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E. I. du Pont de Nemours and Co.
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HYDRIDE ORIENTATION AND MECHANICAL PROPERTIES OF THIN-WALLED ZIRCALOY TUBING

R. P. Marshall

Nuclear Materials Division
Savannah River Laboratory

INTRODUCTION

Studies of factors that influence the orientation of zirconium hydride platelets in thin-walled Zircaloy tubing are being conducted at the Savannah River Laboratory. These studies will define the relationship of fabrication techniques and associated Zircaloy structures to susceptibility of tubing to preferred hydride orientations. The work will also assess the effects of various aspects of hydride morphology, orientation, platelet size, and cluster size on the mechanical behavior of tubing.

Status

Seven samples of specially fabricated tubing have been received to date from Wolverine Tubing. During the past month analyses of the tubing demensions and hydride orientations were begun. Specimens of each tube were hydrogenated to 50 ppm in preparation for determining the hydride orientation - frequency distributions.

In addition 4 samples of heavy-walled Zircaloy-2 and Zr-Nb tubing were received from Pacific Northwest Laboratory for comparison of hydride orientation with our previous results on thin-walled tubing.

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