

IRRADIATION CREEP AND VOID SWELLING OF TWO LMR HEATS OF HT9 AT ~400C AND 165 dpa - M. B. Toloczko (University of California at Santa Barbara) and F. A. Garner (Pacific Northwest National Laboratory)

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Extended Abstract

Two nominally identical heats of HT9 ferritic-martensitic steel were produced, fabricated into pressurized tubes, and then irradiated in FFTF, using identical procedures. After reaching 165 dpa at ~400C, small differences in strains associated with both phase-related changes in lattice parameter and void swelling were observed in comparing the two heats. The creep strains, while different, exhibited the same functional relationship to the swelling behavior. The derived creep coefficients, the one associated with creep in the absence of swelling and the one directly responsive to swelling, were essentially identical for the two heats. Even more significantly, the creep coefficients for this bcc ferritic-martensitic steel appear to be very similar and possibly identical to those routinely derived from creep experiments on fcc austenitic steels.

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