Technical Meeting on Advanced Technology Fuels:Progress on their Design, Manufacturing, Experimentation, Irradiation, and Case Studies for their Industrialization, Safety Evaluation, and Future Prospects

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ZIRCONIUM ALLOY CLADDING WITH CHROMIUM COATING: DIFFUSION-REACTION MECHANISMS AND STRUCTURAL DEGRADATION UNDER EXTREME TEMPERATURES

This study establishes a Zr-Cr diffusion mechanism model to quantitatively reveal Cr concentration profiles, ZrCr2 layer growth kinetics, and defect formation mechanisms based on an experimental investigation, providing theoretical support for failure prediction and emergency strategies in extreme conditions.

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Track Classification: Experimental Testing of ATF Materials and Validation Database