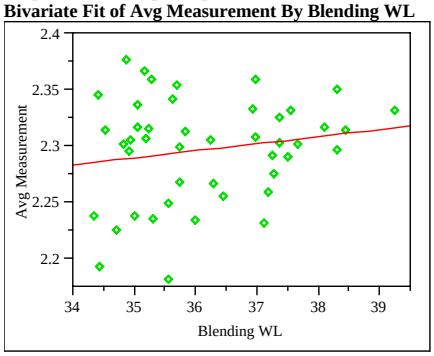
Linear Fit
Avg Measurement = 0.5170451 + 0.0272599 SME Avg WL
Summary of Fit

RSquare	0.23867
RSquare Adj	0.220965
Root Mean Square Error	0.096372
Mean of Response	1.577408
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.12519773	0.125198	13.4801
Error	43	0.39936607	0.009288	Prob > F
C. Total	44	0.52456379		0.0007

Prep=Fusion, Sample Type=SME, ICP=M-13, Analyte=Mn/Mg
Bivariate Fit of Avg Measurement By Blending WL



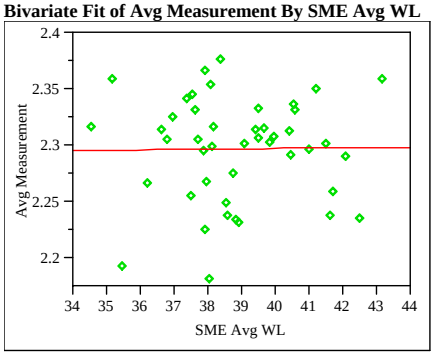
Linear Fit
Avg Measurement = 2.0704698 + 0.0062635 Blending WL
Summary of Fit

RSquare	0.030657
RSquare Adj	0.008114
Root Mean Square Error	0.046012
Mean of Response	2.297085
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00287912	0.002879	1.3599
Error	43	0.09103473	0.002117	Prob > F
C. Total	44	0.09391385		0.2500

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 2.2850337 + 0.0003098 SME Avg WL
Summary of Fit

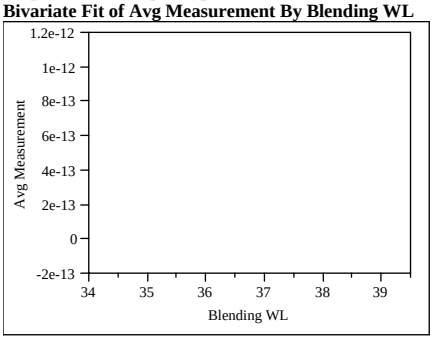
RSquare	0.000172
RSquare Adj	-0.02308
Root Mean Square Error	0.04673
Mean of Response	2.297085
Observations (or Sum Wgts)	45

Analysis of Variance

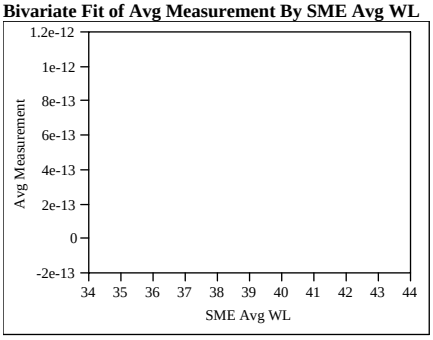
Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00001617	0.000016	0.0074
Error	43	0.09389767	0.002184	Prob > F
C. Total	44	0.09391385		0.9318

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

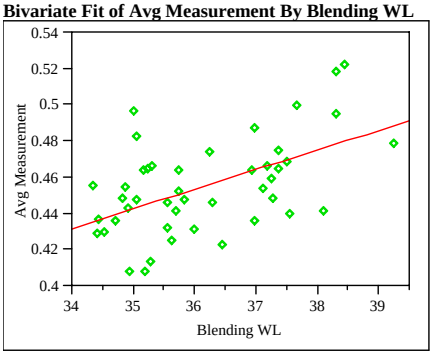
Prep=Fusion, Sample Type=SME, ICP=M-13, Analyte=Na
Bivariate Fit of Avg Measurement By Blending WL



Bivariate Fit of Avg Measurement By SME Avg WL



Prep=Fusion, Sample Type=SME, ICP=M-13, Analyte=Ni
Bivariate Fit of Avg Measurement By Blending WL



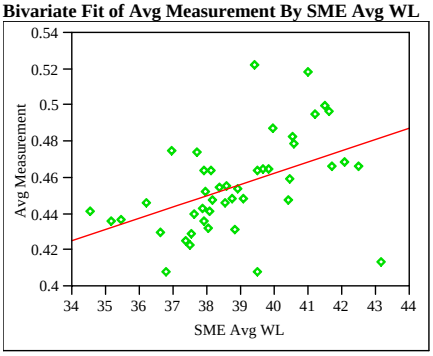
Linear Fit
Avg Measurement = 0.0632886 + 0.0108395 Blending WL
Summary of Fit

RSquare	0.281539
RSquare Adj	0.264831
Root Mean Square Error	0.022622
Mean of Response	0.455468
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00862283	0.008623	16.8502
Error	43	0.02200465	0.000512	Prob > F
C. Total	44	0.03062748		0.0002

Bivariate Fit of Avg Measurement By SME Avg WL



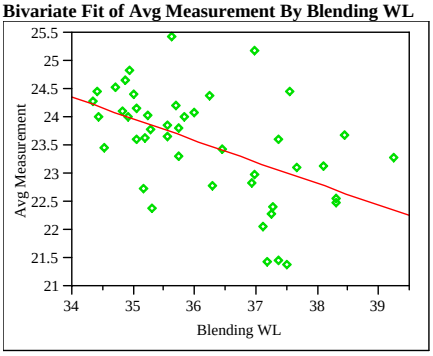
Linear Fit
Avg Measurement = 0.2126764 + 0.0062417 SME Avg WL
Summary of Fit

RSquare	0.214311
RSquare Adj	0.196039
Root Mean Square Error	0.023656
Mean of Response	0.455468
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00656380	0.006564	11.7290
Error	43	0.02406368	0.000560	Prob > F
C. Total	44	0.03062748		0.0014

Prep=Fusion, Sample Type=SME, ICP=M-13, Analyte=Si
Bivariate Fit of Avg Measurement By Blending WL



Linear Fit
Avg Measurement = 37.404384 - 0.3836321 Blending WL
Summary of Fit

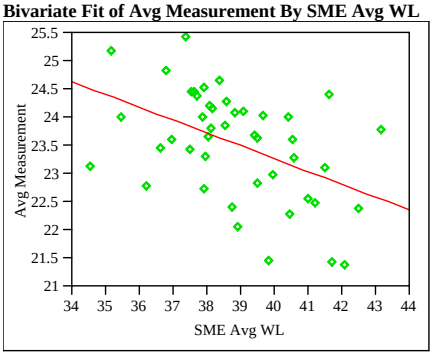
RSquare	0.263977
RSquare Adj	0.24686
Root Mean Square Error	0.836868
Mean of Response	23.5244
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	10.800835	10.8008	15.4221
Error	43	30.114945	0.7003	Prob > F
C. Total	44	40.915780		0.0003

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Bivariate Fit of Avg Measurement By SME Avg WL



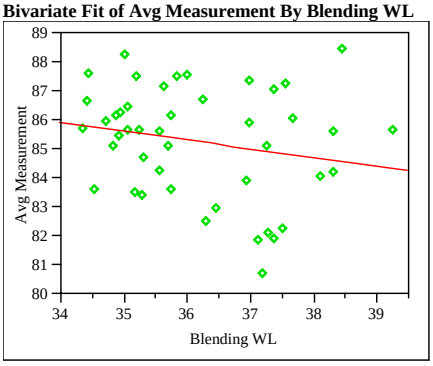
Linear Fit
Avg Measurement = 32.382738 - 0.2277309 SME Avg WL
Summary of Fit

RSquare	0.21355
RSquare Adj	0.195261
Root Mean Square Error	0.865061
Mean of Response	23.5244
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	8.737585	8.73759	11.6761
Error	43	32.178195	0.74833	Prob > F
C. Total	44	40.915780		0.0014

Prep=Fusion, Sample Type=SME, ICP=M-13, Analyte=Sum of Oxides
Bivariate Fit of Avg Measurement By Blending WL



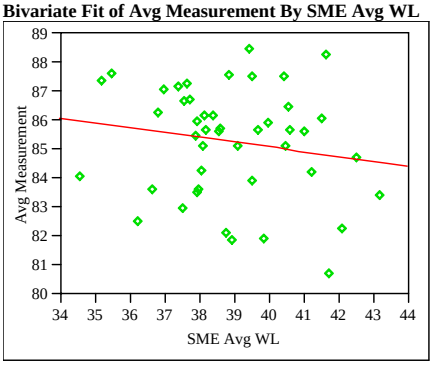
Linear Fit
Avg Measurement = 96.107982 - 0.2995983 Blending WL
Summary of Fit

RSquare	0.041504
RSquare Adj	0.019213
Root Mean Square Error	1.880919
Mean of Response	85.26838
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	6.58728	6.58728	1.8619
Error	43	152.12787	3.53786	Prob > F
C. Total	44	158.71515		0.1795

Bivariate Fit of Avg Measurement By SME Avg WL



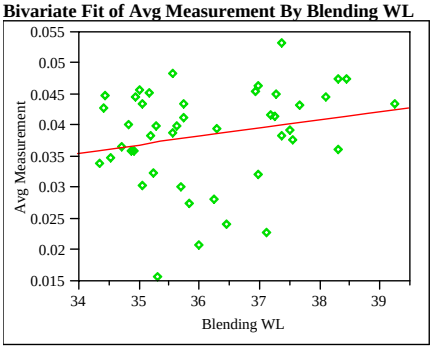
Linear Fit
Avg Measurement = 91.540499 - 0.1612441 SME Avg WL
Summary of Fit

RSquare	0.027599
RSquare Adj	0.004985
Root Mean Square Error	1.894513
Mean of Response	85.26838
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	4.38042	4.38042	1.2205
Error	43	154.33474	3.58918	Prob > F
C. Total	44	158.71515		0.2754

Prep=Fusion, Sample Type=SME, ICP=M-13, Analyte=Ti
Bivariate Fit of Avg Measurement By Blending WL



Linear Fit
Avg Measurement = -0.008981 + 0.0013126 Blending WL
Summary of Fit

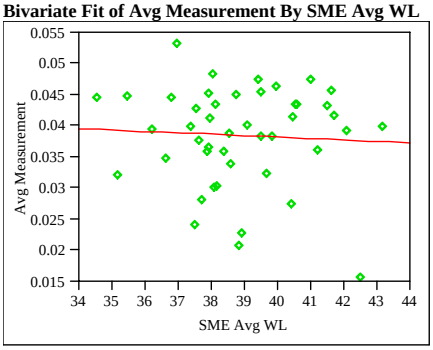
RSquare	0.045475
RSquare Adj	0.023277
Root Mean Square Error	0.007856
Mean of Response	0.038508
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00012644	0.000126	2.0486
Error	43	0.00265393	0.000062	Prob > F
C. Total	44	0.00278037		0.1596

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Bivariate Fit of Avg Measurement By SME Avg WL



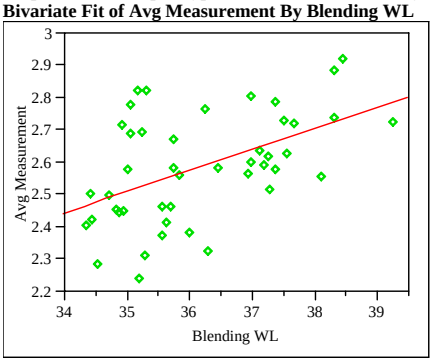
Linear Fit
Avg Measurement = 0.0476551 - 0.0002351 SME Avg WL
Summary of Fit

RSquare	0.003351
RSquare Adj	-0.01983
Root Mean Square Error	0.008028
Mean of Response	0.038508
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00000932	0.000009	0.1446
Error	43	0.00277105	0.000064	Prob > F
C. Total	44	0.00278037		0.7057

Prep=Fusion, Sample Type=SME, ICP=M-13, Analyte=U
Bivariate Fit of Avg Measurement By Blending WL



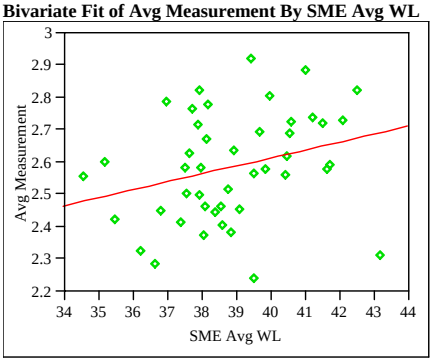
Linear Fit
Avg Measurement = 0.2259216 + 0.0652411 Blending WL
Summary of Fit

RSquare	0.250812
RSquare Adj	0.233389
Root Mean Square Error	0.147306
Mean of Response	2.586374
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.3123706	0.312371	14.3955
Error	43	0.9330653	0.021699	Prob > F
C. Total	44	1.2454359		0.0005

Bivariate Fit of Avg Measurement By SME Avg WL



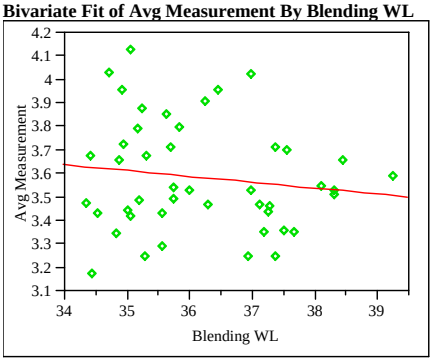
Linear Fit
Avg Measurement = 1.6346347 + 0.0244674 SME Avg WL
Summary of Fit

RSquare	0.080985
RSquare Adj	0.059612
Root Mean Square Error	0.16315
Mean of Response	2.586374
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.1008610	0.100861	3.7892
Error	43	1.1445749	0.026618	Prob > F
C. Total	44	1.2454359		0.0581

Prep=Fusion, Sample Type=SME, ICP=M-13, Analyte=U/Ca
Bivariate Fit of Avg Measurement By Blending WL



Linear Fit
Avg Measurement = 4.4798248 - 0.0247299 Blending WL
Summary of Fit

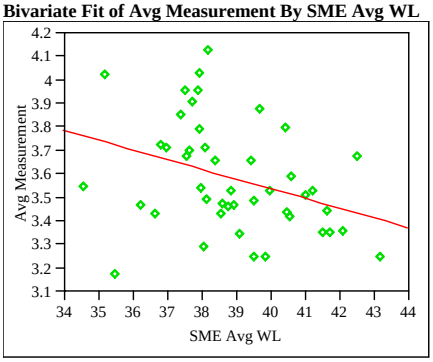
RSquare	0.018487
RSquare Adj	-0.00434
Root Mean Square Error	0.235404
Mean of Response	3.585086
Observations (or Sum Wgts)	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.0448820	0.044882	0.8099
Error	43	2.3828399	0.055415	Prob > F
C. Total	44	2.4277219		0.3732

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Bivariate Fit of Avg Measurement By SME Avg WL



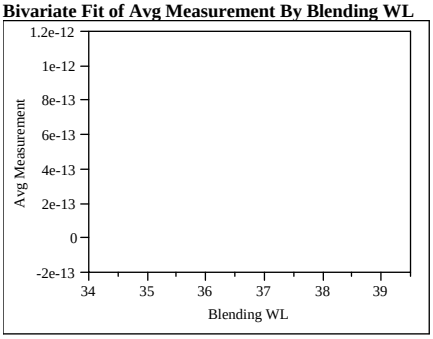
Linear Fit
Avg Measurement = 5.1909832 - 0.0412846 SME Avg WL
Summary of Fit

RSquare	0.118283
RSquare Adj	0.097778
Root Mean Square Error	0.223116
Mean of Response	3.585086
Observations (or Sum Wgts)	45

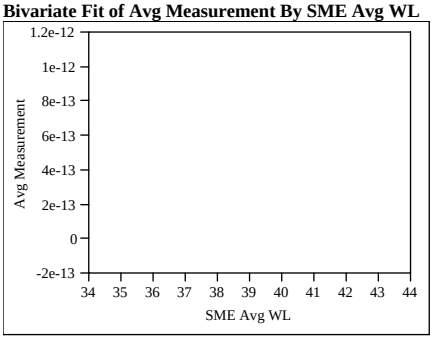
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.2871593	0.287159	5.7685
Error	43	2.1405627	0.049781	Prob > F
C. Total	44	2.4277219		0.0207

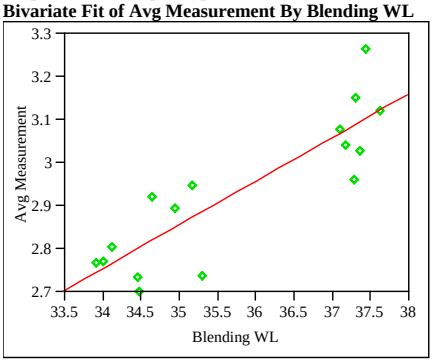
Prep=Fusion, Sample Type=SME, ICP=M-13, Analyte=Zr
Bivariate Fit of Avg Measurement By Blending WL



Bivariate Fit of Avg Measurement By SME Avg WL



Prep=Fusion, Sample Type=SME, ICP=M-14, Analyte=Al
Bivariate Fit of Avg Measurement By Blending WL



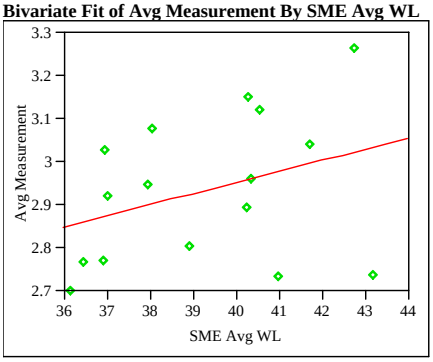
Linear Fit
Avg Measurement = -0.689576 + 0.1012661 Blending WL
Summary of Fit

RSquare	0.752813
RSquare Adj	0.735156
Root Mean Square Error	0.088198
Mean of Response	2.933726
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.33167185	0.331672	42.6372
Error	14	0.10890499	0.007779	Prob > F
C. Total	15	0.44057684		<.0001

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 1.9281314 + 0.0256017 SME Avg WL
Summary of Fit

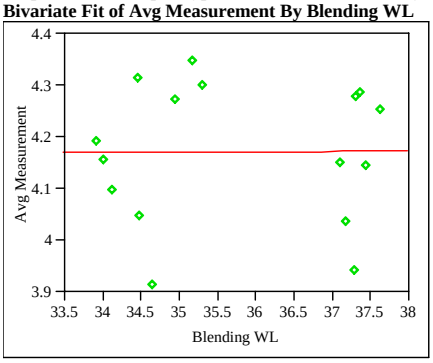
RSquare	0.11658
RSquare Adj	0.053478
Root Mean Square Error	0.166736
Mean of Response	2.933726
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.05136231	0.051362	1.8475
Error	14	0.38921453	0.027801	Prob > F
C. Total	15	0.44057684		0.1956

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Fusion, Sample Type=SME, ICP=M-14, Analyte=Al/Ca
Bivariate Fit of Avg Measurement By Blending WL



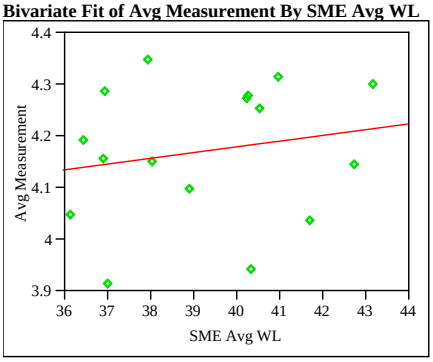
Linear Fit
Avg Measurement = 4.160622 + 0.0003129 Blending WL
Summary of Fit

RSquare	0.000012
RSquare Adj	-0.07142
Root Mean Square Error	0.13854
Mean of Response	4.171817
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00000317	0.000003	0.0002
Error	14	0.26870850	0.019193	Prob > F
C. Total	15	0.26871167		0.9899

Bivariate Fit of Avg Measurement By SME Avg WL



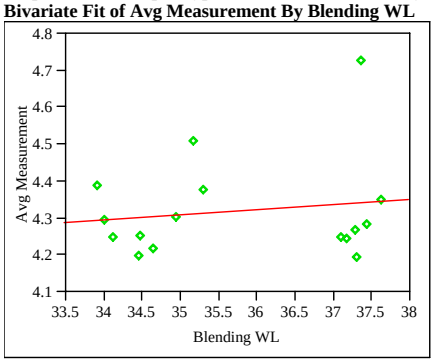
Linear Fit
Avg Measurement = 3.7318262 + 0.0112019 SME Avg WL
Summary of Fit

RSquare	0.036593
RSquare Adj	-0.03222
Root Mean Square Error	0.135983
Mean of Response	4.171817
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00983301	0.009833	0.5318
Error	14	0.25887866	0.018491	Prob > F
C. Total	15	0.26871167		0.4779

Prep=Fusion, Sample Type=SME, ICP=M-14, Analyte=Al/Mg
Bivariate Fit of Avg Measurement By Blending WL



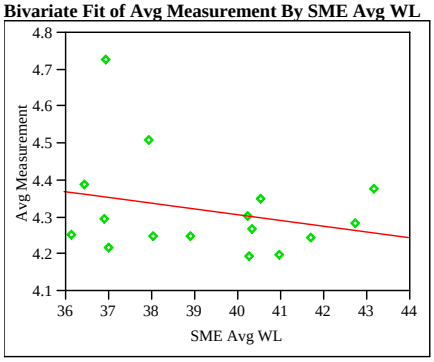
Linear Fit
Avg Measurement = 3.8347221 + 0.0135529 Blending WL
Summary of Fit

RSquare	0.021429
RSquare Adj	-0.04847
Root Mean Square Error	0.139206
Mean of Response	4.319645
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00594079	0.005941	0.3066
Error	14	0.27129675	0.019378	Prob > F
C. Total	15	0.27723755		0.5885

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 4.933046 - 0.0156168 SME Avg WL
Summary of Fit

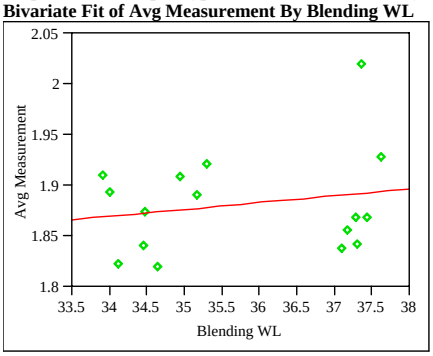
RSquare	0.068934
RSquare Adj	0.00243
Root Mean Square Error	0.135785
Mean of Response	4.319645
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.01911123	0.019111	1.0365
Error	14	0.25812632	0.018438	Prob > F
C. Total	15	0.27723755		0.3259

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Fusion, Sample Type=SME, ICP=M-14, Analyte=Al/Mn
Bivariate Fit of Avg Measurement By Blending WL



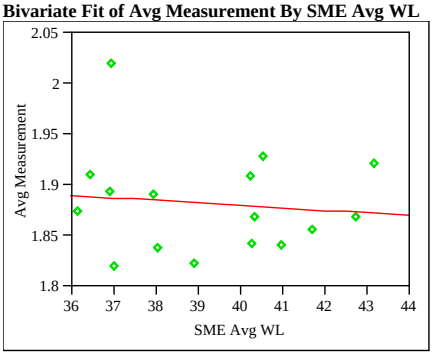
Linear Fit
Avg Measurement = 1.6422375 + 0.0066926 Blending WL
Summary of Fit

RSquare	0.037872
RSquare Adj	-0.03085
Root Mean Square Error	0.051272
Mean of Response	1.881698
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00144866	0.001449	0.5511
Error	14	0.03680337	0.002629	Prob > F
C. Total	15	0.03825203		0.4702

Bivariate Fit of Avg Measurement By SME Avg WL



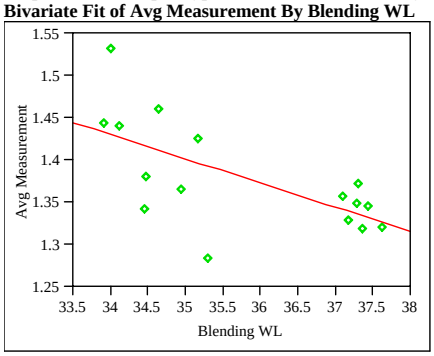
Linear Fit
Avg Measurement = 1.9800429 - 0.0025038 SME Avg WL
Summary of Fit

RSquare	0.012842
RSquare Adj	-0.05767
Root Mean Square Error	0.051935
Mean of Response	1.881698
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00049125	0.000491	0.1821
Error	14	0.03776078	0.002697	Prob > F
C. Total	15	0.03825203		0.6760

Prep=Fusion, Sample Type=SME, ICP=M-14, Analyte=B
Bivariate Fit of Avg Measurement By Blending WL



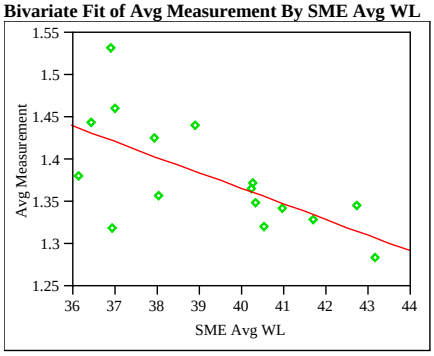
Linear Fit
Avg Measurement = 2.4042945 - 0.0286402 Blending WL
Summary of Fit

RSquare	0.420417
RSquare Adj	0.379018
Root Mean Square Error	0.051112
Mean of Response	1.379548
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.02652972	0.026530	10.1553
Error	14	0.03657363	0.002612	Prob > F
C. Total	15	0.06310335		0.0066

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 2.1071075 - 0.0185232 SME Avg WL
Summary of Fit

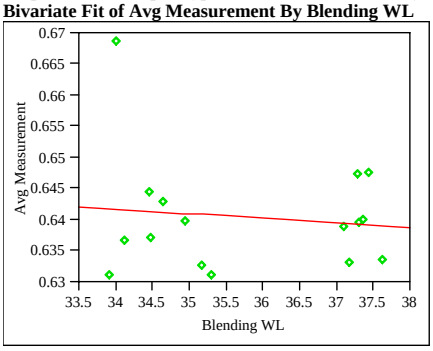
RSquare	0.426073
RSquare Adj	0.385078
Root Mean Square Error	0.050862
Mean of Response	1.379548
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.02688663	0.026887	10.3933
Error	14	0.03621672	0.002587	Prob > F
C. Total	15	0.06310335		0.0061

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Fusion, Sample Type=SME, ICP=M-14, Analyte=B/Li
Bivariate Fit of Avg Measurement By Blending WL



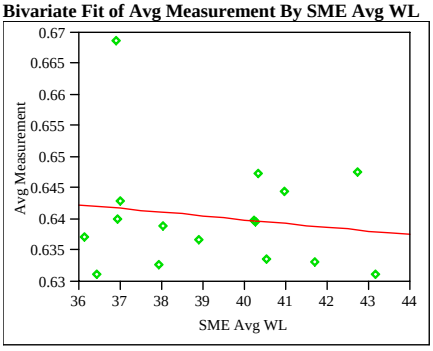
Linear Fit
Avg Measurement = 0.6684974 - 0.0007846 Blending WL
Summary of Fit

RSquare	0.015612
RSquare Adj	-0.0547
Root Mean Square Error	0.009469
Mean of Response	0.640425
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00001991	0.000020	0.2220
Error	14	0.00125534	0.000090	Prob > F
C. Total	15	0.00127525		0.6448

Bivariate Fit of Avg Measurement By SME Avg WL



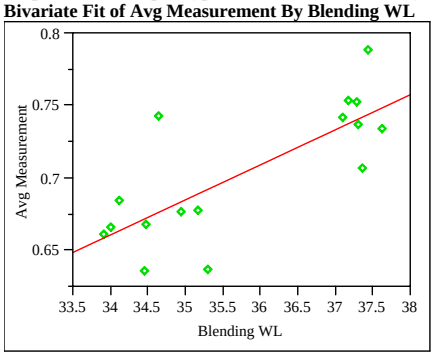
Linear Fit
Avg Measurement = 0.6642841 - 0.0006074 SME Avg WL
Summary of Fit

RSquare	0.022672
RSquare Adj	-0.04714
Root Mean Square Error	0.009435
Mean of Response	0.640425
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00002891	0.000029	0.3248
Error	14	0.00124634	0.000089	Prob > F
C. Total	15	0.00127525		0.5778

Prep=Fusion, Sample Type=SME, ICP=M-14, Analyte=Ca
Bivariate Fit of Avg Measurement By Blending WL



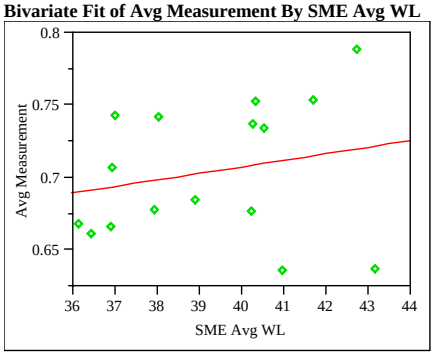
Linear Fit
Avg Measurement = -0.162343 + 0.0242213 Blending WL
Summary of Fit

RSquare	0.587344
RSquare Adj	0.557868
Root Mean Square Error	0.030858
Mean of Response	0.704293
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.01897464	0.018975	19.9265
Error	14	0.01333122	0.000952	Prob > F
C. Total	15	0.03230586		0.0005

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 0.5257809 + 0.0045448 SME Avg WL
Summary of Fit

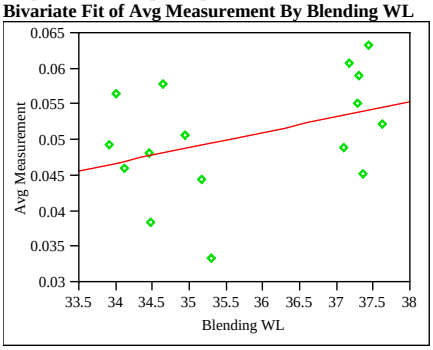
RSquare	0.050102
RSquare Adj	-0.01775
Root Mean Square Error	0.046818
Mean of Response	0.704293
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00161858	0.001619	0.7384
Error	14	0.03068728	0.002192	Prob > F
C. Total	15	0.03230586		0.4046

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Fusion, Sample Type=SME, ICP=M-14, Analyte=Cr
Bivariate Fit of Avg Measurement By Blending WL



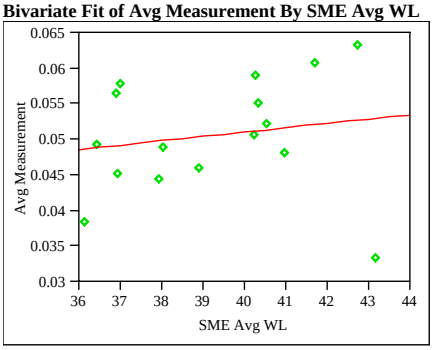
Linear Fit
Avg Measurement = -0.026666 + 0.0021601 Blending WL
Summary of Fit

RSquare	0.151871
RSquare Adj	0.09129
Root Mean Square Error	0.007759
Mean of Response	0.050621
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00015091	0.000151	2.5069
Error	14	0.00084276	0.000060	Prob > F
C. Total	15	0.00099367		0.1357

Bivariate Fit of Avg Measurement By SME Avg WL



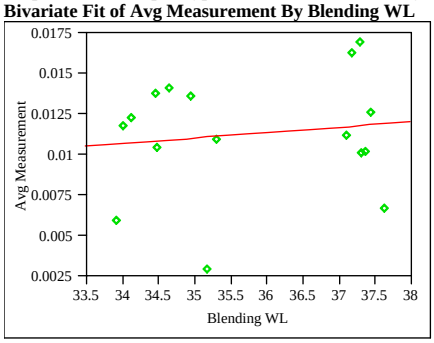
Linear Fit
Avg Measurement = 0.0264463 + 0.0006155 SME Avg WL
Summary of Fit

RSquare	0.029874
RSquare Adj	-0.03942
Root Mean Square Error	0.008298
Mean of Response	0.050621
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00002968	0.000030	0.4311
Error	14	0.00096398	0.000069	Prob > F
C. Total	15	0.00099367		0.5221

Prep=Fusion, Sample Type=SME, ICP=M-14, Analyte=Cu
Bivariate Fit of Avg Measurement By Blending WL



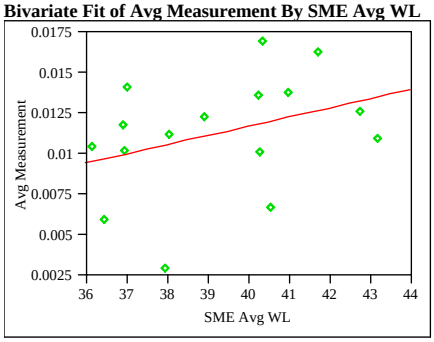
Linear Fit
Avg Measurement = -0.000666 + 0.000334 Blending WL
Summary of Fit

RSquare	0.017832
RSquare Adj	-0.05232
Root Mean Square Error	0.003768
Mean of Response	0.011285
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00000361	0.000004	0.2542
Error	14	0.00019877	0.000014	Prob > F
C. Total	15	0.00020238		0.6220

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = -0.010976 + 0.0005668 SME Avg WL
Summary of Fit

RSquare	0.124372
RSquare Adj	0.061827
Root Mean Square Error	0.003558
Mean of Response	0.011285
Observations (or Sum Wgts)	16

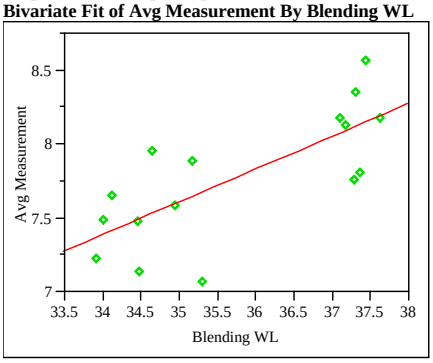
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00002517	0.000025	1.9885
Error	14	0.00017721	0.000013	Prob > F
C. Total	15	0.00020238		0.1803

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Fusion, Sample Type=SME, ICP=M-14, Analyte=Fe

Bivariate Fit of Avg Measurement By Blending WL



Linear Fit

Avg Measurement = -0.162233 + 0.2220148 Blending WL

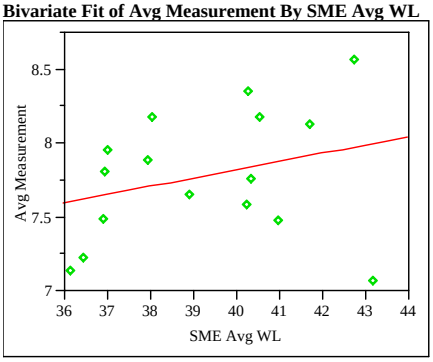
Summary of Fit

RSquare	0.552725
RSquare Adj	0.520777
Root Mean Square Error	0.303557
Mean of Response	7.781455
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	1.5942043	1.59420	17.3007
Error	14	1.2900565	0.09215	Prob > F
C. Total	15	2.8842608		0.0010

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit

Avg Measurement = 5.5807942 + 0.0560272 SME Avg WL

Summary of Fit

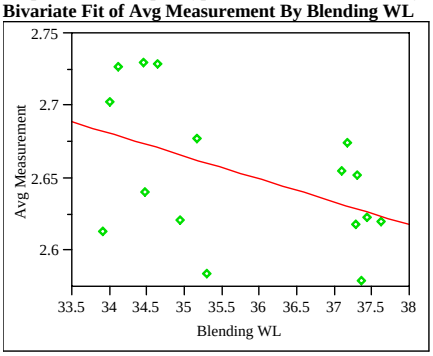
RSquare	0.085285
RSquare Adj	0.019948
Root Mean Square Error	0.434106
Mean of Response	7.781455
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.2459831	0.245983	1.3053
Error	14	2.6382777	0.188448	Prob > F
C. Total	15	2.8842608		0.2724

Prep=Fusion, Sample Type=SME, ICP=M-14, Analyte=Fe/Al

Bivariate Fit of Avg Measurement By Blending WL



Linear Fit

Avg Measurement = 3.2205383 - 0.0158602 Blending WL

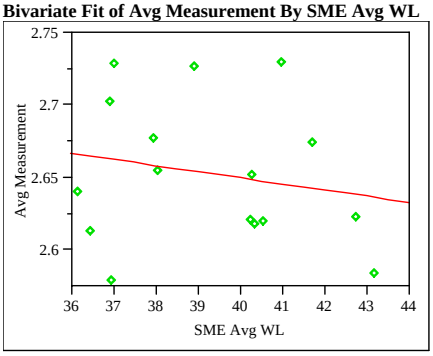
Summary of Fit

RSquare	0.220268
RSquare Adj	0.164573
Root Mean Square Error	0.045356
Mean of Response	2.65306
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00813575	0.008136	3.9549
Error	14	0.02880000	0.002057	Prob > F
C. Total	15	0.03693576		0.0666

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit

Avg Measurement = 2.8200855 - 0.0042523 SME Avg WL

Summary of Fit

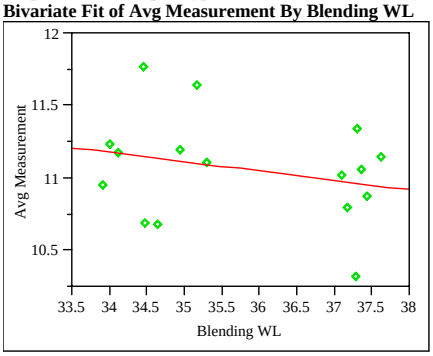
RSquare	0.038363
RSquare Adj	-0.03033
Root Mean Square Error	0.050369
Mean of Response	2.65306
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00141698	0.001417	0.5585
Error	14	0.03551878	0.002537	Prob > F
C. Total	15	0.03693576		0.4672

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Fusion, Sample Type=SME, ICP=M-14, Analyte=Fe/Ca
Bivariate Fit of Avg Measurement By Blending WL



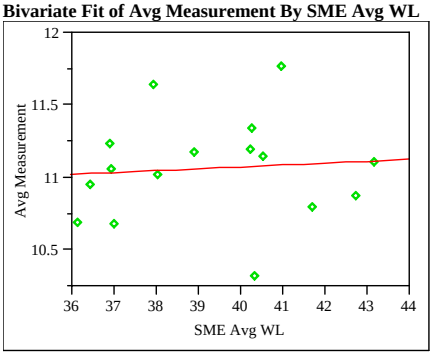
Linear Fit
Avg Measurement = 13.366637 - 0.0643301 Blending WL
Summary of Fit

RSquare	0.068662
RSquare Adj	0.002138
Root Mean Square Error	0.36011
Mean of Response	11.06491
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.1338471	0.133847	1.0321
Error	14	1.8155116	0.129679	Prob > F
C. Total	15	1.9493588		0.3269

Bivariate Fit of Avg Measurement By SME Avg WL



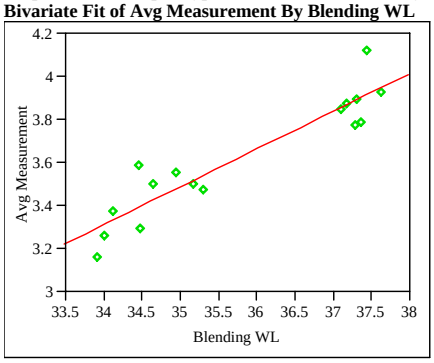
Linear Fit
Avg Measurement = 10.560725 + 0.0128361 SME Avg WL
Summary of Fit

RSquare	0.006623
RSquare Adj	-0.06433
Root Mean Square Error	0.371911
Mean of Response	11.06491
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.0129114	0.012911	0.0933
Error	14	1.9364474	0.138318	Prob > F
C. Total	15	1.9493588		0.7645

Prep=Fusion, Sample Type=SME, ICP=M-14, Analyte=Fe/Li
Bivariate Fit of Avg Measurement By Blending WL



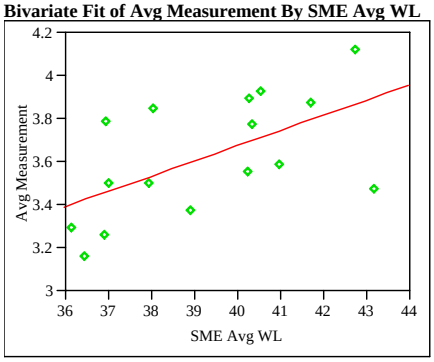
Linear Fit
Avg Measurement = -2.646282 + 0.1752249 Blending WL
Summary of Fit

RSquare	0.863585
RSquare Adj	0.853841
Root Mean Square Error	0.105852
Mean of Response	3.623266
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.9930521	0.993052	88.6283
Error	14	0.1568656	0.011205	Prob > F
C. Total	15	1.1499177		<.0001

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 0.8516798 + 0.0705626 SME Avg WL
Summary of Fit

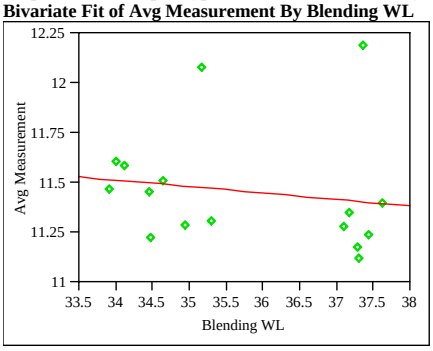
RSquare	0.339304
RSquare Adj	0.292112
Root Mean Square Error	0.232954
Mean of Response	3.623266
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.3901718	0.390172	7.1898
Error	14	0.7597459	0.054268	Prob > F
C. Total	15	1.1499177		0.0179

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Fusion, Sample Type=SME, ICP=M-14, Analyte=Fe/Mg
Bivariate Fit of Avg Measurement By Blending WL



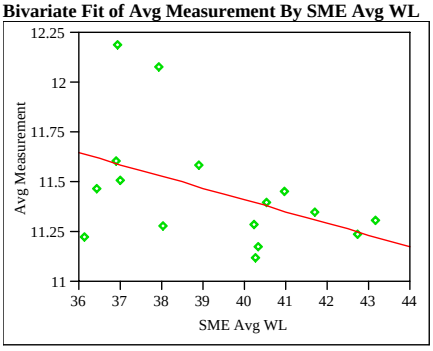
Linear Fit
Avg Measurement = 12.628491 - 0.032791 Blending WL
Summary of Fit

RSquare	0.025737
RSquare Adj	-0.04385
Root Mean Square Error	0.306651
Mean of Response	11.45523
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.0347769	0.034777	0.3698
Error	14	1.3164879	0.094035	Prob > F
C. Total	15	1.3512648		0.5528

Bivariate Fit of Avg Measurement By SME Avg WL



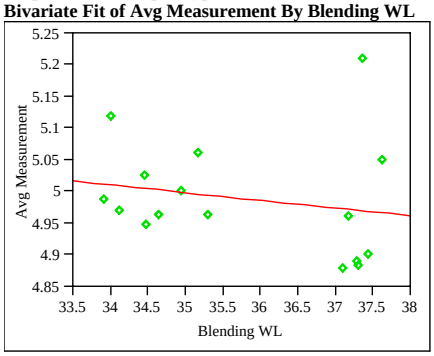
Linear Fit
Avg Measurement = 13.769062 - 0.0589086 SME Avg WL
Summary of Fit

RSquare	0.201244
RSquare Adj	0.14419
Root Mean Square Error	0.27766
Mean of Response	11.45523
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.2719340	0.271934	3.5273
Error	14	1.0793308	0.077095	Prob > F
C. Total	15	1.3512648		0.0814

Prep=Fusion, Sample Type=SME, ICP=M-14, Analyte=Fe/Mn
Bivariate Fit of Avg Measurement By Blending WL



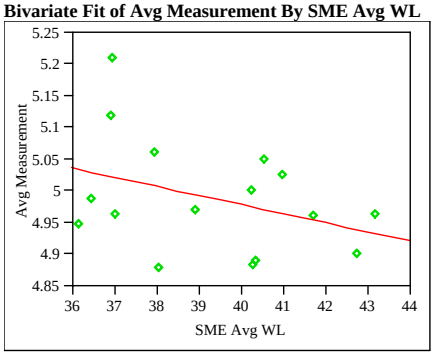
Linear Fit
Avg Measurement = 5.4217809 - 0.0120816 Blending WL
Summary of Fit

RSquare	0.038932
RSquare Adj	-0.02972
Root Mean Square Error	0.091238
Mean of Response	4.9895
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00472097	0.004721	0.5671
Error	14	0.11654246	0.008324	Prob > F
C. Total	15	0.12126343		0.4639

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 5.554662 - 0.0143886 SME Avg WL
Summary of Fit

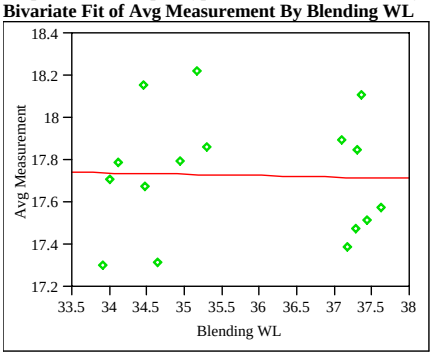
RSquare	0.133787
RSquare Adj	0.071915
Root Mean Square Error	0.086619
Mean of Response	4.9895
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.01622350	0.016224	2.1623
Error	14	0.10503993	0.007503	Prob > F
C. Total	15	0.12126343		0.1635

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Fusion, Sample Type=SME, ICP=M-14, Analyte=Fe/Ni
Bivariate Fit of Avg Measurement By Blending WL



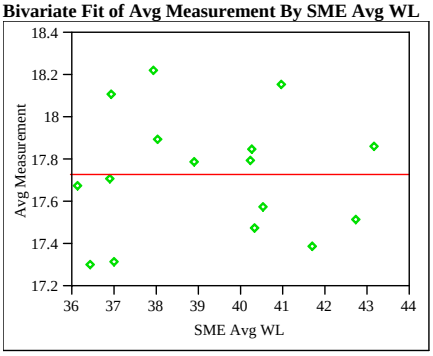
Linear Fit
Avg Measurement = 17.962607 - 0.0065424 Blending WL
Summary of Fit

RSquare	0.001115
RSquare Adj	-0.07023
Root Mean Square Error	0.297585
Mean of Response	17.72852
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.0013844	0.001384	0.0156
Error	14	1.2397919	0.088557	Prob > F
C. Total	15	1.2411763		0.9023

Bivariate Fit of Avg Measurement By SME Avg WL



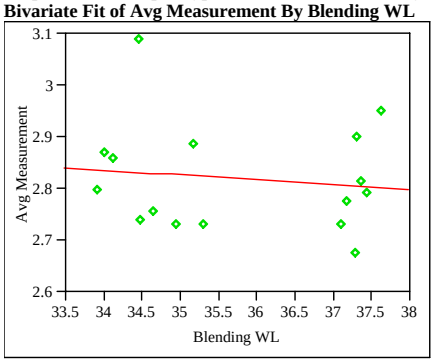
Linear Fit
Avg Measurement = 17.734975 - 0.0001644 SME Avg WL
Summary of Fit

RSquare	0.000002
RSquare Adj	-0.07143
Root Mean Square Error	0.29775
Mean of Response	17.72852
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.0000021	0.000002	0.0000
Error	14	1.2411742	0.088655	Prob > F
C. Total	15	1.2411763		0.9962

Prep=Fusion, Sample Type=SME, ICP=M-14, Analyte=Fe/U
Bivariate Fit of Avg Measurement By Blending WL



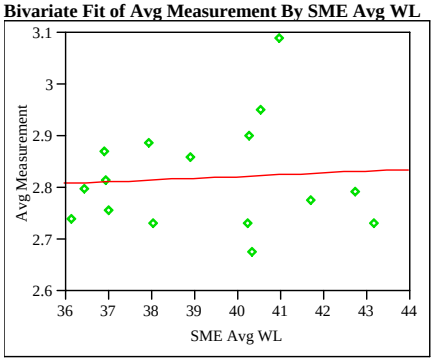
Linear Fit
Avg Measurement = 3.1539075 - 0.0093416 Blending WL
Summary of Fit

RSquare	0.017453
RSquare Adj	-0.05273
Root Mean Square Error	0.106534
Mean of Response	2.819664
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00282244	0.002822	0.2487
Error	14	0.15889369	0.011350	Prob > F
C. Total	15	0.16171613		0.6257

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 2.6853252 + 0.0034202 SME Avg WL
Summary of Fit

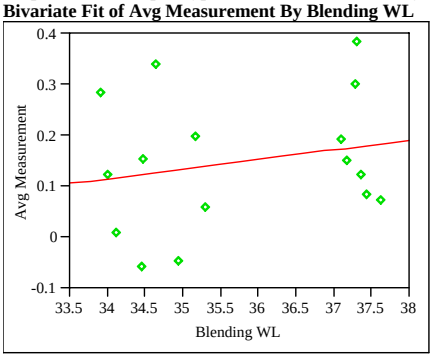
RSquare	0.005668
RSquare Adj	-0.06536
Root Mean Square Error	0.107171
Mean of Response	2.819664
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00091665	0.000917	0.0798
Error	14	0.16079948	0.011486	Prob > F
C. Total	15	0.16171613		0.7817

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Fusion, Sample Type=SME, ICP=M-14, Analyte=K
Bivariate Fit of Avg Measurement By Blending WL



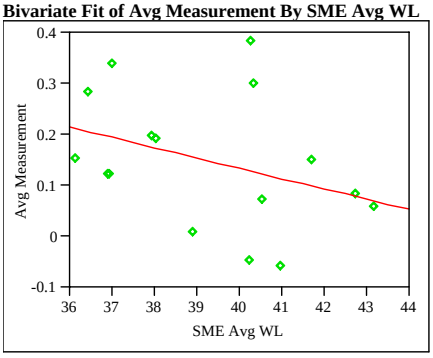
Linear Fit
Avg Measurement = -0.526583 + 0.0188764 Blending WL
Summary of Fit

RSquare	0.044768
RSquare Adj	-0.02346
Root Mean Square Error	0.132531
Mean of Response	0.148815
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.01152440	0.011524	0.6561
Error	14	0.24590219	0.017564	Prob > F
C. Total	15	0.25742660		0.4315

Bivariate Fit of Avg Measurement By SME Avg WL



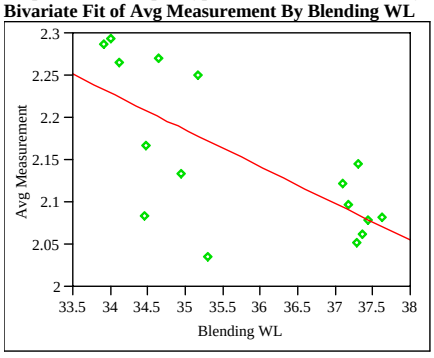
Linear Fit
Avg Measurement = 0.9460523 - 0.0202971 SME Avg WL
Summary of Fit

RSquare	0.125407
RSquare Adj	0.062936
Root Mean Square Error	0.126814
Mean of Response	0.148815
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.03228306	0.032283	2.0074
Error	14	0.22514353	0.016082	Prob > F
C. Total	15	0.25742660		0.1784

Prep=Fusion, Sample Type=SME, ICP=M-14, Analyte=Li
Bivariate Fit of Avg Measurement By Blending WL



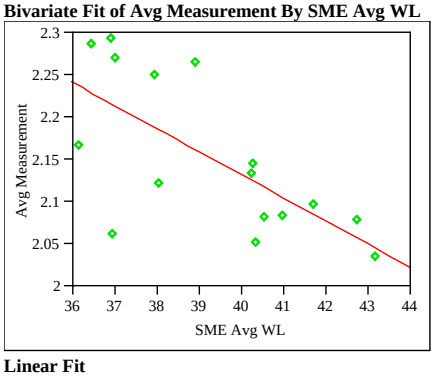
Linear Fit
Avg Measurement = 3.7162919 - 0.043718 Blending WL
Summary of Fit

RSquare	0.488857
RSquare Adj	0.452347
Root Mean Square Error	0.067946
Mean of Response	2.152063
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.06181591	0.061816	13.3896
Error	14	0.06463402	0.004617	Prob > F
C. Total	15	0.12644993		0.0026

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 3.2278736 - 0.0273894 SME Avg WL
Summary of Fit

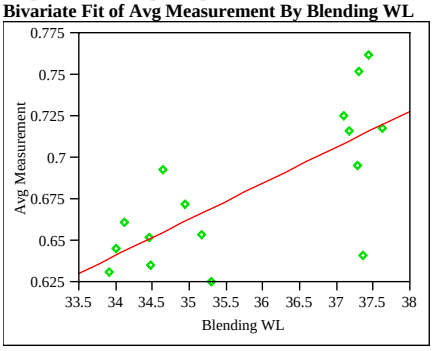
RSquare	0.464892
RSquare Adj	0.42667
Root Mean Square Error	0.069521
Mean of Response	2.152063
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.05878557	0.058786	12.1629
Error	14	0.06766436	0.004833	Prob > F
C. Total	15	0.12644993		0.0036

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Fusion, Sample Type=SME, ICP=M-14, Analyte=Mg
Bivariate Fit of Avg Measurement By Blending WL



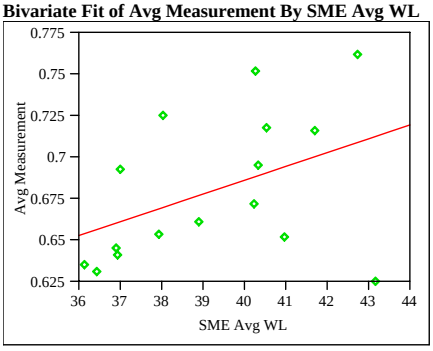
Linear Fit
Avg Measurement = -0.097374 + 0.0217266 Blending WL
Summary of Fit

RSquare	0.522235
RSquare Adj	0.488109
Root Mean Square Error	0.031586
Mean of Response	0.680003
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.01526730	0.015267	15.3031
Error	14	0.01396726	0.000998	Prob > F
C. Total	15	0.02923456		0.0016

Bivariate Fit of Avg Measurement By SME Avg WL



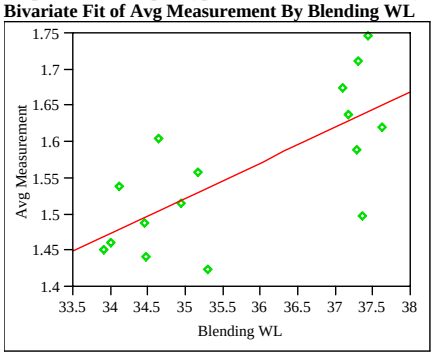
Linear Fit
Avg Measurement = 0.353199 + 0.0083202 SME Avg WL
Summary of Fit

RSquare	0.185557
RSquare Adj	0.127382
Root Mean Square Error	0.04124
Mean of Response	0.680003
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00542466	0.005425	3.1897
Error	14	0.02380989	0.001701	Prob > F
C. Total	15	0.02923456		0.0958

Prep=Fusion, Sample Type=SME, ICP=M-14, Analyte=Mn
Bivariate Fit of Avg Measurement By Blending WL



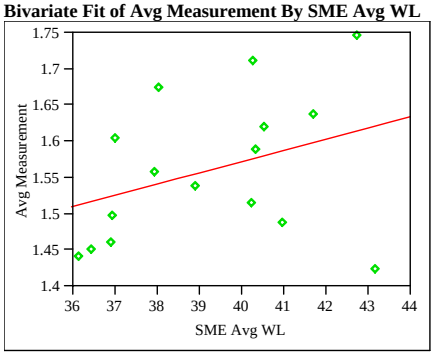
Linear Fit
Avg Measurement = -0.189245 + 0.0489085 Blending WL
Summary of Fit

RSquare	0.515592
RSquare Adj	0.480992
Root Mean Square Error	0.072055
Mean of Response	1.5607
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.07736568	0.077366	14.9013
Error	14	0.07268635	0.005192	Prob > F
C. Total	15	0.15005203		0.0017

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 0.9423548 + 0.0157426 SME Avg WL
Summary of Fit

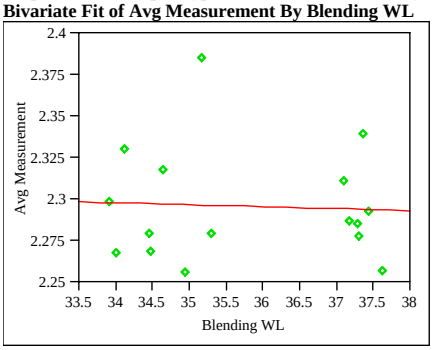
RSquare	0.129425
RSquare Adj	0.067241
Root Mean Square Error	0.096596
Mean of Response	1.5607
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.01942053	0.019421	2.0813
Error	14	0.13063150	0.009331	Prob > F
C. Total	15	0.15005203		0.1711

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Fusion, Sample Type=SME, ICP=M-14, Analyte=Mn/Mg
Bivariate Fit of Avg Measurement By Blending WL



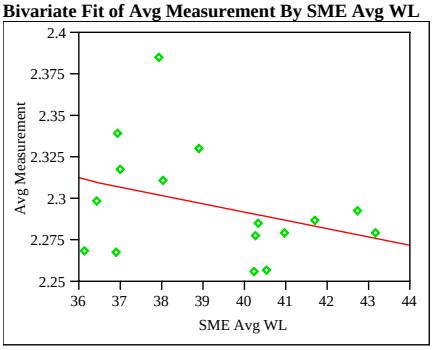
Linear Fit
Avg Measurement = 2.3383308 - 0.0011875 Blending WL
Summary of Fit

RSquare	0.002592
RSquare Adj	-0.06865
Root Mean Square Error	0.035408
Mean of Response	2.295843
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00004561	0.000046	0.0364
Error	14	0.01755247	0.001254	Prob > F
C. Total	15	0.01759808		0.8515

Bivariate Fit of Avg Measurement By SME Avg WL



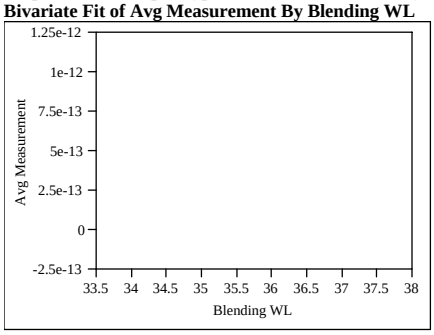
Linear Fit
Avg Measurement = 2.495876 - 0.0050927 SME Avg WL
Summary of Fit

RSquare	0.115488
RSquare Adj	0.052308
Root Mean Square Error	0.033344
Mean of Response	2.295843
Observations (or Sum Wgts)	16

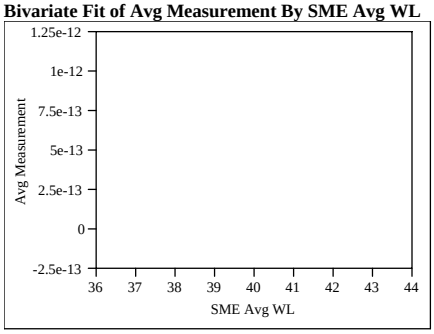
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00203236	0.002032	1.8279
Error	14	0.01556572	0.001112	Prob > F
C. Total	15	0.01759808		0.1978

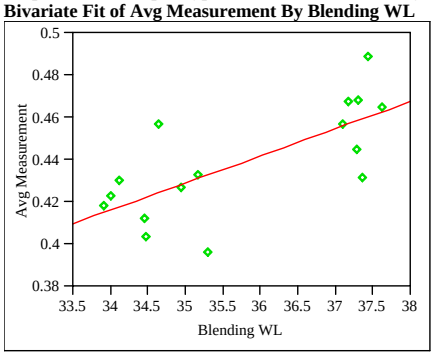
Prep=Fusion, Sample Type=SME, ICP=M-14, Analyte=Na
Bivariate Fit of Avg Measurement By Blending WL



Bivariate Fit of Avg Measurement By SME Avg WL



Prep=Fusion, Sample Type=SME, ICP=M-14, Analyte=Ni
Bivariate Fit of Avg Measurement By Blending WL



Linear Fit
Avg Measurement = -0.020493 + 0.0128429 Blending WL
Summary of Fit

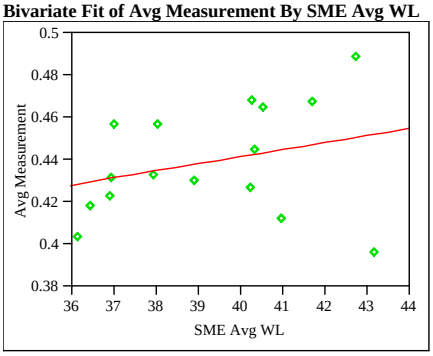
RSquare	0.512239
RSquare Adj	0.477399
Root Mean Square Error	0.019048
Mean of Response	0.439025
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00533464	0.005335	14.7026
Error	14	0.00507973	0.000363	Prob > F
C. Total	15	0.01041437		0.0018

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Bivariate Fit of Avg Measurement By SME Avg WL



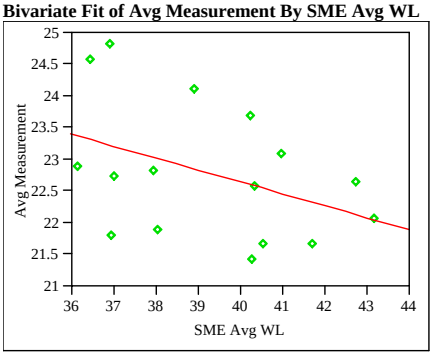
Linear Fit
Avg Measurement = 0.3069319 + 0.003363 SME Avg WL
Summary of Fit

RSquare	0.085099
RSquare Adj	0.019749
Root Mean Square Error	0.026088
Mean of Response	0.439025
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00088626	0.000886	1.3022
Error	14	0.00952811	0.000681	Prob > F
C. Total	15	0.01041437		0.2730

Bivariate Fit of Avg Measurement By SME Avg WL



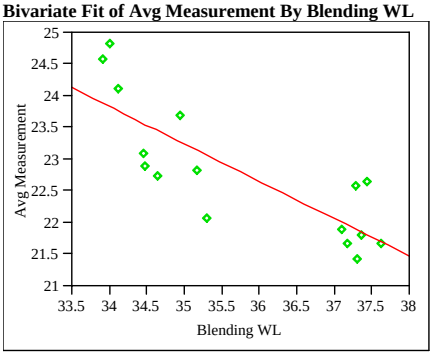
Linear Fit
Avg Measurement = 30.217246 - 0.1890806 SME Avg WL
Summary of Fit

RSquare	0.167233
RSquare Adj	0.10775
Root Mean Square Error	0.998245
Mean of Response	22.79046
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	2.801563	2.80156	2.8114
Error	14	13.950902	0.99649	Prob > F
C. Total	15	16.752465		0.1158

Prep=Fusion, Sample Type=SME, ICP=M-14, Analyte=Si
Bivariate Fit of Avg Measurement By Blending WL



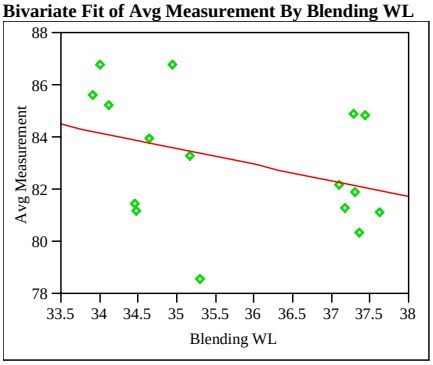
Linear Fit
Avg Measurement = 43.872177 - 0.5892038 Blending WL
Summary of Fit

RSquare	0.670244
RSquare Adj	0.64669
Root Mean Square Error	0.628162
Mean of Response	22.79046
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	11.228233	11.2282	28.4556
Error	14	5.524232	0.3946	Prob > F
C. Total	15	16.752465		0.0001

Prep=Fusion, Sample Type=SME, ICP=M-14, Analyte=Sum of Oxides
Bivariate Fit of Avg Measurement By Blending WL



Linear Fit
Avg Measurement = 105.15588 - 0.6164041 Blending WL
Summary of Fit

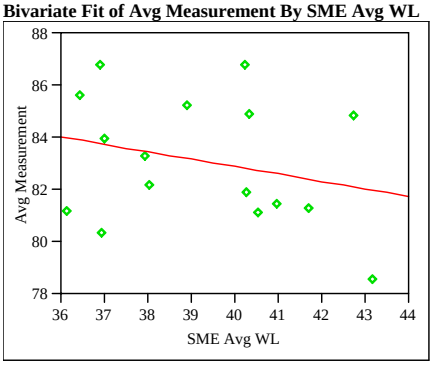
RSquare	0.137712
RSquare Adj	0.07612
Root Mean Square Error	2.344403
Mean of Response	83.10095
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	12.288853	12.2889	2.2359
Error	14	76.947186	5.4962	Prob > F
C. Total	15	89.236038		0.1570

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Bivariate Fit of Avg Measurement By SME Avg WL



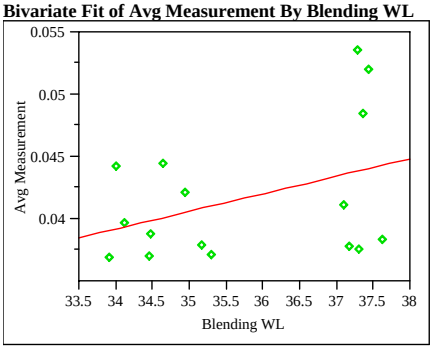
Linear Fit
Avg Measurement = 94.266249 - 0.2842607 SME Avg WL
Summary of Fit

RSquare	0.070958
RSquare Adj	0.004598
Root Mean Square Error	2.433458
Mean of Response	83.10095
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	6.331990	6.33199	1.0693
Error	14	82.904049	5.92172	Prob > F
C. Total	15	89.236038		0.3186

Prep=Fusion, Sample Type=SME, ICP=M-14, Analyte=Ti
Bivariate Fit of Avg Measurement By Blending WL



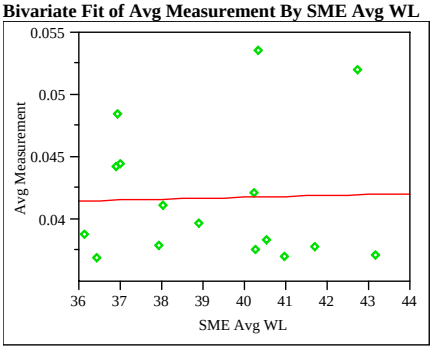
Linear Fit
Avg Measurement = -0.008594 + 0.0014066 Blending WL
Summary of Fit

RSquare	0.144364
RSquare Adj	0.083247
Root Mean Square Error	0.005205
Mean of Response	0.041734
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00006399	0.000064	2.3621
Error	14	0.00037927	0.000027	Prob > F
C. Total	15	0.00044326		0.1466

Bivariate Fit of Avg Measurement By SME Avg WL



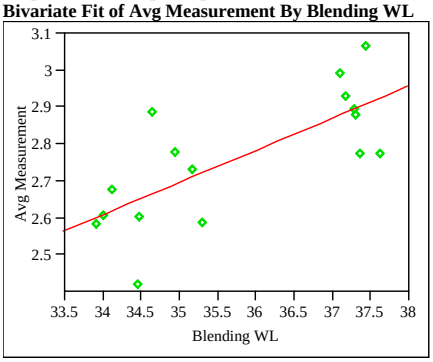
Linear Fit
Avg Measurement = 0.0387434 + 0.0000761 SME Avg WL
Summary of Fit

RSquare	0.001025
RSquare Adj	-0.07033
Root Mean Square Error	0.005624
Mean of Response	0.041734
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00000045	4.544e-7	0.0144
Error	14	0.00044281	0.000032	Prob > F
C. Total	15	0.00044326		0.9063

Prep=Fusion, Sample Type=SME, ICP=M-14, Analyte=U
Bivariate Fit of Avg Measurement By Blending WL



Linear Fit
Avg Measurement = -0.364293 + 0.0874023 Blending WL
Summary of Fit

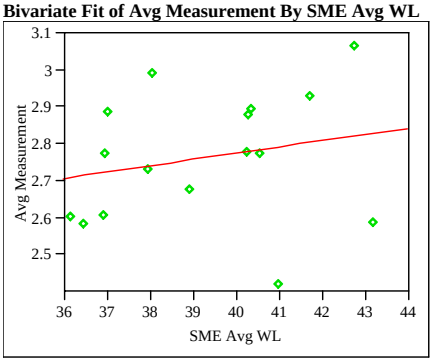
RSquare	0.536759
RSquare Adj	0.503671
Root Mean Square Error	0.123414
Mean of Response	2.762962
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.24707364	0.247074	16.2219
Error	14	0.21323258	0.015231	Prob > F
C. Total	15	0.46030622		0.0012

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Bivariate Fit of Avg Measurement By SME Avg WL



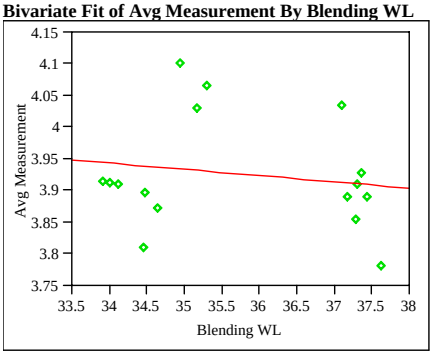
Linear Fit
Avg Measurement = 2.0944563 + 0.0170197 SME Avg WL
Summary of Fit

RSquare	0.049313
RSquare Adj	-0.01859
Root Mean Square Error	0.176798
Mean of Response	2.762962
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.02269917	0.022699	0.7262
Error	14	0.43760704	0.031258	Prob > F
C. Total	15	0.46030622		0.4085

Prep=Fusion, Sample Type=SME, ICP=M-14, Analyte=U/Ca
Bivariate Fit of Avg Measurement By Blending WL



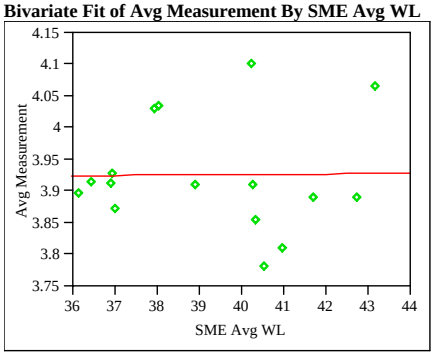
Linear Fit
Avg Measurement = 4.280371 - 0.0098893 Blending WL
Summary of Fit

RSquare	0.026457
RSquare Adj	-0.04308
Root Mean Square Error	0.091179
Mean of Response	3.926534
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00316306	0.003163	0.3805
Error	14	0.11639021	0.008314	Prob > F
C. Total	15	0.11955327		0.5473

Bivariate Fit of Avg Measurement By SME Avg WL



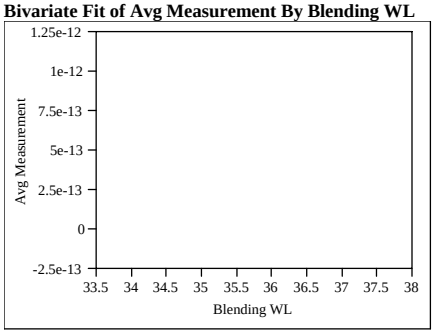
Linear Fit
Avg Measurement = 3.9092162 + 0.0004409 SME Avg WL
Summary of Fit

RSquare	0.000127
RSquare Adj	-0.07129
Root Mean Square Error	0.092404
Mean of Response	3.926534
Observations (or Sum Wgts)	16

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00001523	0.000015	0.0018
Error	14	0.11953804	0.008538	Prob > F
C. Total	15	0.11955327		0.9669

Prep=Fusion, Sample Type=SME, ICP=M-14, Analyte=Zr
Bivariate Fit of Avg Measurement By Blending WL



Bivariate Fit of Avg Measurement By SME Avg WL

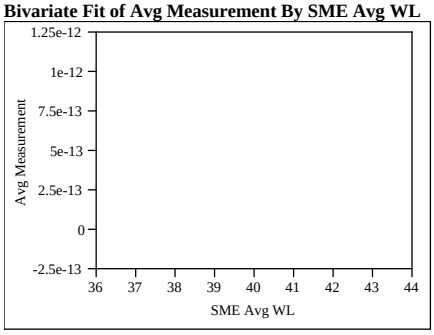
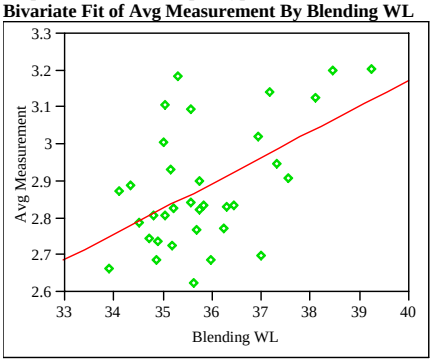


Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Mixed Acid, Sample Type=SME, ICP=M-13, Analyte=Al
Bivariate Fit of Avg Measurement By Blending WL



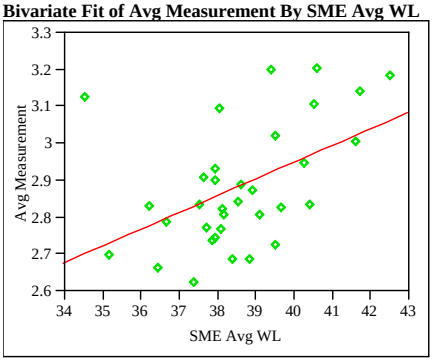
Linear Fit
Avg Measurement = 0.3945079 + 0.0694351 Blending WL
Summary of Fit

RSquare	0.277006
RSquare Adj	0.254413
Root Mean Square Error	0.143123
Mean of Response	2.884248
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.25114552	0.251146	12.2604
Error	32	0.65549685	0.020484	Prob > F
C. Total	33	0.90664238		0.0014

Bivariate Fit of Avg Measurement By SME Avg WL



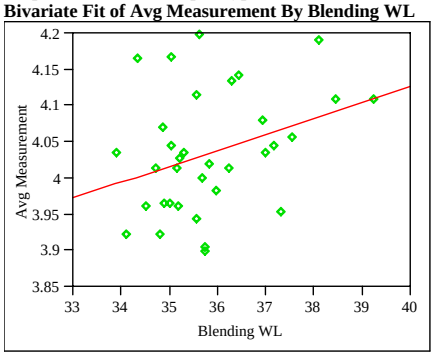
Linear Fit
Avg Measurement = 1.1364873 + 0.0452884 SME Avg WL
Summary of Fit

RSquare	0.229685
RSquare Adj	0.205612
Root Mean Square Error	0.147733
Mean of Response	2.884248
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.20824191	0.208242	9.5414
Error	32	0.69840047	0.021825	Prob > F
C. Total	33	0.90664238		0.0041

Prep=Mixed Acid, Sample Type=SME, ICP=M-13, Analyte=Al/Ca
Bivariate Fit of Avg Measurement By Blending WL



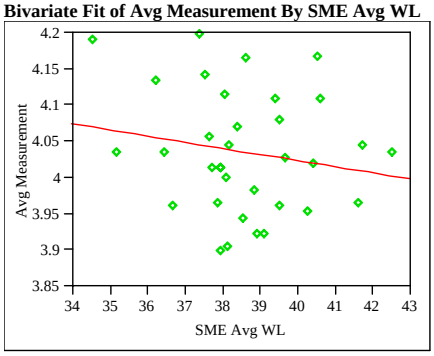
Linear Fit
Avg Measurement = 3.2413268 + 0.0221586 Blending WL
Summary of Fit

RSquare	0.111295
RSquare Adj	0.083523
Root Mean Square Error	0.07989
Mean of Response	4.035869
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.02557709	0.025577	4.0075
Error	32	0.20423584	0.006382	Prob > F
C. Total	33	0.22981293		0.0538

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 4.362395 - 0.008461 SME Avg WL
Summary of Fit

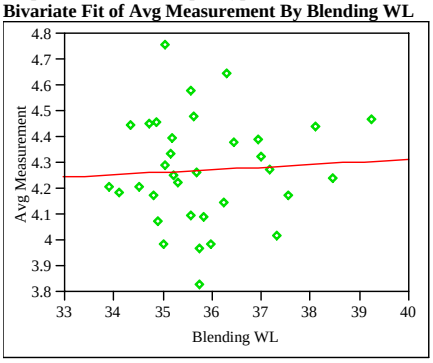
RSquare	0.031628
RSquare Adj	0.001366
Root Mean Square Error	0.083394
Mean of Response	4.035869
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00726844	0.007268	1.0451
Error	32	0.22254449	0.006955	Prob > F
C. Total	33	0.22981293		0.3143

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Mixed Acid, Sample Type=SME, ICP=M-13, Analyte=Al/Mg
Bivariate Fit of Avg Measurement By Blending WL



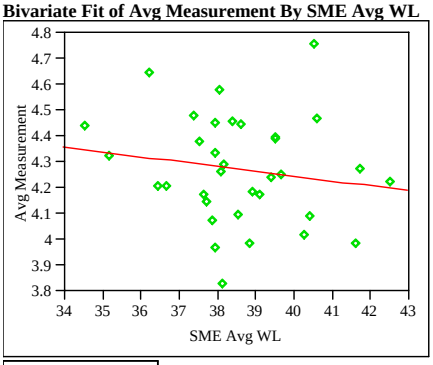
Linear Fit
Avg Measurement = 3.9221995 + 0.0097754 Blending WL
Summary of Fit

RSquare	0.003561
RSquare Adj	-0.02758
Root Mean Square Error	0.208619
Mean of Response	4.272718
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.0049778	0.004978	0.1144
Error	32	1.3926999	0.043522	Prob > F
C. Total	33	1.3976777		0.7374

Bivariate Fit of Avg Measurement By SME Avg WL



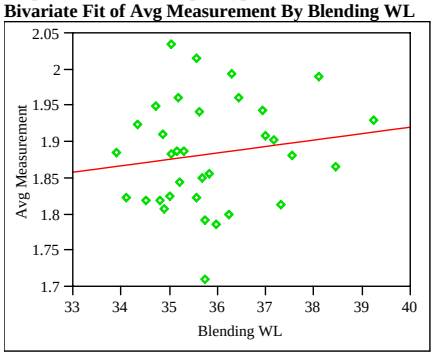
Linear Fit
Avg Measurement = 4.9902462 - 0.0185928 SME Avg WL
Summary of Fit

RSquare	0.025112
RSquare Adj	-0.00535
Root Mean Square Error	0.206351
Mean of Response	4.272718
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.0350980	0.035098	0.8243
Error	32	1.3625797	0.042581	Prob > F
C. Total	33	1.3976777		0.3707

Prep=Mixed Acid, Sample Type=SME, ICP=M-13, Analyte=Al/Mn
Bivariate Fit of Avg Measurement By Blending WL



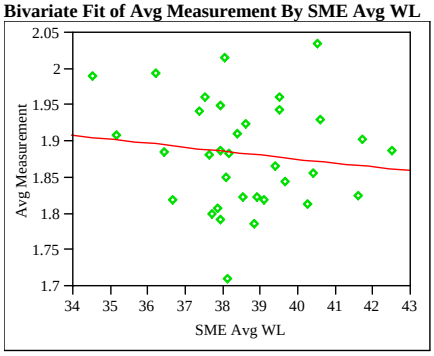
Linear Fit
Avg Measurement = 1.5565088 + 0.0091235 Blending WL
Summary of Fit

RSquare	0.02393
RSquare Adj	-0.00657
Root Mean Square Error	0.074342
Mean of Response	1.883652
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00433605	0.004336	0.7846
Error	32	0.17685730	0.005527	Prob > F
C. Total	33	0.18119335		0.3824

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 2.0936611 - 0.0054418 SME Avg WL
Summary of Fit

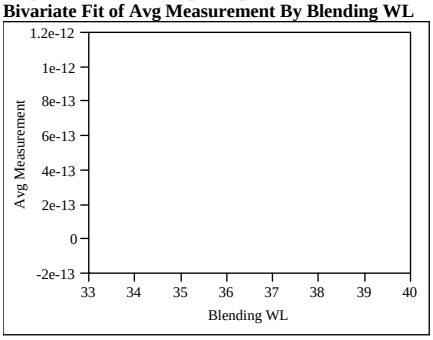
RSquare	0.016593
RSquare Adj	-0.01414
Root Mean Square Error	0.074621
Mean of Response	1.883652
Observations (or Sum Wgts)	34

Analysis of Variance

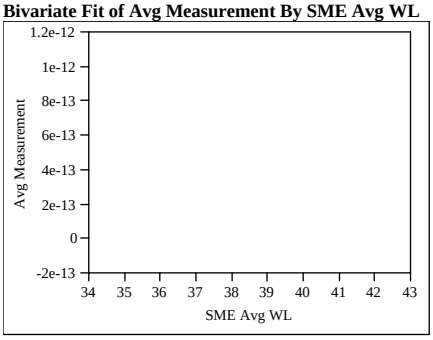
Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00300663	0.003007	0.5400
Error	32	0.17818672	0.005568	Prob > F
C. Total	33	0.18119335		0.4678

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

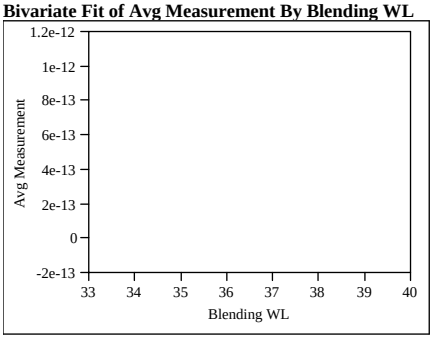
Prep=Mixed Acid, Sample Type=SME, ICP=M-13, Analyte=B
Bivariate Fit of Avg Measurement By Blending WL



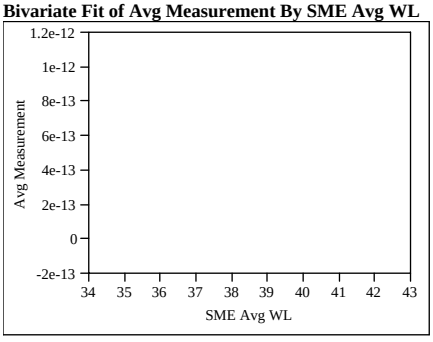
Bivariate Fit of Avg Measurement By SME Avg WL



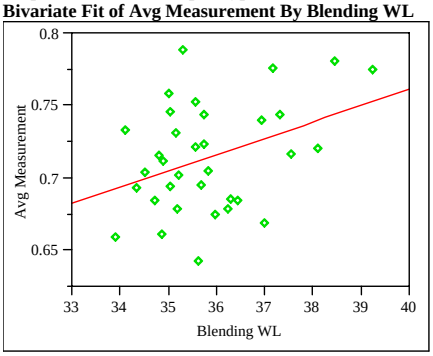
Prep=Mixed Acid, Sample Type=SME, ICP=M-13, Analyte=B/Li
Bivariate Fit of Avg Measurement By Blending WL



Bivariate Fit of Avg Measurement By SME Avg WL



Prep=Mixed Acid, Sample Type=SME, ICP=M-13, Analyte=Ca
Bivariate Fit of Avg Measurement By Blending WL



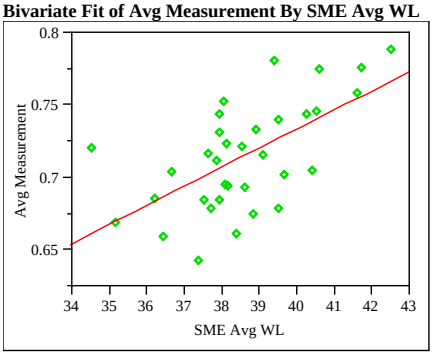
Linear Fit
Avg Measurement = 0.3104975 + 0.011273 Blending WL
Summary of Fit

RSquare	0.142532
RSquare Adj	0.115736
Root Mean Square Error	0.035278
Mean of Response	0.714714
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00661980	0.006620	5.3192
Error	32	0.03982448	0.001245	Prob > F
C. Total	33	0.04644429		0.0277

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 0.2054602 + 0.0131959 SME Avg WL
Summary of Fit

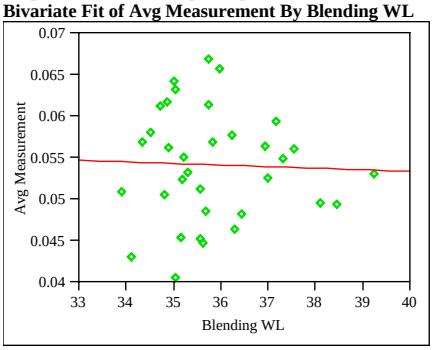
RSquare	0.380663
RSquare Adj	0.361308
Root Mean Square Error	0.029982
Mean of Response	0.714714
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.01767960	0.017680	19.6681
Error	32	0.02876468	0.000899	Prob > F
C. Total	33	0.04644429		0.0001

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Mixed Acid, Sample Type=SME, ICP=M-13, Analyte=Cr
Bivariate Fit of Avg Measurement By Blending WL



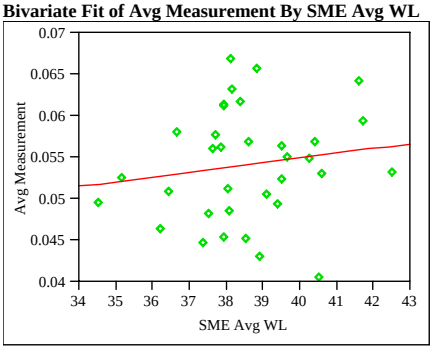
Linear Fit
Avg Measurement = 0.0608811 - 0.0001883 Blending WL
Summary of Fit

RSquare	0.001243
RSquare Adj	-0.02997
Root Mean Square Error	0.00681
Mean of Response	0.05413
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00000185	0.000002	0.0398
Error	32	0.00148400	0.000046	Prob > F
C. Total	33	0.00148585		0.8431

Bivariate Fit of Avg Measurement By SME Avg WL



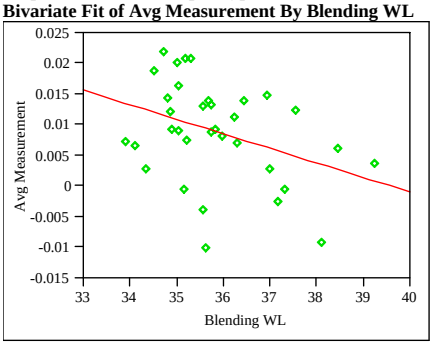
Linear Fit
Avg Measurement = 0.0320829 + 0.0005713 SME Avg WL
Summary of Fit

RSquare	0.022301
RSquare Adj	-0.00825
Root Mean Square Error	0.006738
Mean of Response	0.05413
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00003314	0.000033	0.7299
Error	32	0.00145271	0.000045	Prob > F
C. Total	33	0.00148585		0.3993

Prep=Mixed Acid, Sample Type=SME, ICP=M-13, Analyte=Cu
Bivariate Fit of Avg Measurement By Blending WL



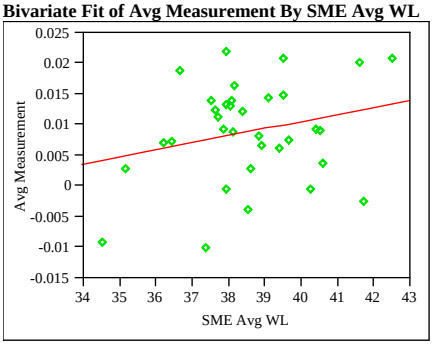
Linear Fit
Avg Measurement = 0.0939614 - 0.0023717 Blending WL
Summary of Fit

RSquare	0.133728
RSquare Adj	0.106657
Root Mean Square Error	0.007702
Mean of Response	0.008919
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00029301	0.000293	4.9399
Error	32	0.00189810	0.000059	Prob > F
C. Total	33	0.00219112		0.0334

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = -0.035578 + 0.001153 SME Avg WL
Summary of Fit

RSquare	0.061603
RSquare Adj	0.032279
Root Mean Square Error	0.008016
Mean of Response	0.008919
Observations (or Sum Wgts)	34

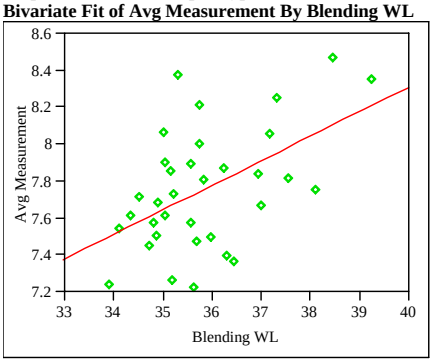
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00013498	0.000135	2.1007
Error	32	0.00205614	0.000064	Prob > F
C. Total	33	0.00219112		0.1570

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Mixed Acid, Sample Type=SME, ICP=M-13, Analyte=Fe

Bivariate Fit of Avg Measurement By Blending WL



Linear Fit

Avg Measurement = 2.975339 + 0.1333343 Blending WL

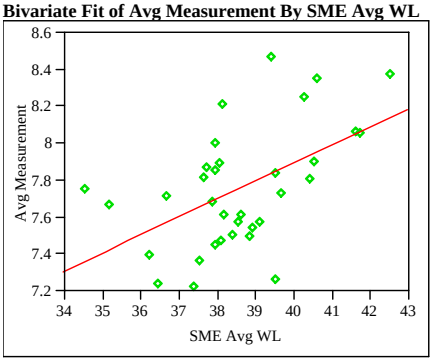
Summary of Fit

RSquare	0.260064
RSquare Adj	0.236941
Root Mean Square Error	0.286951
Mean of Response	7.756314
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.9260844	0.926084	11.2470
Error	32	2.6349071	0.082341	Prob > F
C. Total	33	3.5609915		0.0021

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit

Avg Measurement = 3.9822876 + 0.0977935 SME Avg WL

Summary of Fit

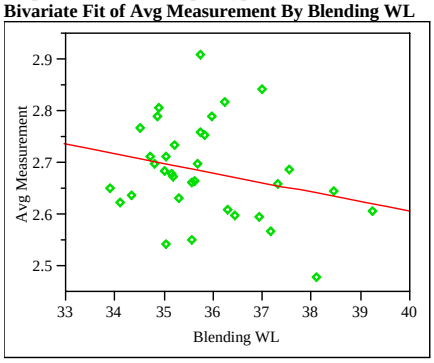
RSquare	0.272674
RSquare Adj	0.249945
Root Mean Square Error	0.284495
Mean of Response	7.756314
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.9709890	0.970989	11.9968
Error	32	2.5900025	0.080938	Prob > F
C. Total	33	3.5609915		0.0015

Prep=Mixed Acid, Sample Type=SME, ICP=M-13, Analyte=Fe/Al

Bivariate Fit of Avg Measurement By Blending WL



Linear Fit

Avg Measurement = 3.3502897 - 0.0185883 Blending WL

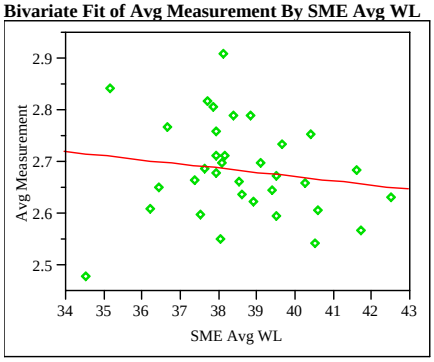
Summary of Fit

RSquare	0.062857
RSquare Adj	0.033571
Root Mean Square Error	0.091574
Mean of Response	2.683768
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.01799890	0.017999	2.1463
Error	32	0.26834717	0.008386	Prob > F
C. Total	33	0.28634607		0.1527

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit

Avg Measurement = 2.996464 - 0.0081026 SME Avg WL

Summary of Fit

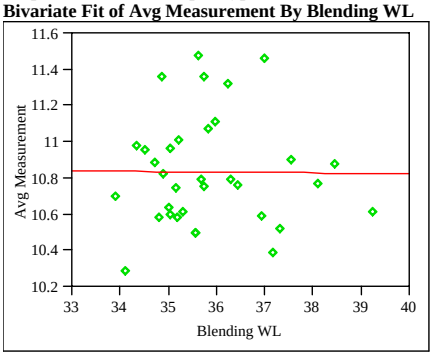
RSquare	0.023279
RSquare Adj	-0.00724
Root Mean Square Error	0.093488
Mean of Response	2.683768
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00666574	0.006666	0.7627
Error	32	0.27968033	0.008740	Prob > F
C. Total	33	0.28634607		0.3890

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Mixed Acid, Sample Type=SME, ICP=M-13, Analyte=Fe/Ca
Bivariate Fit of Avg Measurement By Blending WL



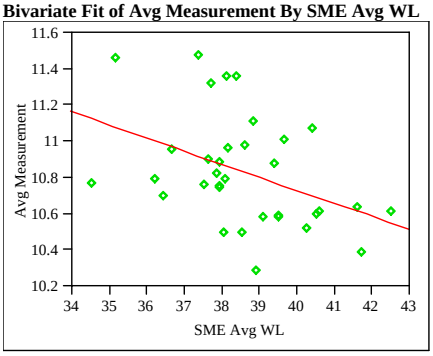
Linear Fit
Avg Measurement = 10.91126 - 0.0021397 Blending WL
Summary of Fit

RSquare	0.000078
RSquare Adj	-0.03117
Root Mean Square Error	0.309929
Mean of Response	10.83454
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.0002385	0.000238	0.0025
Error	32	3.0737917	0.096056	Prob > F
C. Total	33	3.0740302		0.9606

Bivariate Fit of Avg Measurement By SME Avg WL



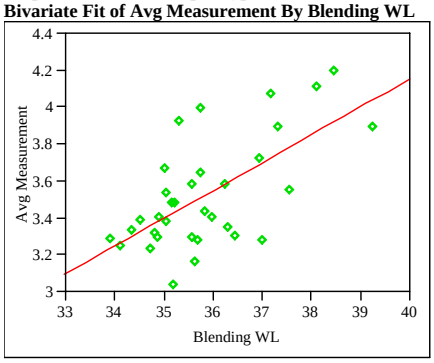
Linear Fit
Avg Measurement = 13.630497 - 0.0724496 SME Avg WL
Summary of Fit

RSquare	0.173364
RSquare Adj	0.147531
Root Mean Square Error	0.281797
Mean of Response	10.83454
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.5329253	0.532925	6.7111
Error	32	2.5411049	0.079410	Prob > F
C. Total	33	3.0740302		0.0143

Prep=Mixed Acid, Sample Type=SME, ICP=M-13, Analyte=Fe/Li
Bivariate Fit of Avg Measurement By Blending WL



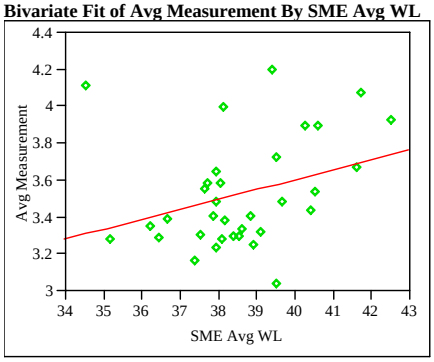
Linear Fit
Avg Measurement = -1.904023 + 0.1514666 Blending WL
Summary of Fit

RSquare	0.414337
RSquare Adj	0.396035
Root Mean Square Error	0.229759
Mean of Response	3.527124
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	1.1950904	1.19509	22.6390
Error	32	1.6892507	0.05279	Prob > F
C. Total	33	2.8843411		<.0001

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 1.4602954 + 0.0535562 SME Avg WL
Summary of Fit

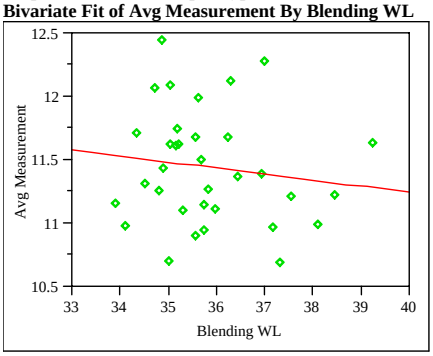
RSquare	0.100964
RSquare Adj	0.072869
Root Mean Square Error	0.284667
Mean of Response	3.527124
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.2912149	0.291215	3.5937
Error	32	2.5931262	0.081035	Prob > F
C. Total	33	2.8843411		0.0671

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Mixed Acid, Sample Type=SME, ICP=M-13, Analyte=Fe/Mg
Bivariate Fit of Avg Measurement By Blending WL



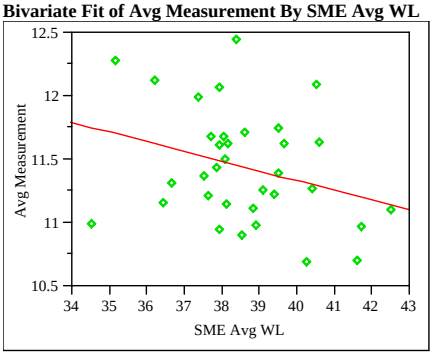
Linear Fit
Avg Measurement = 13.154403 - 0.0476611 Blending WL
Summary of Fit

RSquare	0.017971
RSquare Adj	-0.01272
Root Mean Square Error	0.44952
Mean of Response	11.44542
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.1183299	0.118330	0.5856
Error	32	6.4661741	0.202068	Prob > F
C. Total	33	6.5845040		0.4497

Bivariate Fit of Avg Measurement By SME Avg WL



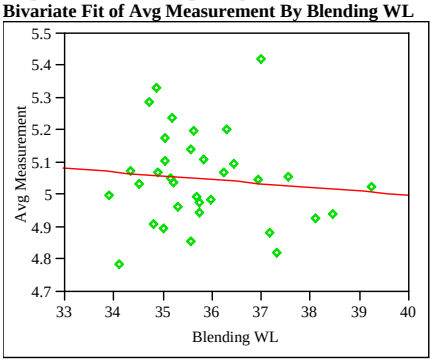
Linear Fit
Avg Measurement = 14.411276 - 0.076852 SME Avg WL
Summary of Fit

RSquare	0.091071
RSquare Adj	0.062667
Root Mean Square Error	0.432465
Mean of Response	11.44542
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.5996604	0.599660	3.2063
Error	32	5.9848435	0.187026	Prob > F
C. Total	33	6.5845040		0.0828

Prep=Mixed Acid, Sample Type=SME, ICP=M-13, Analyte=Fe/Mn
Bivariate Fit of Avg Measurement By Blending WL



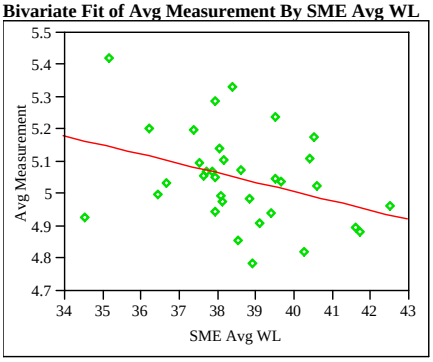
Linear Fit
Avg Measurement = 5.4723457 - 0.011771 Blending WL
Summary of Fit

RSquare	0.010515
RSquare Adj	-0.02041
Root Mean Square Error	0.145687
Mean of Response	5.050272
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00721763	0.007218	0.3401
Error	32	0.67919509	0.021225	Prob > F
C. Total	33	0.68641272		0.5639

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 6.1646163 - 0.0288752 SME Avg WL
Summary of Fit

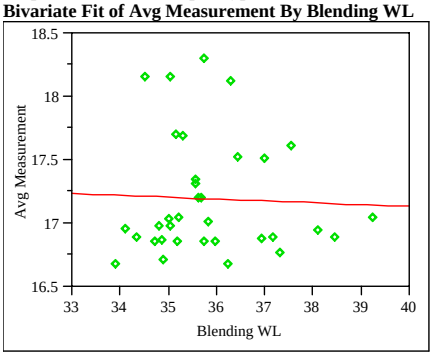
RSquare	0.123327
RSquare Adj	0.095931
Root Mean Square Error	0.137131
Mean of Response	5.050272
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.08465319	0.084653	4.5016
Error	32	0.60175953	0.018805	Prob > F
C. Total	33	0.68641272		0.0417

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Mixed Acid, Sample Type=SME, ICP=M-13, Analyte=Fe/Ni
Bivariate Fit of Avg Measurement By Blending WL



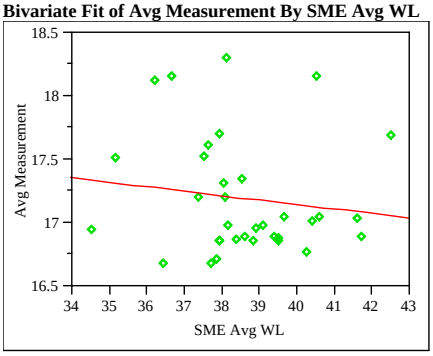
Linear Fit
Avg Measurement = 17.710825 - 0.0143635 Blending WL
Summary of Fit

RSquare	0.001523
RSquare Adj	-0.02968
Root Mean Square Error	0.469196
Mean of Response	17.19579
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.0107470	0.010747	0.0488
Error	32	7.0446373	0.220145	Prob > F
C. Total	33	7.0553844		0.8265

Bivariate Fit of Avg Measurement By SME Avg WL



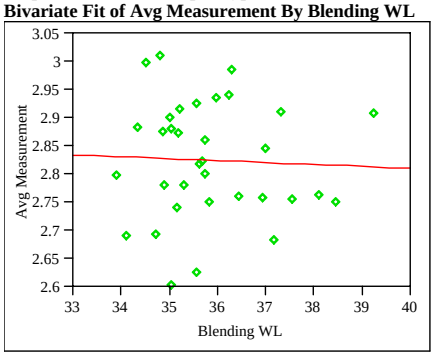
Linear Fit
Avg Measurement = 18.553323 - 0.0351767 SME Avg WL
Summary of Fit

RSquare	0.017807
RSquare Adj	-0.01289
Root Mean Square Error	0.465354
Mean of Response	17.19579
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.1256333	0.125633	0.5801
Error	32	6.9297511	0.216555	Prob > F
C. Total	33	7.0553844		0.4518

Prep=Mixed Acid, Sample Type=SME, ICP=M-13, Analyte=Fe/U
Bivariate Fit of Avg Measurement By Blending WL



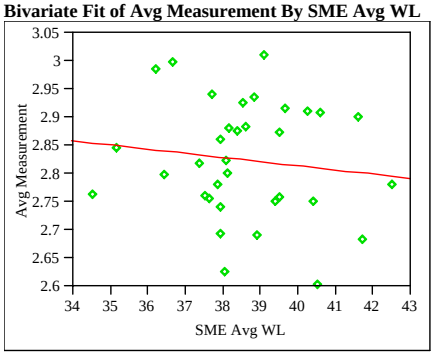
Linear Fit
Avg Measurement = 2.9490163 - 0.0034607 Blending WL
Summary of Fit

RSquare	0.001764
RSquare Adj	-0.02943
Root Mean Square Error	0.105022
Mean of Response	2.824926
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00062387	0.000624	0.0566
Error	32	0.35294478	0.011030	Prob > F
C. Total	33	0.35356865		0.8135

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 3.1088318 - 0.0073566 SME Avg WL
Summary of Fit

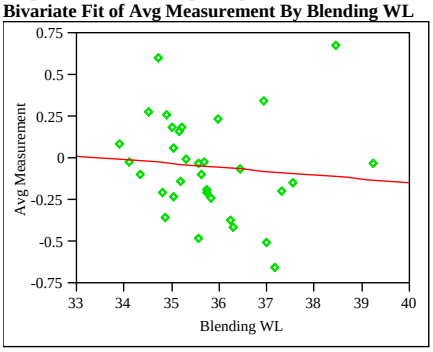
RSquare	0.015541
RSquare Adj	-0.01522
Root Mean Square Error	0.104294
Mean of Response	2.824926
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00549481	0.005495	0.5052
Error	32	0.34807384	0.010877	Prob > F
C. Total	33	0.35356865		0.4824

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Mixed Acid, Sample Type=SME, ICP=M-13, Analyte=K
Bivariate Fit of Avg Measurement By Blending WL



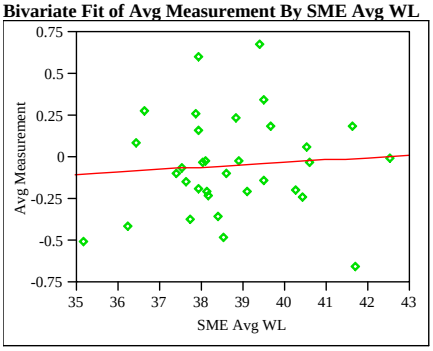
Linear Fit
Avg Measurement = 0.7836713 - 0.0232519 Blending WL
Summary of Fit

RSquare	0.008876
RSquare Adj	-0.0231
Root Mean Square Error	0.301948
Mean of Response	-0.04848
Observations (or Sum Wgts)	33

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.0253108	0.025311	0.2776
Error	31	2.8263592	0.091173	Prob > F
C. Total	32	2.8516700		0.6020

Bivariate Fit of Avg Measurement By SME Avg WL



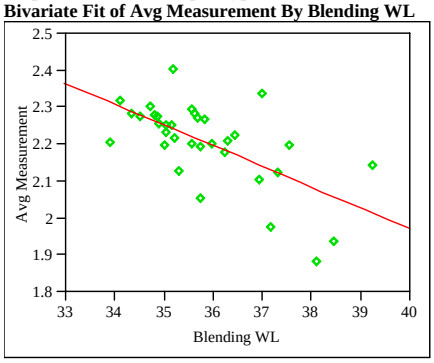
Linear Fit
Avg Measurement = -0.588173 + 0.0139404 SME Avg WL
Summary of Fit

RSquare	0.005769
RSquare Adj	-0.0263
Root Mean Square Error	0.302421
Mean of Response	-0.04848
Observations (or Sum Wgts)	33

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.0164513	0.016451	0.1799
Error	31	2.8352187	0.091459	Prob > F
C. Total	32	2.8516700		0.6744

Prep=Mixed Acid, Sample Type=SME, ICP=M-13, Analyte=Li
Bivariate Fit of Avg Measurement By Blending WL



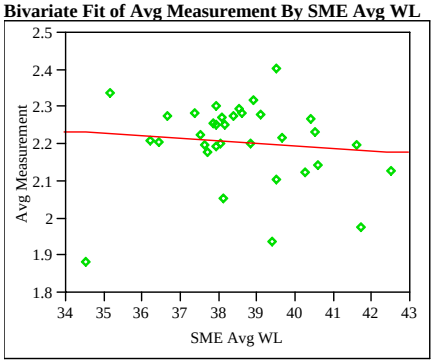
Linear Fit
Avg Measurement = 4.2214671 - 0.0562135 Blending WL
Summary of Fit

RSquare	0.40414
RSquare Adj	0.385519
Root Mean Square Error	0.087087
Mean of Response	2.205817
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.16460689	0.164607	21.7039
Error	32	0.24269488	0.007584	Prob > F
C. Total	33	0.40730177		<.0001

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 2.4545556 - 0.0064454 SME Avg WL
Summary of Fit

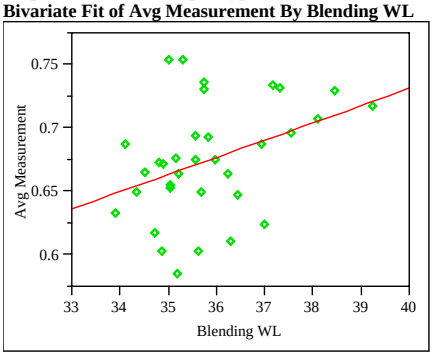
RSquare	0.010356
RSquare Adj	-0.02057
Root Mean Square Error	0.112234
Mean of Response	2.205817
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00421786	0.004218	0.3348
Error	32	0.40308391	0.012596	Prob > F
C. Total	33	0.40730177		0.5669

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Mixed Acid, Sample Type=SME, ICP=M-13, Analyte=Mg
Bivariate Fit of Avg Measurement By Blending WL



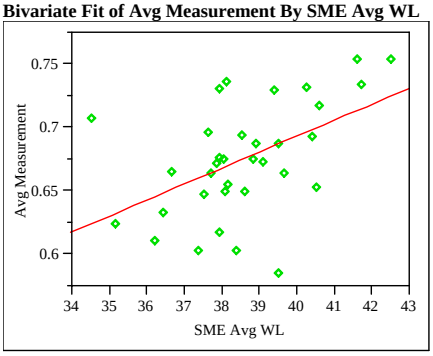
Linear Fit
Avg Measurement = 0.1879206 + 0.0135943 Blending WL
Summary of Fit

RSquare	0.144182
RSquare Adj	0.117438
Root Mean Square Error	0.042257
Mean of Response	0.675371
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00962673	0.009627	5.3911
Error	32	0.05714109	0.001786	Prob > F
C. Total	33	0.06676781		0.0268

Bivariate Fit of Avg Measurement By SME Avg WL



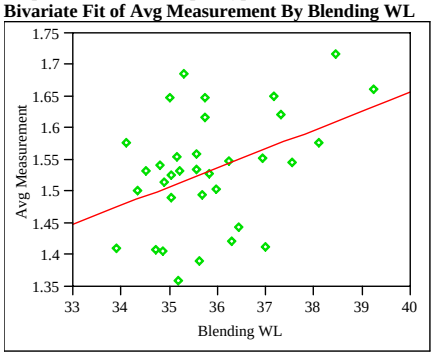
Linear Fit
Avg Measurement = 0.1872001 + 0.0126496 SME Avg WL
Summary of Fit

RSquare	0.243322
RSquare Adj	0.219676
Root Mean Square Error	0.039734
Mean of Response	0.675371
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.01624607	0.016246	10.2901
Error	32	0.05052174	0.001579	Prob > F
C. Total	33	0.06676781		0.0030

Prep=Mixed Acid, Sample Type=SME, ICP=M-13, Analyte=Mn
Bivariate Fit of Avg Measurement By Blending WL



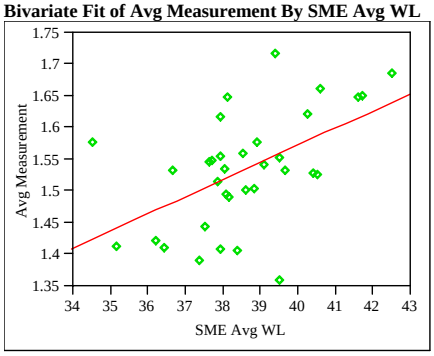
Linear Fit
Avg Measurement = 0.4662863 + 0.0297718 Blending WL
Summary of Fit

RSquare	0.169232
RSquare Adj	0.143271
Root Mean Square Error	0.084161
Mean of Response	1.533814
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.04617168	0.046172	6.5186
Error	32	0.22665864	0.007083	Prob > F
C. Total	33	0.27283032		0.0156

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 0.4869847 + 0.0271257 SME Avg WL
Summary of Fit

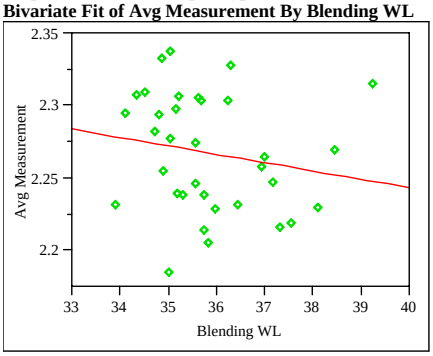
RSquare	0.273819
RSquare Adj	0.251126
Root Mean Square Error	0.078685
Mean of Response	1.533814
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.07470608	0.074706	12.0661
Error	32	0.19812424	0.006191	Prob > F
C. Total	33	0.27283032		0.0015

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte
(continued)

Prep=Mixed Acid, Sample Type=SME, ICP=M-13, Analyte=Mn/Mg
Bivariate Fit of Avg Measurement By Blending WL



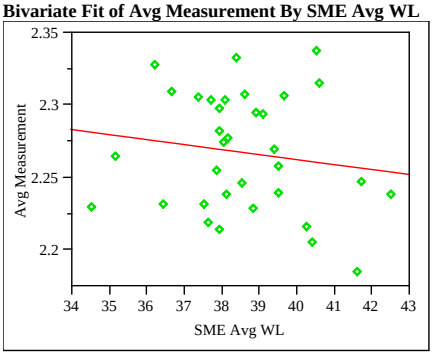
Linear Fit
Avg Measurement = 2.4750801 - 0.0057894 Blending WL
Summary of Fit

RSquare	0.032193
RSquare Adj	0.001949
Root Mean Square Error	0.0405
Mean of Response	2.267491
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00174593	0.001746	1.0644
Error	32	0.05248789	0.001640	Prob > F
C. Total	33	0.05423382		0.3099

Bivariate Fit of Avg Measurement By SME Avg WL



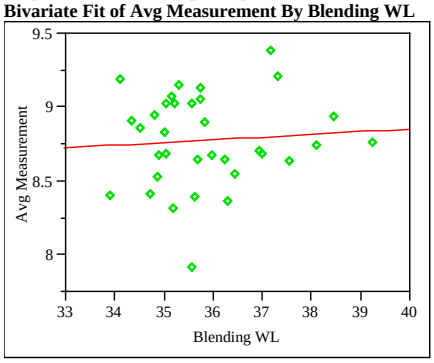
Linear Fit
Avg Measurement = 2.4028027 - 0.0035062 SME Avg WL
Summary of Fit

RSquare	0.023015
RSquare Adj	-0.00752
Root Mean Square Error	0.040692
Mean of Response	2.267491
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00124818	0.001248	0.7538
Error	32	0.05298564	0.001656	Prob > F
C. Total	33	0.05423382		0.3917

Prep=Mixed Acid, Sample Type=SME, ICP=M-13, Analyte=Na
Bivariate Fit of Avg Measurement By Blending WL



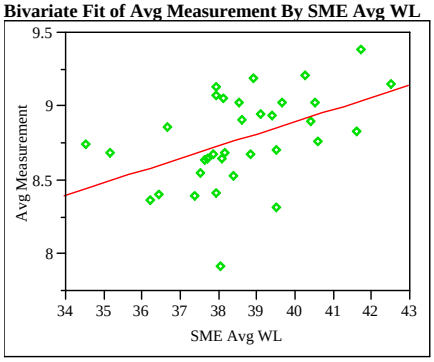
Linear Fit
Avg Measurement = 8.1167453 + 0.0184658 Blending WL
Summary of Fit

RSquare	0.005544
RSquare Adj	-0.02553
Root Mean Square Error	0.315547
Mean of Response	8.778875
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.0177625	0.017763	0.1784
Error	32	3.1862464	0.099570	Prob > F
C. Total	33	3.2040089		0.6756

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 5.5834856 + 0.0827997 SME Avg WL
Summary of Fit

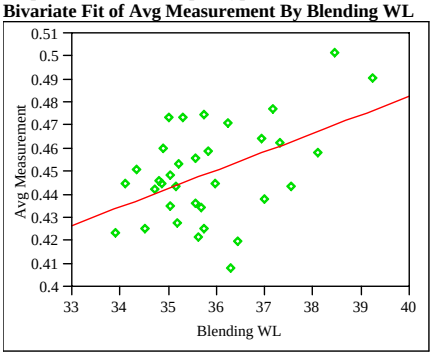
RSquare	0.217249
RSquare Adj	0.192788
Root Mean Square Error	0.279952
Mean of Response	8.778875
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.6960687	0.696069	8.8815
Error	32	2.5079402	0.078373	Prob > F
C. Total	33	3.2040089		0.0055

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Mixed Acid, Sample Type=SME, ICP=M-13, Analyte=Ni
Bivariate Fit of Avg Measurement By Blending WL



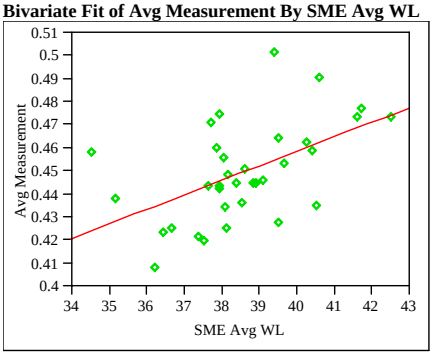
Linear Fit
Avg Measurement = 0.1638342 + 0.0079687 Blending WL
Summary of Fit

RSquare	0.224229
RSquare Adj	0.199986
Root Mean Square Error	0.018911
Mean of Response	0.44957
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00330786	0.003308	9.2493
Error	32	0.01144429	0.000358	Prob > F
C. Total	33	0.01475215		0.0047

Bivariate Fit of Avg Measurement By SME Avg WL



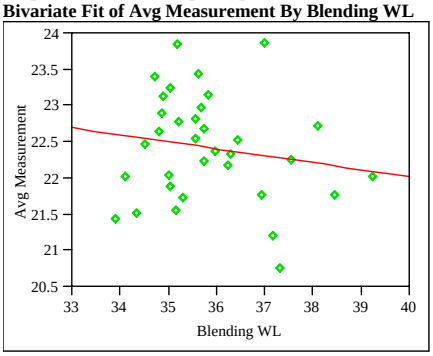
Linear Fit
Avg Measurement = 0.2050873 + 0.0063351 SME Avg WL
Summary of Fit

RSquare	0.276214
RSquare Adj	0.253596
Root Mean Square Error	0.018267
Mean of Response	0.44957
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00407475	0.004075	12.2120
Error	32	0.01067740	0.000334	Prob > F
C. Total	33	0.01475215		0.0014

Prep=Mixed Acid, Sample Type=SME, ICP=M-13, Analyte=Si
Bivariate Fit of Avg Measurement By Blending WL



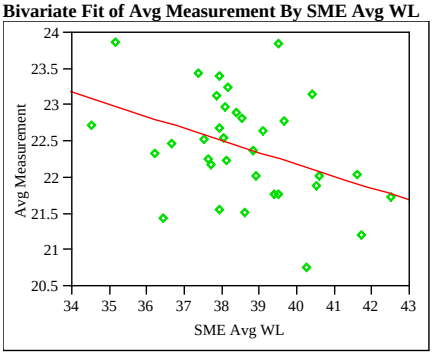
Linear Fit
Avg Measurement = 25.875602 - 0.0962555 Blending WL
Summary of Fit

RSquare	0.026914
RSquare Adj	-0.0035
Root Mean Square Error	0.738454
Mean of Response	22.42416
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.482634	0.482634	0.8851
Error	32	17.450047	0.545314	Prob > F
C. Total	33	17.932681		0.3539

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 28.844378 - 0.1663622 SME Avg WL
Summary of Fit

RSquare	0.156696
RSquare Adj	0.130343
Root Mean Square Error	0.687448
Mean of Response	22.42416
Observations (or Sum Wgts)	34

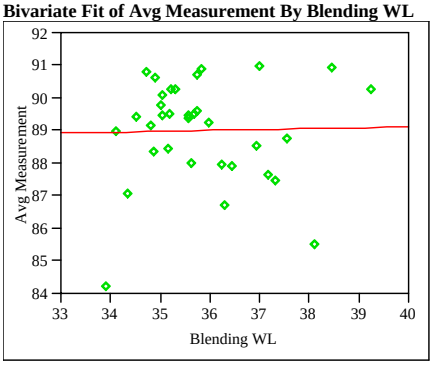
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	2.809983	2.80998	5.9460
Error	32	15.122698	0.47258	Prob > F
C. Total	33	17.932681		0.0205

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Mixed Acid, Sample Type=SME, ICP=M-13, Analyte=Sum of Oxides

Bivariate Fit of Avg Measurement By Blending WL



Linear Fit

Avg Measurement = 88.041736 + 0.0272333 Blending WL

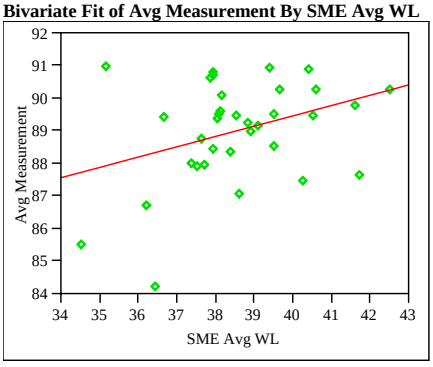
Summary of Fit

RSquare	0.000477
RSquare Adj	-0.03076
Root Mean Square Error	1.591241
Mean of Response	89.01824
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.038634	0.03863	0.0153
Error	32	81.025515	2.53205	Prob > F
C. Total	33	81.064149		0.9025

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit

Avg Measurement = 76.8489 + 0.3153349 SME Avg WL

Summary of Fit

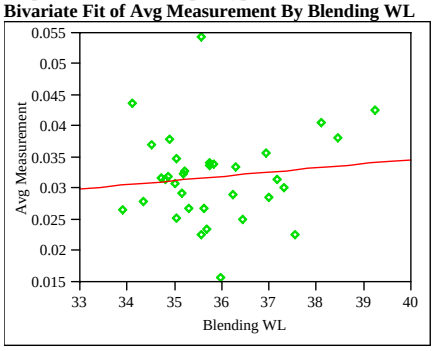
RSquare	0.12454
RSquare Adj	0.097182
Root Mean Square Error	1.489215
Mean of Response	89.01824
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	10.095749	10.0957	4.5522
Error	32	70.968400	2.2178	Prob > F
C. Total	33	81.064149		0.0406

Prep=Mixed Acid, Sample Type=SME, ICP=M-13, Analyte=Ti

Bivariate Fit of Avg Measurement By Blending WL



Linear Fit

Avg Measurement = 0.0074717 + 0.0006817 Blending WL

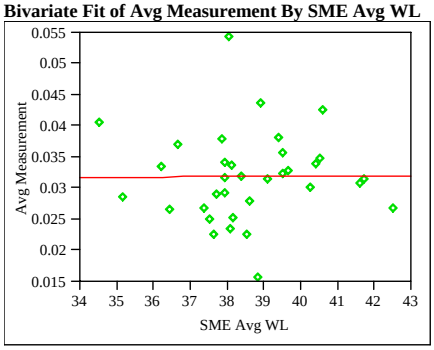
Summary of Fit

RSquare	0.014257
RSquare Adj	-0.01655
Root Mean Square Error	0.007233
Mean of Response	0.031917
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00002421	0.000024	0.4628
Error	32	0.00167395	0.000052	Prob > F
C. Total	33	0.00169816		0.5012

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit

Avg Measurement = 0.0313452 + 0.0000148 SME Avg WL

Summary of Fit

RSquare	0.000013
RSquare Adj	-0.03124
Root Mean Square Error	0.007285
Mean of Response	0.031917
Observations (or Sum Wgts)	34

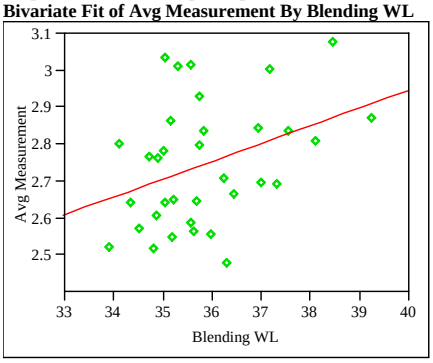
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	2.22988e-8	2.23e-8	0.0004
Error	32	0.00169814	0.000053	Prob > F
C. Total	33	0.00169816		0.9838

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte
(continued)

Prep=Mixed Acid, Sample Type=SME, ICP=M-13, Analyte=U

Bivariate Fit of Avg Measurement By Blending WL



Linear Fit

Avg Measurement = 1.0135258 + 0.0483372 Blending WL

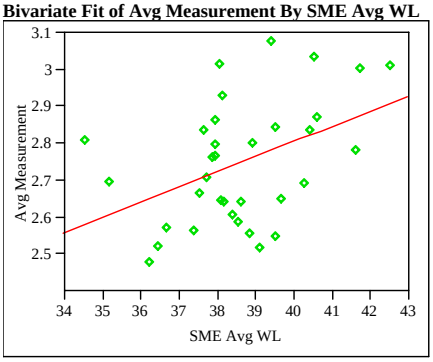
Summary of Fit

RSquare	0.132991
RSquare Adj	0.105897
Root Mean Square Error	0.157467
Mean of Response	2.746754
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.12171078	0.121711	4.9085
Error	32	0.79346860	0.024796	Prob > F
C. Total	33	0.91517938		0.0340

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit

Avg Measurement = 1.1630939 + 0.0410362 SME Avg WL

Summary of Fit

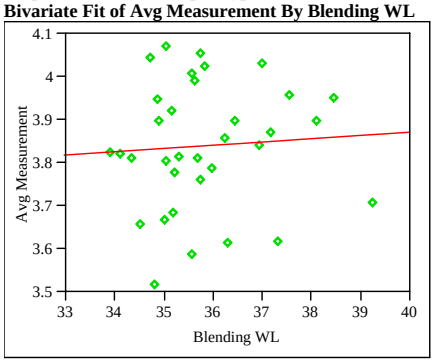
RSquare	0.186819
RSquare Adj	0.161408
Root Mean Square Error	0.152501
Mean of Response	2.746754
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.17097332	0.170973	7.3517
Error	32	0.74420605	0.023256	Prob > F
C. Total	33	0.91517938		0.0107

Prep=Mixed Acid, Sample Type=SME, ICP=M-13, Analyte=U/Ca

Bivariate Fit of Avg Measurement By Blending WL



Linear Fit

Avg Measurement = 3.5742002 + 0.0074052 Blending WL

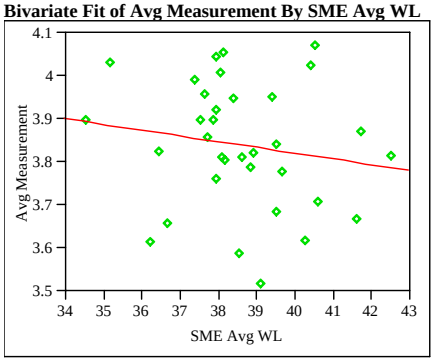
Summary of Fit

RSquare	0.00405
RSquare Adj	-0.02707
Root Mean Square Error	0.148158
Mean of Response	3.839729
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00285655	0.002857	0.1301
Error	32	0.70242203	0.021951	Prob > F
C. Total	33	0.70527858		0.7207

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit

Avg Measurement = 4.3537383 - 0.0133191 SME Avg WL

Summary of Fit

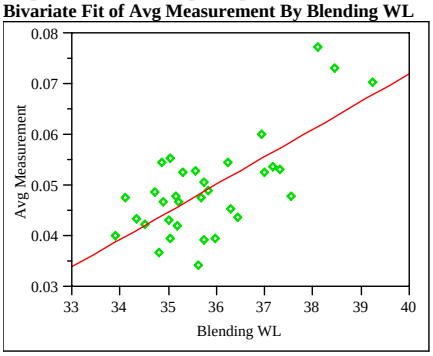
RSquare	0.025538
RSquare Adj	-0.00491
Root Mean Square Error	0.146551
Mean of Response	3.839729
Observations (or Sum Wgts)	34

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.01801133	0.018011	0.8386
Error	32	0.68726725	0.021477	Prob > F
C. Total	33	0.70527858		0.3666

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Mixed Acid, Sample Type=SME, ICP=M-13, Analyte=Zr
Bivariate Fit of Avg Measurement By Blending WL



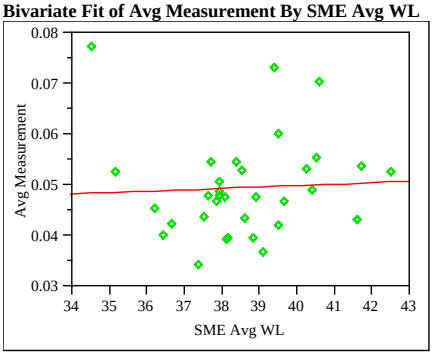
Linear Fit
Avg Measurement = -0.145599 + 0.0054398 Blending WL
Summary of Fit

RSquare	0.499085
RSquare Adj	0.482926
Root Mean Square Error	0.007059
Mean of Response	0.049503
Observations (or Sum Wgts)	33

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00153894	0.001539	30.8867
Error	31	0.00154458	0.000050	Prob > F
C. Total	32	0.00308352		<.0001

Bivariate Fit of Avg Measurement By SME Avg WL



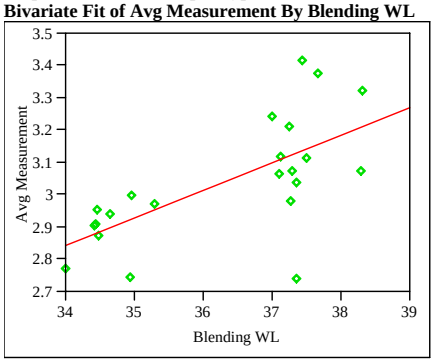
Linear Fit
Avg Measurement = 0.0387591 + 0.0002783 SME Avg WL
Summary of Fit

RSquare	0.002542
RSquare Adj	-0.02963
Root Mean Square Error	0.009961
Mean of Response	0.049503
Observations (or Sum Wgts)	33

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00000784	0.000008	0.0790
Error	31	0.00307568	0.000099	Prob > F
C. Total	32	0.00308352		0.7805

Prep=Mixed Acid, Sample Type=SME, ICP=M-14, Analyte=Al
Bivariate Fit of Avg Measurement By Blending WL



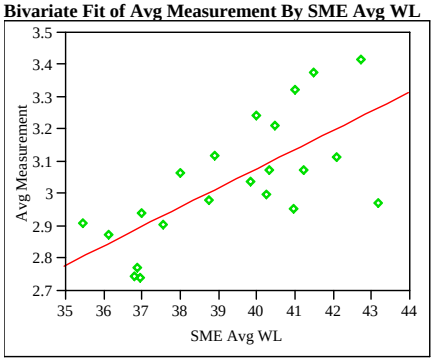
Linear Fit
Avg Measurement = -0.062793 + 0.0854541 Blending WL
Summary of Fit

RSquare	0.442704
RSquare Adj	0.414839
Root Mean Square Error	0.14537
Mean of Response	3.03993
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.33574173	0.335742	15.8876
Error	20	0.42264674	0.021132	Prob > F
C. Total	21	0.75838846		0.0007

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 0.7021435 + 0.0593638 SME Avg WL
Summary of Fit

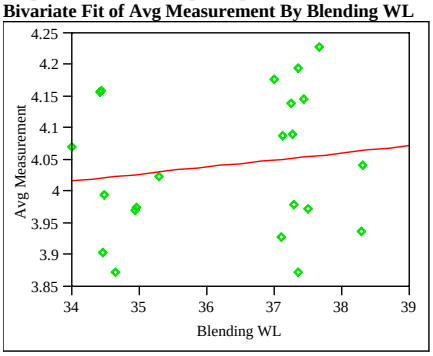
RSquare	0.490573
RSquare Adj	0.465101
Root Mean Square Error	0.138986
Mean of Response	3.03993
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.37204453	0.372045	19.2598
Error	20	0.38634394	0.019317	Prob > F
C. Total	21	0.75838846		0.0003

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Mixed Acid, Sample Type=SME, ICP=M-14, Analyte=Al/Ca
Bivariate Fit of Avg Measurement By Blending WL



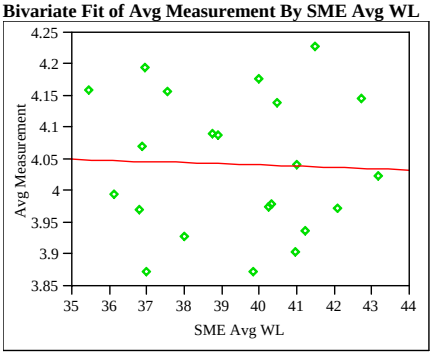
Linear Fit
Avg Measurement = 3.6411903 + 0.0110611 Blending WL
Summary of Fit

RSquare	0.022444
RSquare Adj	-0.02643
Root Mean Square Error	0.11068
Mean of Response	4.042804
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00562519	0.005625	0.4592
Error	20	0.24500251	0.012250	Prob > F
C. Total	21	0.25062771		0.5058

Bivariate Fit of Avg Measurement By SME Avg WL



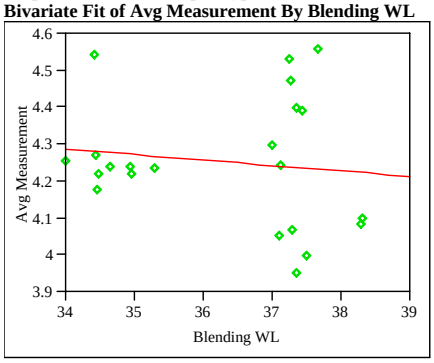
Linear Fit
Avg Measurement = 4.114579 - 0.0018226 SME Avg WL
Summary of Fit

RSquare	0.001399
RSquare Adj	-0.04853
Root Mean Square Error	0.111865
Mean of Response	4.042804
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00035069	0.000351	0.0280
Error	20	0.25027701	0.012514	Prob > F
C. Total	21	0.25062771		0.8687

Prep=Mixed Acid, Sample Type=SME, ICP=M-14, Analyte=Al/Mg
Bivariate Fit of Avg Measurement By Blending WL



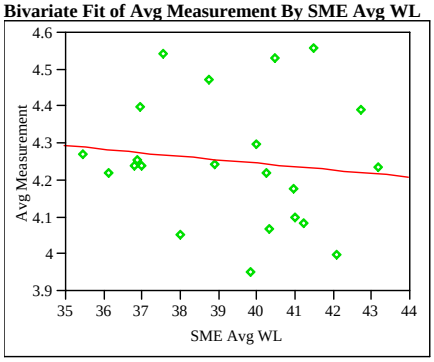
Linear Fit
Avg Measurement = 4.7876662 - 0.014718 Blending WL
Summary of Fit

RSquare	0.015678
RSquare Adj	-0.03354
Root Mean Square Error	0.176821
Mean of Response	4.253276
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00995947	0.009959	0.3185
Error	20	0.62531123	0.031266	Prob > F
C. Total	21	0.63527070		0.5788

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 4.6237392 - 0.0094072 SME Avg WL
Summary of Fit

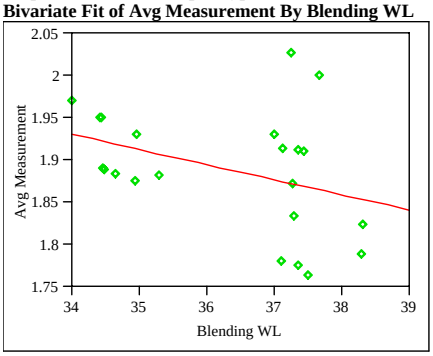
RSquare	0.014707
RSquare Adj	-0.03456
Root Mean Square Error	0.176908
Mean of Response	4.253276
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00934275	0.009343	0.2985
Error	20	0.62592795	0.031296	Prob > F
C. Total	21	0.63527070		0.5909

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Mixed Acid, Sample Type=SME, ICP=M-14, Analyte=Al/Mn
Bivariate Fit of Avg Measurement By Blending WL



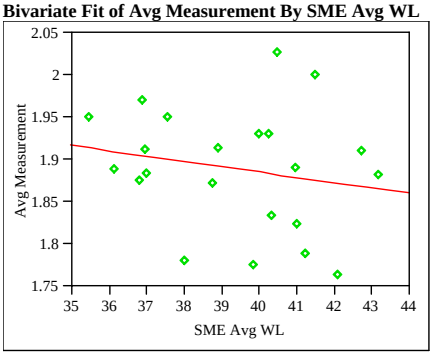
Linear Fit
Avg Measurement = 2.5394798 - 0.0179066 Blending WL
Summary of Fit

RSquare	0.134631
RSquare Adj	0.091362
Root Mean Square Error	0.068833
Mean of Response	1.889314
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.01474237	0.014742	3.1115
Error	20	0.09476002	0.004738	Prob > F
C. Total	21	0.10950238		0.0930

Bivariate Fit of Avg Measurement By SME Avg WL



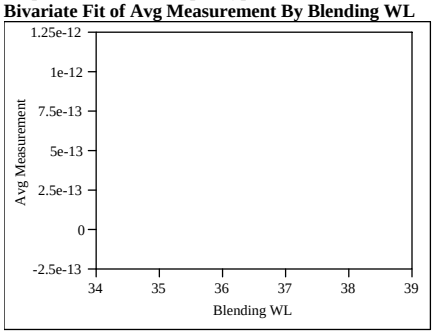
Linear Fit
Avg Measurement = 2.1382725 - 0.0063218 SME Avg WL
Summary of Fit

RSquare	0.038531
RSquare Adj	-0.00954
Root Mean Square Error	0.072555
Mean of Response	1.889314
Observations (or Sum Wgts)	22

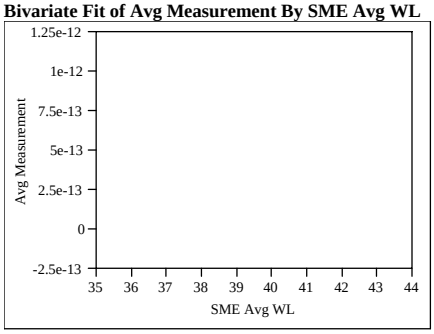
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00421927	0.004219	0.8015
Error	20	0.10528311	0.005264	Prob > F
C. Total	21	0.10950238		0.3813

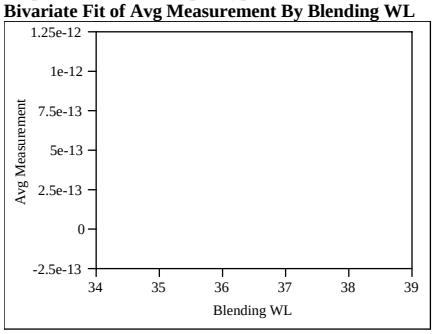
Prep=Mixed Acid, Sample Type=SME, ICP=M-14, Analyte=B
Bivariate Fit of Avg Measurement By Blending WL



Bivariate Fit of Avg Measurement By SME Avg WL



Prep=Mixed Acid, Sample Type=SME, ICP=M-14, Analyte=B/Li
Bivariate Fit of Avg Measurement By Blending WL



Bivariate Fit of Avg Measurement By SME Avg WL

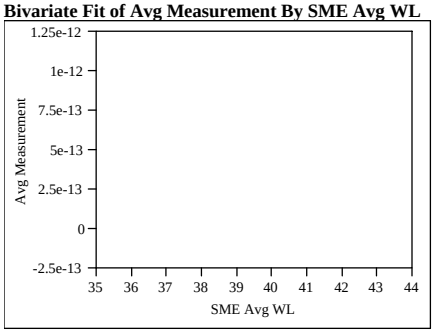
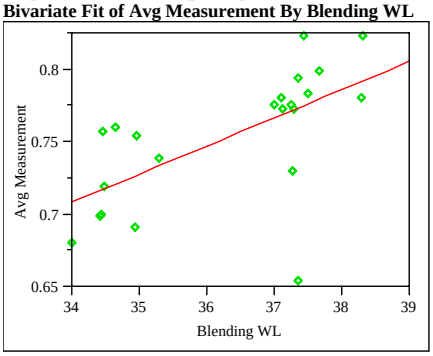


Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Mixed Acid, Sample Type=SME, ICP=M-14, Analyte=Ca
Bivariate Fit of Avg Measurement By Blending WL



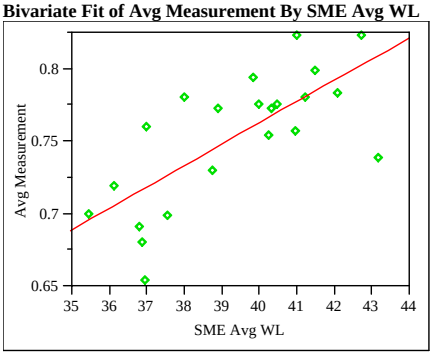
Linear Fit
Avg Measurement = 0.0473403 + 0.0194439 Blending WL
Summary of Fit

RSquare	0.390072
RSquare Adj	0.359576
Root Mean Square Error	0.036864
Mean of Response	0.753323
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.01738230	0.017382	12.7908
Error	20	0.02717948	0.001359	Prob > F
C. Total	21	0.04456178		0.0019

Bivariate Fit of Avg Measurement By SME Avg WL



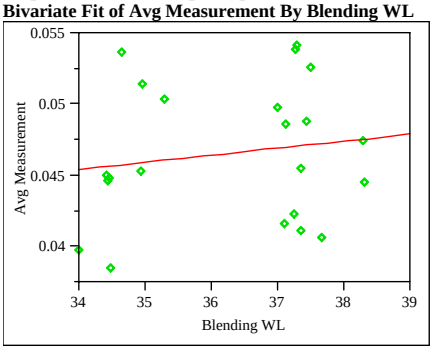
Linear Fit
Avg Measurement = 0.1716744 + 0.0147699 SME Avg WL
Summary of Fit

RSquare	0.516825
RSquare Adj	0.492666
Root Mean Square Error	0.032811
Mean of Response	0.753323
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.02303065	0.023031	21.3929
Error	20	0.02153113	0.001077	Prob > F
C. Total	21	0.04456178		0.0002

Prep=Mixed Acid, Sample Type=SME, ICP=M-14, Analyte=Cr
Bivariate Fit of Avg Measurement By Blending WL



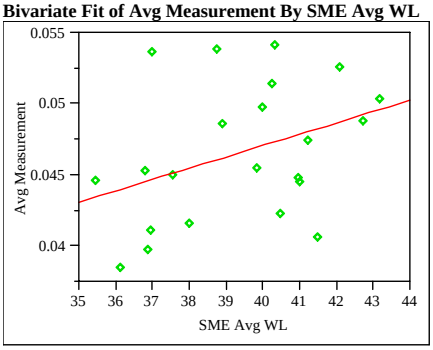
Linear Fit
Avg Measurement = 0.0286689 + 0.0004935 Blending WL
Summary of Fit

RSquare	0.022831
RSquare Adj	-0.02603
Root Mean Square Error	0.004896
Mean of Response	0.046589
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00001120	0.000011	0.4673
Error	20	0.00047935	0.000024	Prob > F
C. Total	21	0.00049055		0.5021

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 0.0152995 + 0.0007945 SME Avg WL
Summary of Fit

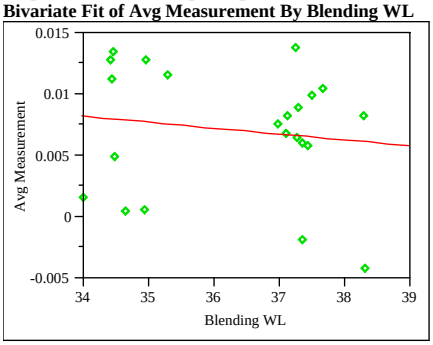
RSquare	0.135863
RSquare Adj	0.092656
Root Mean Square Error	0.004604
Mean of Response	0.046589
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00006665	0.000067	3.1445
Error	20	0.00042390	0.000021	Prob > F
C. Total	21	0.00049055		0.0914

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Mixed Acid, Sample Type=SME, ICP=M-14, Analyte=Cu
Bivariate Fit of Avg Measurement By Blending WL



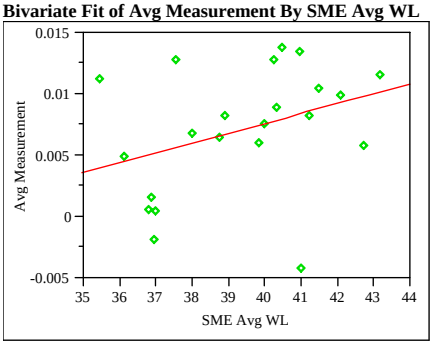
Linear Fit
Avg Measurement = 0.0246236 - 0.000482 Blending WL
Summary of Fit

RSquare	0.019521
RSquare Adj	-0.0295
Root Mean Square Error	0.005179
Mean of Response	0.007123
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00001068	0.000011	0.3982
Error	20	0.00053648	0.000027	Prob > F
C. Total	21	0.00054716		0.5352

Bivariate Fit of Avg Measurement By SME Avg WL



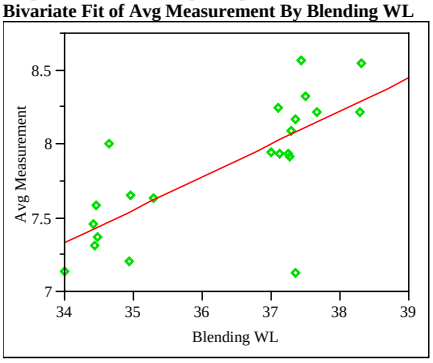
Linear Fit
Avg Measurement = -0.024134 + 0.0007937 SME Avg WL
Summary of Fit

RSquare	0.121553
RSquare Adj	0.077631
Root Mean Square Error	0.004902
Mean of Response	0.007123
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00006651	0.000067	2.7675
Error	20	0.00048065	0.000024	Prob > F
C. Total	21	0.00054716		0.1118

Prep=Mixed Acid, Sample Type=SME, ICP=M-14, Analyte=Fe
Bivariate Fit of Avg Measurement By Blending WL



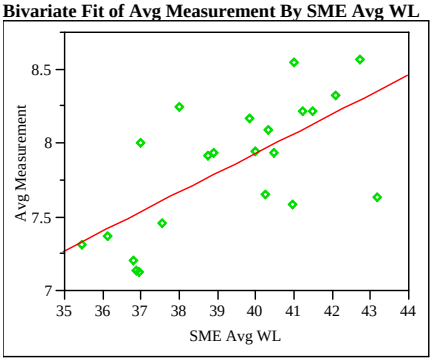
Linear Fit
Avg Measurement = -0.236114 + 0.2226881 Blending WL
Summary of Fit

RSquare	0.553551
RSquare Adj	0.531229
Root Mean Square Error	0.30322
Mean of Response	7.849386
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	2.2799915	2.27999	24.7980
Error	20	1.8388517	0.09194	Prob > F
C. Total	21	4.1188432		<.0001

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 2.6500565 + 0.1320274 SME Avg WL
Summary of Fit

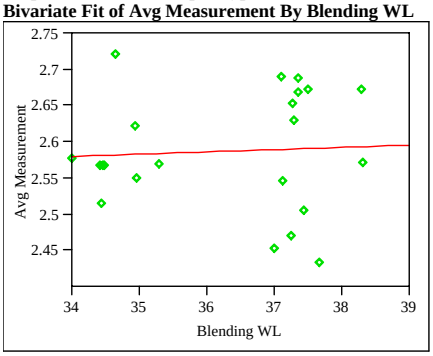
RSquare	0.446791
RSquare Adj	0.419131
Root Mean Square Error	0.337534
Mean of Response	7.849386
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	1.8402635	1.84026	16.1527
Error	20	2.2785797	0.11393	Prob > F
C. Total	21	4.1188432		0.0007

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Mixed Acid, Sample Type=SME, ICP=M-14, Analyte=Fe/Al
Bivariate Fit of Avg Measurement By Blending WL



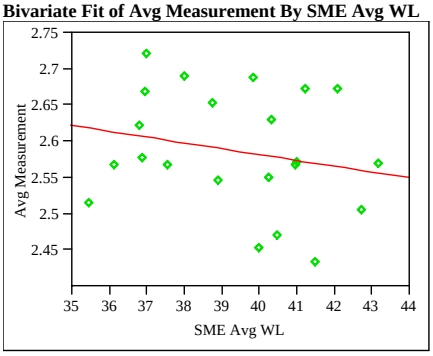
Linear Fit
Avg Measurement = 2.4685166 + 0.0032766 Blending WL
Summary of Fit

RSquare	0.00354
RSquare Adj	-0.04628
Root Mean Square Error	0.083349
Mean of Response	2.587484
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00049360	0.000494	0.0711
Error	20	0.13893996	0.006947	Prob > F
C. Total	21	0.13943356		0.7925

Bivariate Fit of Avg Measurement By SME Avg WL



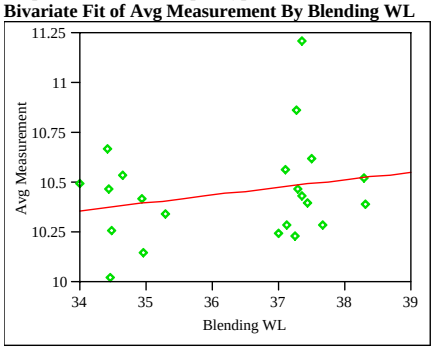
Linear Fit
Avg Measurement = 2.9048967 - 0.0080601 SME Avg WL
Summary of Fit

RSquare	0.049189
RSquare Adj	0.001648
Root Mean Square Error	0.081417
Mean of Response	2.587484
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00685858	0.006859	1.0347
Error	20	0.13257498	0.006629	Prob > F
C. Total	21	0.13943356		0.3212

Prep=Mixed Acid, Sample Type=SME, ICP=M-14, Analyte=Fe/Ca
Bivariate Fit of Avg Measurement By Blending WL



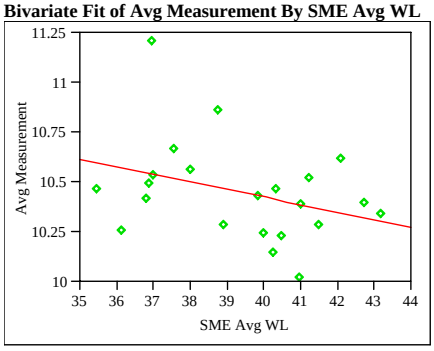
Linear Fit
Avg Measurement = 9.0451751 + 0.0386806 Blending WL
Summary of Fit

RSquare	0.051945
RSquare Adj	0.004542
Root Mean Square Error	0.250549
Mean of Response	10.44961
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.0687899	0.068790	1.0958
Error	20	1.2554969	0.062775	Prob > F
C. Total	21	1.3242868		0.3077

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 11.933993 - 0.0376931 SME Avg WL
Summary of Fit

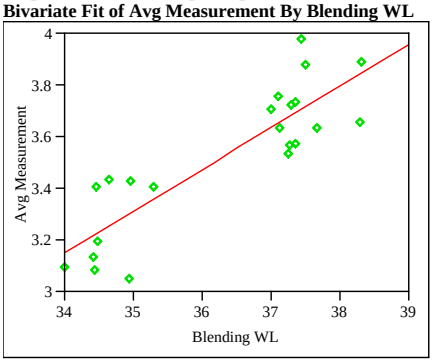
RSquare	0.113264
RSquare Adj	0.068928
Root Mean Square Error	0.242311
Mean of Response	10.44961
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.1499945	0.149994	2.5546
Error	20	1.1742923	0.058715	Prob > F
C. Total	21	1.3242868		0.1257

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte
(continued)

Prep=Mixed Acid, Sample Type=SME, ICP=M-14, Analyte=Fe/Li
Bivariate Fit of Avg Measurement By Blending WL



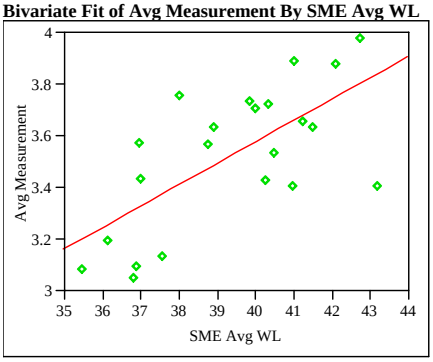
Linear Fit
Avg Measurement = -2.33049 + 0.1612656 Blending WL
Summary of Fit

RSquare	0.753566
RSquare Adj	0.741244
Root Mean Square Error	0.139825
Mean of Response	3.524845
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	1.1957019	1.19570	61.1576
Error	20	0.3910231	0.01955	Prob > F
C. Total	21	1.5867250		<.0001

Bivariate Fit of Avg Measurement By SME Avg WL



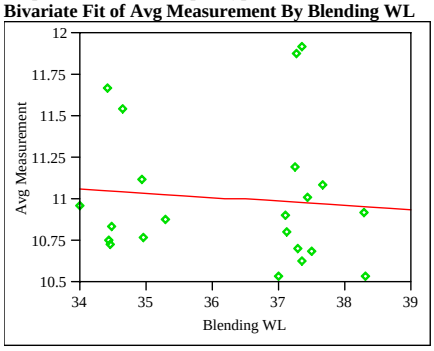
Linear Fit
Avg Measurement = 0.2667658 + 0.0827329 SME Avg WL
Summary of Fit

RSquare	0.455414
RSquare Adj	0.428185
Root Mean Square Error	0.207859
Mean of Response	3.524845
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.7226174	0.722617	16.7252
Error	20	0.8641076	0.043205	Prob > F
C. Total	21	1.5867250		0.0006

Prep=Mixed Acid, Sample Type=SME, ICP=M-14, Analyte=Fe/Mg
Bivariate Fit of Avg Measurement By Blending WL



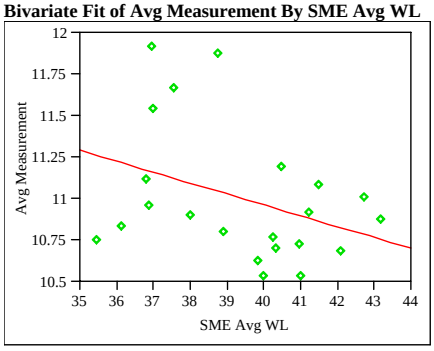
Linear Fit
Avg Measurement = 11.885157 - 0.0242472 Blending WL
Summary of Fit

RSquare	0.007814
RSquare Adj	-0.0418
Root Mean Square Error	0.414258
Mean of Response	11.00478
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.0270309	0.027031	0.1575
Error	20	3.4321945	0.171610	Prob > F
C. Total	21	3.4592254		0.6957

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 13.585102 - 0.0655226 SME Avg WL
Summary of Fit

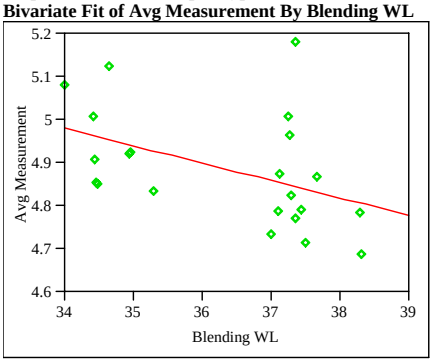
RSquare	0.131025
RSquare Adj	0.087577
Root Mean Square Error	0.387684
Mean of Response	11.00478
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.4532463	0.453246	3.0156
Error	20	3.0059791	0.150299	Prob > F
C. Total	21	3.4592254		0.0978

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Mixed Acid, Sample Type=SME, ICP=M-14, Analyte=Fe/Mn
Bivariate Fit of Avg Measurement By Blending WL



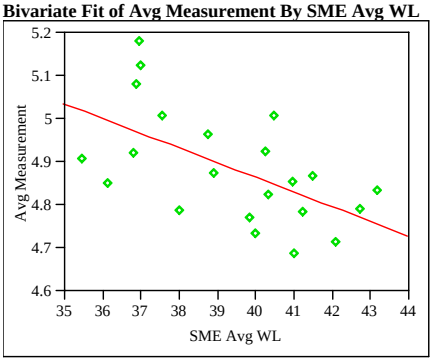
Linear Fit
Avg Measurement = 6.3507637 - 0.0403115 Blending WL
Summary of Fit

RSquare	0.204461
RSquare Adj	0.164684
Root Mean Square Error	0.120562
Mean of Response	4.887108
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.07471318	0.074713	5.1402
Error	20	0.29070232	0.014535	Prob > F
C. Total	21	0.36541551		0.0346

Bivariate Fit of Avg Measurement By SME Avg WL



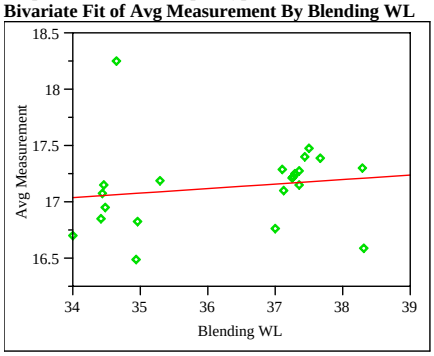
Linear Fit
Avg Measurement = 6.2296836 - 0.0340922 SME Avg WL
Summary of Fit

RSquare	0.335796
RSquare Adj	0.302586
Root Mean Square Error	0.110161
Mean of Response	4.887108
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.12270514	0.122705	10.1112
Error	20	0.24271037	0.012136	Prob > F
C. Total	21	0.36541551		0.0047

Prep=Mixed Acid, Sample Type=SME, ICP=M-14, Analyte=Fe/Ni
Bivariate Fit of Avg Measurement By Blending WL



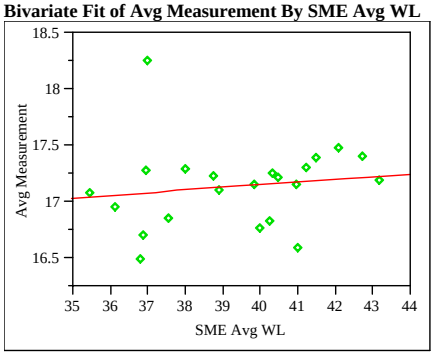
Linear Fit
Avg Measurement = 15.639392 + 0.0412738 Blending WL
Summary of Fit

RSquare	0.027485
RSquare Adj	-0.02114
Root Mean Square Error	0.372244
Mean of Response	17.13799
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.0783229	0.078323	0.5652
Error	20	2.7713173	0.138566	Prob > F
C. Total	21	2.8496402		0.4609

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 16.188577 + 0.0241085 SME Avg WL
Summary of Fit

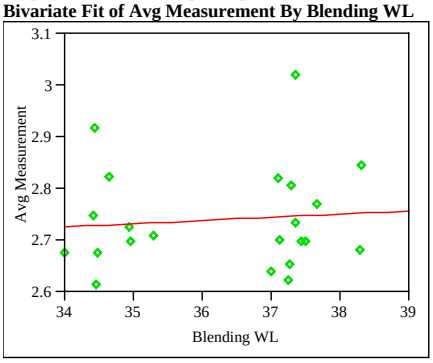
RSquare	0.021533
RSquare Adj	-0.02739
Root Mean Square Error	0.373382
Mean of Response	17.13799
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.0613611	0.061361	0.4401
Error	20	2.7882791	0.139414	Prob > F
C. Total	21	2.8496402		0.5146

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Mixed Acid, Sample Type=SME, ICP=M-14, Analyte=Fe/U
Bivariate Fit of Avg Measurement By Blending WL



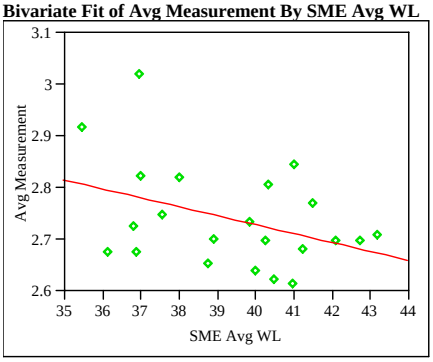
Linear Fit
Avg Measurement = 2.5173917 + 0.0061455 Blending WL
Summary of Fit

RSquare	0.008384
RSquare Adj	-0.0412
Root Mean Square Error	0.101334
Mean of Response	2.740525
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00173640	0.001736	0.1691
Error	20	0.20537147	0.010269	Prob > F
C. Total	21	0.20710787		0.6853

Bivariate Fit of Avg Measurement By SME Avg WL



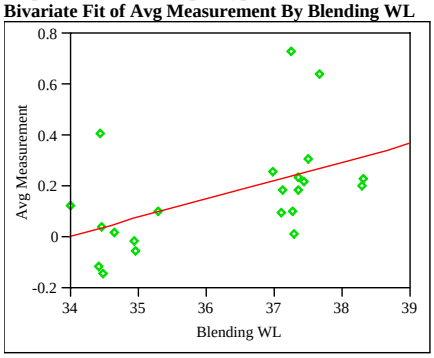
Linear Fit
Avg Measurement = 3.4217008 - 0.0172972 SME Avg WL
Summary of Fit

RSquare	0.152513
RSquare Adj	0.110139
Root Mean Square Error	0.093681
Mean of Response	2.740525
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.03158663	0.031587	3.5992
Error	20	0.17552124	0.008776	Prob > F
C. Total	21	0.20710787		0.0723

Prep=Mixed Acid, Sample Type=SME, ICP=M-14, Analyte=K
Bivariate Fit of Avg Measurement By Blending WL



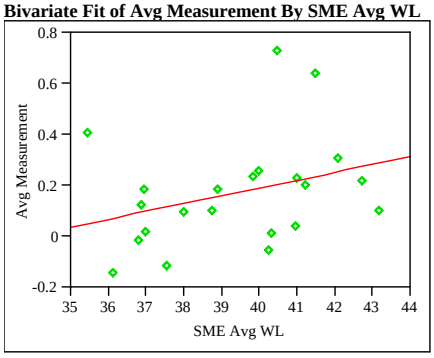
Linear Fit
Avg Measurement = -2.46183 + 0.072535 Blending WL
Summary of Fit

RSquare	0.249674
RSquare Adj	0.212157
Root Mean Square Error	0.190652
Mean of Response	0.171818
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.24189936	0.241899	6.6551
Error	20	0.72696325	0.036348	Prob > F
C. Total	21	0.96886261		0.0179

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = -1.033166 + 0.0305983 SME Avg WL
Summary of Fit

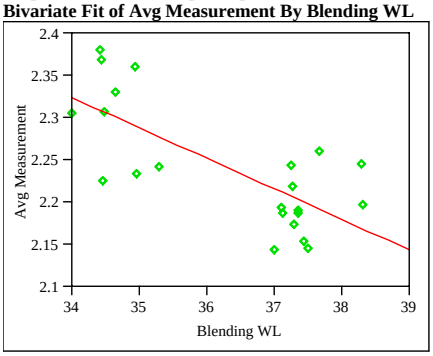
RSquare	0.10202
RSquare Adj	0.057121
Root Mean Square Error	0.208569
Mean of Response	0.171818
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.09884333	0.098843	2.2722
Error	20	0.87001927	0.043501	Prob > F
C. Total	21	0.96886261		0.1473

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Mixed Acid, Sample Type=SME, ICP=M-14, Analyte=Li
Bivariate Fit of Avg Measurement By Blending WL



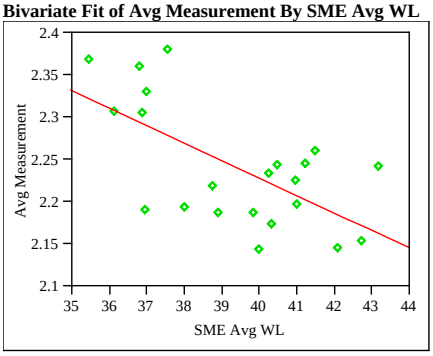
Linear Fit
Avg Measurement = 3.5510166 - 0.0360755 Blending WL
Summary of Fit

RSquare	0.536977
RSquare Adj	0.513825
Root Mean Square Error	0.050792
Mean of Response	2.241163
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.05983634	0.059836	23.1944
Error	20	0.05159558	0.002580	Prob > F
C. Total	21	0.11143192		0.0001

Bivariate Fit of Avg Measurement By SME Avg WL



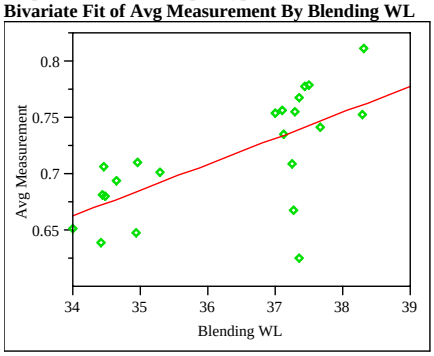
Linear Fit
Avg Measurement = 3.0553297 - 0.0206743 SME Avg WL
Summary of Fit

RSquare	0.404951
RSquare Adj	0.375199
Root Mean Square Error	0.057579
Mean of Response	2.241163
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.04512447	0.045124	13.6107
Error	20	0.06630746	0.003315	Prob > F
C. Total	21	0.11143192		0.0015

Prep=Mixed Acid, Sample Type=SME, ICP=M-14, Analyte=Mg
Bivariate Fit of Avg Measurement By Blending WL



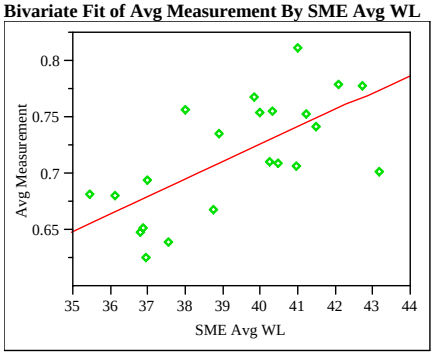
Linear Fit
Avg Measurement = -0.117496 + 0.0229596 Blending WL
Summary of Fit

RSquare	0.438596
RSquare Adj	0.410526
Root Mean Square Error	0.039384
Mean of Response	0.716136
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.02423641	0.024236	15.6250
Error	20	0.03102269	0.001551	Prob > F
C. Total	21	0.05525910		0.0008

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 0.1099223 + 0.0153937 SME Avg WL
Summary of Fit

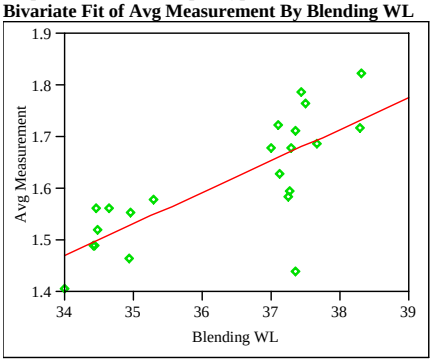
RSquare	0.452724
RSquare Adj	0.42536
Root Mean Square Error	0.038886
Mean of Response	0.716136
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.02501712	0.025017	16.5446
Error	20	0.03024199	0.001512	Prob > F
C. Total	21	0.05525910		0.0006

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Mixed Acid, Sample Type=SME, ICP=M-14, Analyte=Mn
Bivariate Fit of Avg Measurement By Blending WL



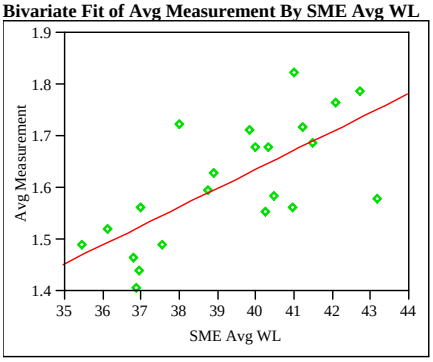
Linear Fit
Avg Measurement = -0.603128 + 0.0610061 Blending WL
Summary of Fit

RSquare	0.588615
RSquare Adj	0.568046
Root Mean Square Error	0.077328
Mean of Response	1.611919
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.17111385	0.171114	28.6163
Error	20	0.11959208	0.005980	Prob > F
C. Total	21	0.29070593		<.0001

Bivariate Fit of Avg Measurement By SME Avg WL



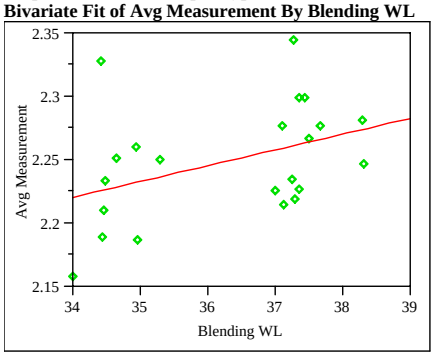
Linear Fit
Avg Measurement = 0.1731839 + 0.036534 SME Avg WL
Summary of Fit

RSquare	0.484722
RSquare Adj	0.458958
Root Mean Square Error	0.086543
Mean of Response	1.611919
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.14091158	0.140912	18.8140
Error	20	0.14979434	0.007490	Prob > F
C. Total	21	0.29070593		0.0003

Prep=Mixed Acid, Sample Type=SME, ICP=M-14, Analyte=Mn/Mg
Bivariate Fit of Avg Measurement By Blending WL



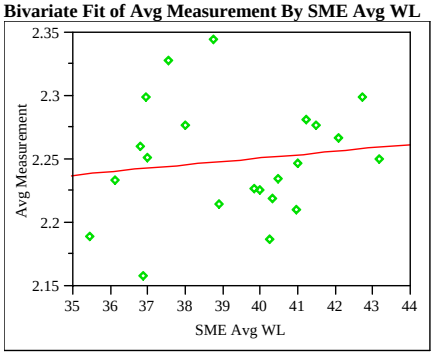
Linear Fit
Avg Measurement = 1.7968736 + 0.012467 Blending WL
Summary of Fit

RSquare	0.160481
RSquare Adj	0.118505
Root Mean Square Error	0.043234
Mean of Response	2.249535
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00714604	0.007146	3.8232
Error	20	0.03738283	0.001869	Prob > F
C. Total	21	0.04452887		0.0647

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 2.1430769 + 0.0027033 SME Avg WL
Summary of Fit

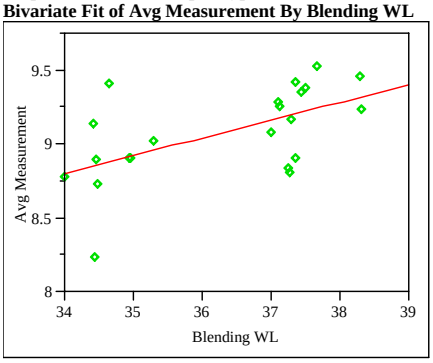
RSquare	0.017326
RSquare Adj	-0.03181
Root Mean Square Error	0.046775
Mean of Response	2.249535
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00077151	0.000772	0.3526
Error	20	0.04375737	0.002188	Prob > F
C. Total	21	0.04452887		0.5593

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Mixed Acid, Sample Type=SME, ICP=M-14, Analyte=Na
Bivariate Fit of Avg Measurement By Blending WL



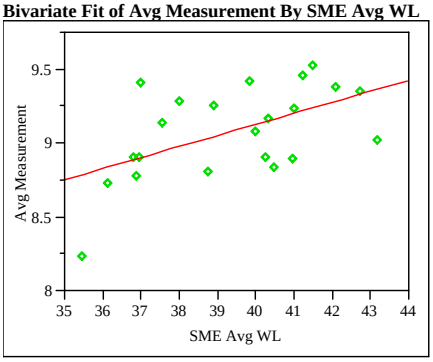
Linear Fit
Avg Measurement = 4.7277024 + 0.1199129 Blending WL
Summary of Fit

RSquare	0.325496
RSquare Adj	0.291771
Root Mean Square Error	0.261722
Mean of Response	9.081578
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.6611065	0.661107	9.6514
Error	20	1.3699659	0.068498	Prob > F
C. Total	21	2.0310724		0.0056

Bivariate Fit of Avg Measurement By SME Avg WL



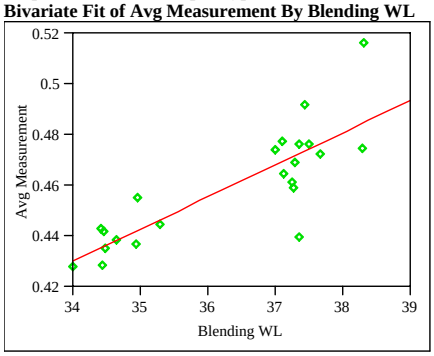
Linear Fit
Avg Measurement = 6.1304846 + 0.0749376 SME Avg WL
Summary of Fit

RSquare	0.291894
RSquare Adj	0.256489
Root Mean Square Error	0.268162
Mean of Response	9.081578
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.5928587	0.592859	8.2444
Error	20	1.4382138	0.071911	Prob > F
C. Total	21	2.0310724		0.0094

Prep=Mixed Acid, Sample Type=SME, ICP=M-14, Analyte=Ni
Bivariate Fit of Avg Measurement By Blending WL



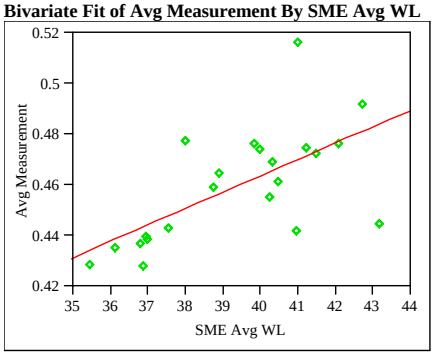
Linear Fit
Avg Measurement = -0.000263 + 0.0126604 Blending WL
Summary of Fit

RSquare	0.690199
RSquare Adj	0.674709
Root Mean Square Error	0.01286
Mean of Response	0.459419
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00736944	0.007369	44.5577
Error	20	0.00330782	0.000165	Prob > F
C. Total	21	0.01067726		<.0001

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 0.2046941 + 0.0064683 SME Avg WL
Summary of Fit

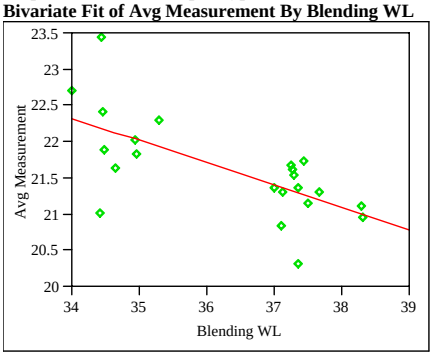
RSquare	0.413683
RSquare Adj	0.384368
Root Mean Square Error	0.017692
Mean of Response	0.459419
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00441701	0.004417	14.1113
Error	20	0.00626025	0.000313	Prob > F
C. Total	21	0.01067726		0.0012

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Mixed Acid, Sample Type=SME, ICP=M-14, Analyte=Si
Bivariate Fit of Avg Measurement By Blending WL



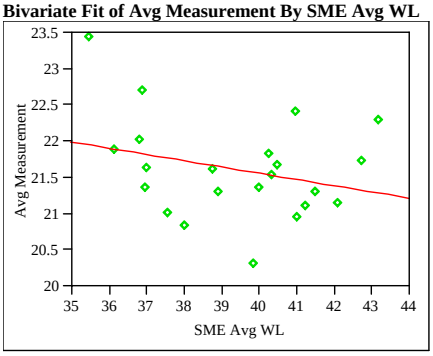
Linear Fit
Avg Measurement = 32.797441 - 0.3078431 Blending WL
Summary of Fit

RSquare	0.445449
RSquare Adj	0.417721
Root Mean Square Error	0.520782
Mean of Response	21.62008
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	4.3571049	4.35710	16.0652
Error	20	5.4242789	0.27121	Prob > F
C. Total	21	9.7813839		0.0007

Bivariate Fit of Avg Measurement By SME Avg WL



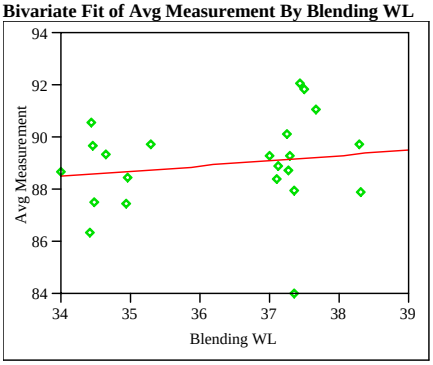
Linear Fit
Avg Measurement = 25.033222 - 0.0866705 SME Avg WL
Summary of Fit

RSquare	0.081076
RSquare Adj	0.03513
Root Mean Square Error	0.670386
Mean of Response	21.62008
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.7930383	0.793038	1.7646
Error	20	8.9883456	0.449417	Prob > F
C. Total	21	9.7813839		0.1990

Prep=Mixed Acid, Sample Type=SME, ICP=M-14, Analyte=Sum of Oxides
Bivariate Fit of Avg Measurement By Blending WL



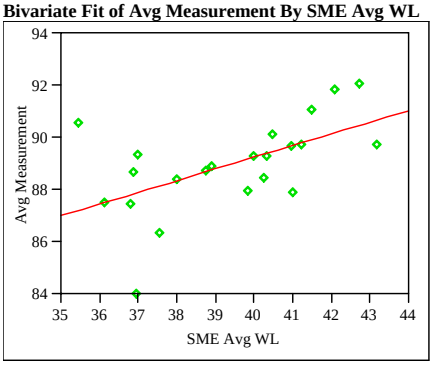
Linear Fit
Avg Measurement = 81.705889 + 0.2002185 Blending WL
Summary of Fit

RSquare	0.027322
RSquare Adj	-0.02131
Root Mean Square Error	1.811289
Mean of Response	88.97555
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	1.843094	1.84309	0.5618
Error	20	65.615382	3.28077	Prob > F
C. Total	21	67.458477		0.4623

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 71.422669 + 0.4457232 SME Avg WL
Summary of Fit

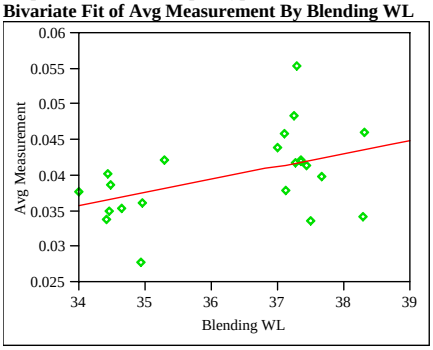
RSquare	0.310918
RSquare Adj	0.276464
Root Mean Square Error	1.52454
Mean of Response	88.97555
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	20.974034	20.9740	9.0241
Error	20	46.484443	2.3242	Prob > F
C. Total	21	67.458477		0.0070

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte *(continued)*

Prep=Mixed Acid, Sample Type=SME, ICP=M-14, Analyte=Ti
Bivariate Fit of Avg Measurement By Blending WL



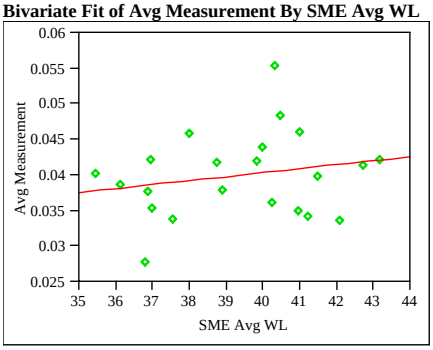
Linear Fit
Avg Measurement = -0.027348 + 0.0018552 Blending WL
Summary of Fit

RSquare	0.20974
RSquare Adj	0.170227
Root Mean Square Error	0.00546
Mean of Response	0.040011
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00015824	0.000158	5.3081
Error	20	0.00059621	0.000030	Prob > F
C. Total	21	0.00075445		0.0321

Bivariate Fit of Avg Measurement By SME Avg WL



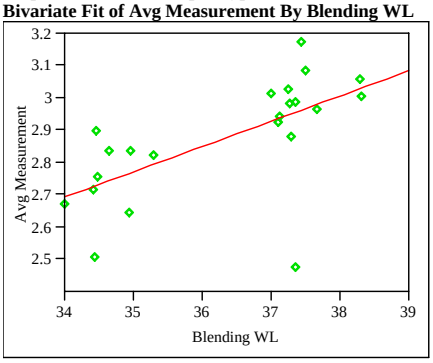
Linear Fit
Avg Measurement = 0.0178212 + 0.0005635 SME Avg WL
Summary of Fit

RSquare	0.04443
RSquare Adj	-0.00335
Root Mean Square Error	0.006004
Mean of Response	0.040011
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00003352	0.000034	0.9299
Error	20	0.00072093	0.000036	Prob > F
C. Total	21	0.00075445		0.3464

Prep=Mixed Acid, Sample Type=SME, ICP=M-14, Analyte=U
Bivariate Fit of Avg Measurement By Blending WL



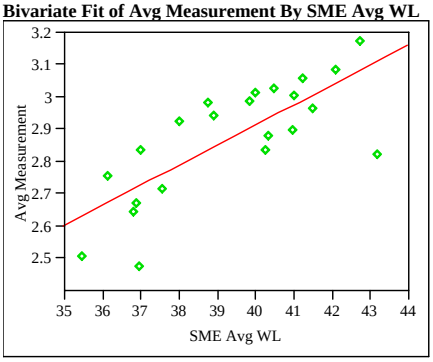
Linear Fit
Avg Measurement = 0.0343925 + 0.0782201 Blending WL
Summary of Fit

RSquare	0.401311
RSquare Adj	0.371377
Root Mean Square Error	0.144855
Mean of Response	2.874458
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.28130422	0.281304	13.4063
Error	20	0.41965855	0.020983	Prob > F
C. Total	21	0.70096277		0.0016

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 0.4375512 + 0.0618808 SME Avg WL
Summary of Fit

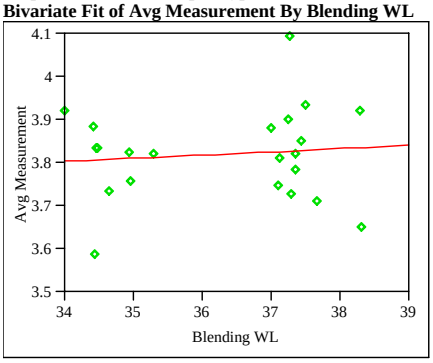
RSquare	0.576724
RSquare Adj	0.555561
Root Mean Square Error	0.121799
Mean of Response	2.874458
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.40426229	0.404262	27.2505
Error	20	0.29670049	0.014835	Prob > F
C. Total	21	0.70096277		<.0001

Exhibit A12. Relationships between Analytes and WLs by Preparation Method, ICP, and Analyte
(continued)

Prep=Mixed Acid, Sample Type=SME, ICP=M-14, Analyte=U/Ca
Bivariate Fit of Avg Measurement By Blending WL



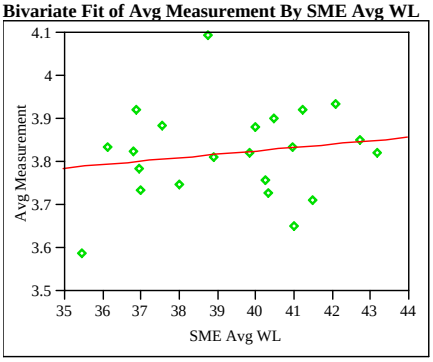
Linear Fit
Avg Measurement = 3.553866 + 0.0073476 Blending WL
Summary of Fit

RSquare	0.010134
RSquare Adj	-0.03936
Root Mean Square Error	0.110101
Mean of Response	3.820646
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00248214	0.002482	0.2048
Error	20	0.24244308	0.012122	Prob > F
C. Total	21	0.24492521		0.6558

Bivariate Fit of Avg Measurement By SME Avg WL



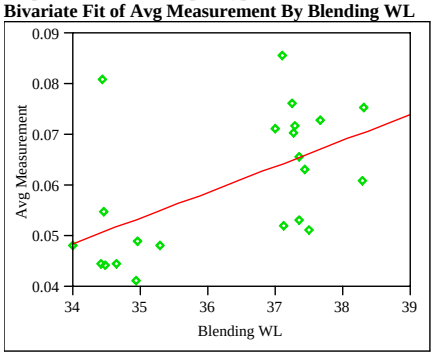
Linear Fit
Avg Measurement = 3.512458 + 0.0078259 SME Avg WL
Summary of Fit

RSquare	0.026399
RSquare Adj	-0.02228
Root Mean Square Error	0.109192
Mean of Response	3.820646
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00646572	0.006466	0.5423
Error	20	0.23845950	0.011923	Prob > F
C. Total	21	0.24492521		0.4700

Prep=Mixed Acid, Sample Type=SME, ICP=M-14, Analyte=Zr
Bivariate Fit of Avg Measurement By Blending WL



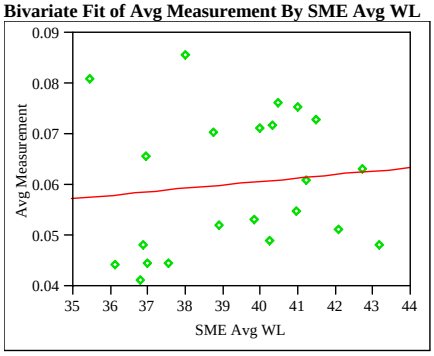
Linear Fit
Avg Measurement = -0.124672 + 0.005093 Blending WL
Summary of Fit

RSquare	0.309418
RSquare Adj	0.274889
Root Mean Square Error	0.011536
Mean of Response	0.060248
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00119258	0.001193	8.9611
Error	20	0.00266168	0.000133	Prob > F
C. Total	21	0.00385426		0.0072

Bivariate Fit of Avg Measurement By SME Avg WL



Linear Fit
Avg Measurement = 0.0334881 + 0.0006795 SME Avg WL
Summary of Fit

RSquare	0.012648
RSquare Adj	-0.03672
Root Mean Square Error	0.013794
Mean of Response	0.060248
Observations (or Sum Wgts)	22

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Ratio
Model	1	0.00004875	0.000049	0.2562
Error	20	0.00380551	0.000190	Prob > F
C. Total	21	0.00385426		0.6183

Distribution:

C.J. Bannochie, 773-42A
M.J. Barnes, SRNL
N.E. Bibler, SRNL
D.R. Best, 786-1A
D.B. Burns, 786-5A
T.B. Calloway, 999-W
L.M. Chandler, SRNL
D.R. Click, SRNL
C.J. Coleman, SRNL
A.J. Cross, 704-71S
D.A. Crowley, SRNL
B.H. Culbertson, 704-27S
B.A. Davis, 704-27S
R.E. Edwards, SRNL
T.B. Edwards, 773-42A
M.T. Feller, 704-28S
T.L. Fellinger, 704-27S
S.P. Harris, 773-42A
C.C. Herman, 773-42A
C.M. Jantzen, SRNL
R.N. Mahannah, 704-28S
J.E. Marra, SRNL
W.L. Melton III, 704-28S
M. S. Miller, 704-S
J.E. Occhipinti, 704-S
P.M. Patel, 704-27S
F.M. Pennebaker, SRNL
D.K. Peeler, 999-W
J.W. Ray, 704-S
M.E. Smith, 773-42A
M.E. Stone, 999-W
R.C. Tuckfield, 773-42A
J.P. Vaughan, 773-41A
S.W. Wilkerson, 704-S