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Production of Chromium Matrix Composite Reinforced by WC by Powder Metallurgy

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Abstract : Intermetallic materials advanced technology materials that have outstanding mechanical and physical properties for high temperature applications. Especially creep resistance, low density and high hardness properties stand out in such intermetallics. The microstructure, mechanical properties of %80Cr-%10Ti and %10WC powders were investigated using specimens produced by tube furnace sintering at 1000-1400°C temperature. A composite consisting of ternary additions, a metallic phase, Ti,Cr and WC have been prepared under Ar shroud and then tube furnace sintered. XRD, SEM (Scanning Electron Microscope), were investigated to characterize the properties of the specimens. Experimental results carried out for composition %80Cr-%10Ti and %10WC at 1400°C suggest that the best properties as 292HV and 5,34g/cm3 density were obtained at 1400°C.

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