

Estimation of Grinding Force and Material Characterization of Ceramic Matrix Composite

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Abstract : The ever-increasing demand for high efficiency in automotive and aerospace applications requires new materials to suit to high temperature applications. The Ceramic Matrix Composites nowadays find its applications for high strength and high temperature environments. In this paper, Al₂O₃ and Sic ceramic materials are taken in particulate form as matrix and reinforcement respectively. They are blended together in Ball Milling and compacted in Cold Compaction Machine by powder metallurgy technique. Scanning Electron Microscope images are taken for the samples in order to find out proper blending of powders. Micro harness testing is also carried out for the samples in Vickers Micro Hardness Testing Equipment. Surface grinding of the samples is also carried out in Surface Grinding Machine in order to find out grinding force estimates. The surface roughness of the grounded samples is also taken in Surface Profilometer. These are yielding promising results.

Keywords : ceramic matrix composite, cold compaction, material characterization, particulate and surface grinding

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