

Microstructure and interface analysis of glass particulate reinforced aluminum matrix composite

Abstract

A characterization of microstructure and interface was made on the composites Al- 4% Cu reinforced with 15 wt. % glass particulate. The composite was fabricated by powder metallurgy followed by solution treatment and artificial ageing. The microstructures of the composite showed that the glass particulates were in-homogenously distributed in the matrix and segregated near copper. The aluminum oxide layer was found between aluminum, copper and glass particulate. Micro cracks were observed in the aluminum oxide layer and at the interface between aluminum oxide layer and aluminum. Hardness increased as ageing time increased. Interface behavior and aging time influenced the hardness of the composite.

Keywords

Aluminum; Interface; Microstructure; Powder metallurgy; Sintering