

Production and Characterization of Al-BN Composite Materials by Using Powder Metallurgy

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Abstract : Aluminum matrix composites containing 3, 6, 9, 12 and 15% BN has been fabricated by conventional microwave sintering at 550°C temperature. Compounds formation between Al and BN powders is observed after sintering under Ar shroud. XRD, SEM (Scanning Electron Microscope), mechanical testing and measurements were employed to characterize the properties of Al + BN composite. Experimental results suggest that the best properties as hardness 42,62 HV were obtained for Al+12% BN composite. In this study, the powder metallurgy method was used. It is aimed to produce a light composite with Al matrix BN powders. It has been increased in strength and hardness besides its lightness. Ceramic powders are added to improve mechanical properties.

Keywords : ceramic-metal composites, properties, powder metallurgy, sintering

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