**Study of microstructure and mechanical properties of -Ti-46.5Al-2Cr-(3.5 & 5.0) Nb alloys**

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**Abstract**

-TiAl alloys are used in high temperature aero-engine as well as in turbocharger applications in high performance cars etc. These alloys have very good oxidation and creep resistance and favourable specific strength but have poor ductility. The wrought -TiAl alloys have been designed to increase the hot workability of these alloys. In the present study, the effect of Nb on the microstructure and mechanical properties of wrought compositions have been investigated. Two -TiAl alloys, Ti-46.5Al-2Cr-3.5Nb-0.3B (at.%) and Ti-46.5Al-2Cr-5.0Nb-0.3B (at.%) were studied. The microstructure after a standard heat treatment has been characterized and the phases present were identified through SEM and XRD. The three phases viz. 2,  and /B2 have different morphologies in the alloys. The compression properties at room temperature as well as high temperature (25°C & 800°C) and creep properties at 800°C & 300 MPa of applied stress were evaluated. The increase in Nb content results in the increase in  phase fraction and the creep properties were found to improve, whereas not much significant change in the compression strength was observed.

Keywords: -TiAl, intermetallics, high temperature properties, Nb addition