Confirmation Test to Analyze the Presence and Effect of Reinforcements on Stir Cast Aluminium Composites

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Abstract:
In the present work an effort is made to confirm the presence of actual weight percentage of reinforcements and its effect on aluminium alloy composites during stir casting technique. Two types of reinforcements such as Silicon carbide and Boron carbide were used by varying weight percentage to manufacture Al6061 composites. The manufactured composites after stir casting shows uniform distribution of hardness on the entire cross section measured from top to bottom. The dissolved composites during acid test shows approximately 95% of reinforcements present in the aluminium composites. Presence of reinforcements play a very important role to enhance the mechanical properties of aluminium alloy by altering the microstructure during solidification and induces strain energy in the metallic matrix alloy. Almost 50% increase in hardness and 40-50% increase in tensile strength were observed in the as cast composites as compared to aluminium alloy. Uniform distribution of reinforcements and hardness distribution on the entire cross section clearly reveals that stir casting is the effective method for manufacturing aluminium composites.

Biography:

Gowri Shankar M.C has completed his PhD at the age of 41 years from Manipal University, Manipal, India in the area of heat treatment of composite material. He is a faculty of Mechanical Engineering in the Department of Mechanical and Manufacturing Engineering, Manipal, an 'Institute of Eminence' as recognized by the Government of India. He has published about 47 papers in reputed journals in the area of material science, manufacturing and heat treatment of composites.

He has about 18 years of teaching experience and about 7 years of industry experience.

Recent Publications:

1- Some studies on high-pressure cooling in turning of Ti–6Al–4V

2- Individual and combined effect of reinforcements on stir cast aluminium metal matrix composites-a review

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4- Effect of Artificial Aging on Strength and Wear Behaviour of Solutionized Aluminium 6061 Alloy

5- Effects of Age Hardening Parameters on Hardness of Al 6061 Alloy Using Design of Experiments

6- The effects of deep cold rolling and low plasticity burnishing process on surface hardness of AISI 4140 steel

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