Composite materials: synthesis of 6061AL-B4C MMCs

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Condition: New. Publisher/Verlag: LAP Lambert Academic Publishing | Evaluation of Mechanical Properties | Metal Matrix Composites (MMCs) have been developed to meet the demand for lighter materials with high specific strength, stiffness and wear resistance properties. Particulate reinforced aluminium matrix composites (AMCs) are attractive materials due to their strength, ductility and toughness. Their ability to be produced by conventional methods adds to the advantage. The aluminium matrix can be strengthened by reinforcing with hard ceramic particles like SiC, Al2O3 and B4C etc. Judicious selection of the variables is important to optimize the properties of composites. In this work an effort is made to enhance the mechanical properties like tensile strength and hardness of AMCs by reinforcing 6061Al matrix with B4C particles. By stir casting route, aluminium matrix was reinforced with boron carbide particulates of 37, 44, 63, 105, 250µ sizes. The micro-structure and mechanical properties of the fabricated AMCs were analyzed. The optical micro-structure images reveal the homogeneous dispersion of B4C particles in the matrix. The tensile strength and hardness were found to increase with the increase in the particle size. | Format: Paperback | Language/Sprache: english | 76 pp.

Reviews

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