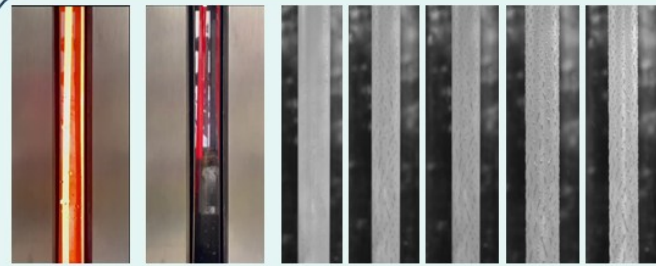
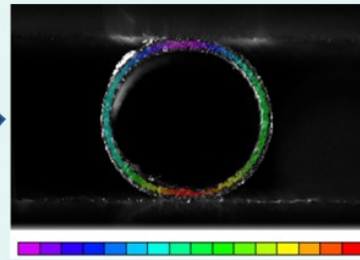


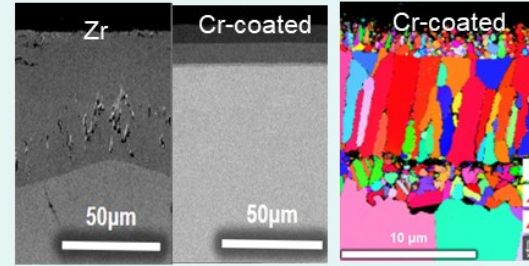
Nuclear Fuel Cladding Degradation: Embrittlement Visualization of Cr-Coated Zircaloy



HTO, Quench

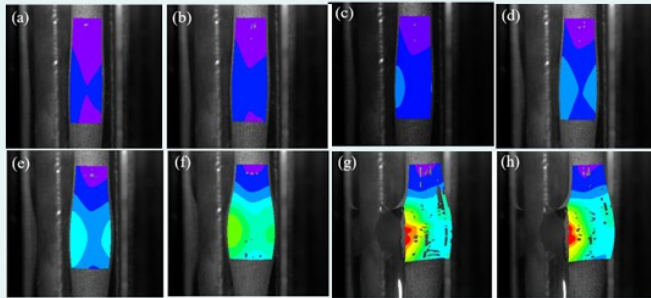


DIC Image

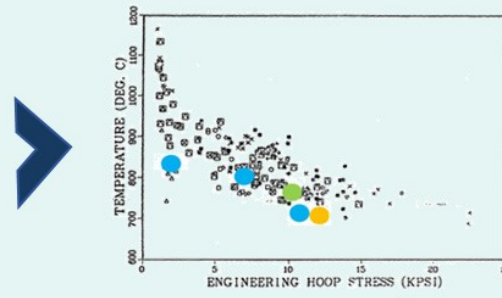


Microscopic characterization

Result: During the oxidation, an oxide layer was formed in the surface of Cr coating, which not only retarded further oxidation but also improved the mechanical properties of the cladding



B&B, Quench



CONCLUSION:

The introduction of Cr-coating significantly enhanced the oxidation resistance, hardness and yield strength of the cladding, but it led to a decrease in ductility. This degradation is mainly due to the formation of a hard, brittle protective layer during oxidation and the interface constraint effect