Processing of Low cost and Light Weight Al-SiC Metal Matrix Composites

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ABSTRACT

This project aims at the potential of use Al-SiC metal matrix composite (MMC) with particular reference to the aerospace industry. In the present study a modest attempt has been made to develop aluminium based silicon carbide particulate MMCs with an objective to develop a conventional low cost method of producing MMCs and to obtain homogenous dispersion of ceramic material. Aluminium (98.41% C.P) and SiC (320-grit) has been chosen as matrix and reinforcement material respectively. Experiments have been conducted by varying weight fraction of SiC (5%, 10%, 15%, 20%, 25%, and 30%), while keeping all other parameters constant. An increasing trend of hardness and impact strength with increase in weight percentage of SiC has been observed. The best results (maximum hardness 45.5 BHN & maximum impact strength of 36 N-m.) have been obtained at 25% weight fraction of SiC.

Figure 1: Applications of Al-SiC metal matrix composites.
Figure 2: Test coupon of Al-SiC metal matrix composites.

References


