

Comparison of shear punch and tensile testing of neutron irradiated FeCrAl

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FeCrAl alloys are being developed for accident tolerant fuels for current light water reactors. Specifically, for application as fuel claddings with enhanced safety. These alloys are being developed to have excellent corrosion resistance in light water reactor coolant environments and structural integrity for long durations at high temperatures in steam in the case of a loss of coolant scenario where time is critical for safety. Shear punch testing was performed at the Wing-9 hot cells in CMR at LANL on neutron irradiated FeCrAl alloys with three variations in composition. The shear punch testing was performed on the grip section of tensile specimens that have been tensile tested at room temperature for comparison of the shear punch to the tensile results. The FeCrAl alloys were irradiated at ORNL in HFIR to 7 dpa and at 320 °C. The details of comparing shear punch testing of an irradiated FeCrAl alloy to tensile tests will be presented.