

Microstructural characterization of fly ash particulate reinforced AA6063 aluminium alloy for aerospace applications

ABSTRACT

Aluminium-fly ash (FA) particulate reinforced composites (AA6063-FA) have been used in automotive and aerospace industries because of their low density and good mechanical properties. Three different weight fraction of FA: 2%, 4% and 6% are added to AA6063 alloy using compocasting method. The effect of FA particulates on microstructure, density and compression strength of AA6063- FA composites are investigated. Field Emission Scanning Electron Microscope (FESEM) micrographs reveal that the FA particulates are uniformly distributed in AA6063 alloy. The results also show that density, compression strength and microstructure of the AA6063-FA composites are significantly influenced by the FA amount. The increase in the weight fraction of FA will improve the microstructure and enhance the compression strength. The density of AA6063-FA composites decreases as the incorporation of FA increases.