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Mini-plate Fabrication Using Coated U-Mo Atomized Powders

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ABSTRACT

Atomized U-7Mo powders were coated with diffusion barrier materials by sputtering to suppress inter-diffusion between U-Mo and Al matrix. About 300nm thick diffusion barrier were homogeneously deposited on the surface of U-7Mo particles. 1 μ m thick double-coating layer was subsequently deposited by sputtering either to make the mini-plate fabrication easier or to protect the diffusion barrier from cracking during mini-plate fabrication process. As a result, mini-plate was well fabricated with double-coated U-7Mo powders although some parts of the coating layers were still broken during the fabrication. U-Al inter-diffusion which resulted in the formation of U-Al intermetallics occurred at the boundary between the broken coating layer and Al matrix.