

## Materials Characterization

Surface characterization of the cyclically oxidized -Ti-48Al-2Nb-0.7Cr alloy after nitridation

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### **Abstract**

Surface properties of the nitrided -Ti-48Al-2Nb-0.7Cr intermetallic alloy after cyclic oxidation was characterized. The nitride coating was successfully deposited after annealing of the Ti-48Al-2Nb-0.7Cr intermetallic alloy at 900 °C under nitrogen atmosphere. As a result, the nitride layer on the Ti-48Al-2Nb-0.7Cr alloy significantly improved its cyclic oxidation and the best performance was recorded at 900 °C after 900 h (h). Atomic force spectroscopy (AFM) analysis confirmed the surface multi-layers with surface roughness and a spectral root mean square (RMS) amplitude of 165 nm. Microstructures were analysed employing scanning electron microscopy (SEM) equipped with energy dispersion spectroscopy (EDS) for micro-analysis. Phase analysis was conducted using X-ray diffraction (XRD).