

ABSTRACT

The importance of Al and SiC composite materials are recognized due to a low production cost and as material with vast availability on earth. Composite materials were developed as an alternative material with give a high stiffness properties (high strength and low density) and its own a special interest for the application in the aerospace and aeronautical industries. An experimental work has been carried out to investigate the influence of variation milling time aluminum (Al) 5082 with 5% silicon carbide (SiC) metal matrix composites with respect to the density, hardness, porosity, microstructure and composition of Al-SiC. The starting materials were SiC with particle size of 90 μm and Al powder with particle size 45 μm . Al-SiC powder was mixtured with content of 95% aluminum (Al) and 5% SiC under process with three milling times of 1, 24 and 48 hours respectively. Powder compactness proceeded under a pressurized condition of 20 tons. The experimental work used Micromeritics (mercury porosimeter) for porosity measurement. Scanning Electron Microscope (SEM) for microstructure investigation while Energy Dispersive X-ray Spectroscopy (EDX) is used to analyze the composition of composites material. This paper shows the result of measurements over density, micro hardness, porosity and microstructure of three specimens under investigation for different time millings. The results indicates that the properties of the specimen with 24 hours milled give a better properties then other milling times.

Keywords Metal Matrix Composites, Density, Hardness, Porosity, Microstructure