

MICROSTRUCTURES IN Ti-Al INTERMETALLIC COMPOUNDS IRRADIATED AT 673 K IN HFIR – Y. Miwa, T. Sawai, and K. Fukai (Japan Atomic Energy Research Institute), D. T. Hoelzer (Oak Ridge National Laboratory), and A. Hishinuma (JAERI)

Extended Abstract (the full paper will be published in the Journal of Nuclear Materials as Proceedings of the Ninth International Conference on Fusion Reactor Materials, October 10-15, 1999, Colorado Springs, Colorado).

Four kinds of Ti-Al intermetallic compounds were made from powder metallurgical processing using mechanical alloying or plasma rotating electrode processing. One consisted of α_2 -Ti₃Al single phase, and the others consisted of α_2 -Ti₃Al and γ -TiAl duplex phases. These intermetallic compounds were irradiated at 673 K to the fluence of 5.16×10^{25} n/m² (E>1 MeV) in the High Flux Isotope Reactor. After irradiation, transmission electron microscopy was carried out. Cavities were observed in both the α_2 -Ti₃Al and γ -TiAl phases. The cavities were observed around pores that existed prior to irradiation and contained Ar gas. But in the γ -TiAl phases, no cavities were observed around the pores. The number density of cavities in α_2 -Ti₃Al or γ -TiAl was different among specimens that had different chemical compositions and fabrication processes.