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Abstract

Isothermal and thermomechanical fatigue (TMF) behavior of titanium aluminide coated near α titanium alloy Titan 29A has been studied. TMF behavior was studied in the temperature interval of 300°C↔600°C and isothermal low cycle fatigue test was carried out at 300°C and 600°C. By observation of cross-sectional microstructure and fracture surfaces of failed specimens, the likely sites of crack initiation and early stages of crack propagation have been identified. Fatigue lives exhibited by the alloy under isothermal and TMF loading have been analyzed in light of microstructural observations to gain insight into the operating damage mechanisms.

Keywords: titanium alloy; thermomechanical fatigue; low cycle fatigue; fractography; coating.

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