

ABSTRACT

In this paper, the autocatalyst copper coating (ACC) of silicon carbide particle (SiCp) was performed after a sequence of surface treatment, sensitization and surface activation processes. The ACC process was operated at pH of 12.5 and 75°C. Later, the copper coated SiCp were mixed with copper powders at 20 vol.% and sintered at 1025°C for 0.5, 2 and 4 hours under a controlled argon atmosphere. The composition and microstructure of the copper deposited layer were examined by means of energy dispersive x-ray (EDX) analysis and scanning electron microscopy (SEM) respectively. The experiment shows that the ACC process gives an excellent copper plating coverage with uniform plating thickness on the SiCp. More importantly, the copper coated layer manages to control the interfacial reactions between the SiC reinforcement and copper matrix.

Keywords: Autocatalyst copper plating, silicon carbide reinforced copper matrix composites, interfacial interaction.