International Journal of Electronics and Communication Engineering
Vol:8, No:11, 2014

Tin (II) Chloride a Suitable Wetting agent for AA1200 - SiC Composites

Authors : S. O. Adeosun, Akpan, E. I. and S.A. Balogun, Abdulmunim A. S.

Abstract : SiC reinforced Aluminum samples were produced by stir casting of liquid AA 1200 aluminum alloy at 600-650 ºC casting temperature. 83µm SiC particles were rinsed in 10g/l, 20g/l and 30g/l molar concentration of Sncl2 through cleaning times of 0, 60, 120, and 180 minutes. Some cast samples were tested for mechanical properties and some were subjected to heat treatment before testing. The SnCl2 rinsed SiC reinforced aluminum exhibited higher yield strength, hardness, stiffness and elongation which increases with cleaning concentration and time up to 120 minutes, compared to composite with untreated SiC. However, the impact energy resistance decreases with cleaning concentration and time. The improved properties were attributed to good wettability and mechanical adhesion at the fiber-matrix interface. Quenching and annealing the composite samples further improve the tensile/yield strengths, elongation, stiffness, hardness similar to those of the as-cast samples.

Keywords : Al-SIC, Aluminum, Composites, Intermetallic, Reinforcement, Tensile Strength, Wetting
Conference Title : ICEP 2014 : International Conference on Electronic Publications
Conference Location : journal city, WASET
Conference Dates : November 23-23, 2014