

MATERIALS AND STRUCTURES SYMPOSIUM (C2)
New Materials and Structural Concepts (4)

Author: Mr. Touqeer Rasheed
SUPARCO, Pakistan, tqr_khanzada@yahoo.com

Dr. Sohaib Akbar
SUPARCO, Pakistan, sohaibakbar@gmail.com

Mr. Ahmad Bashir
Pakistan Space and Upper Atmosphere Research Commission (SUPARCO), Pakistan,
ahmadbashir1985@yahoo.com

EFFECT OF MAPP AS COUPLING AGENT ON THE MECHANICAL, THERMAL AND
INTERFACIAL PROPERTIES OF GLASS FIBRE-PP COMPOSITE

Abstract

Fibre reinforced polymers have been of great interest to aerospace industry owing to their high specific strength and modulus. Particularly, glass fibre/polypropylene (PP) laminates have been investigated with regard to diverse fabrication and processing methods. One of the major problems in the development of glass fibre-PP composites is the adhesion between the components i.e. glass fiber PP because of their opposite polarity. Such problem could be minimized by the use of coupling agents such as maleic anhydride modified polypropylene (MAPP) etc. In current study the effects of MAPP on thermal, mechanical and interfacial shear strength (IFSS) of glass fibre-PP composites have been investigated. The first part of the study focused on the effect of MAPP blending with PP on thermal and mechanical properties of PP. Different batches of MAPP-PP blends were obtained by varying the MAPP percentages. Thermal properties of blends were studied by DSC and results revealed that MAPP had no deteriorating effect on the thermal properties of PP. Mechanical properties of blends were studied by using universal testing machine and it was observed that MAPP /PP blends exhibited improved mechanical properties as compared to pure PP. Second part of this study was to investigate the effect of MAPP concentration on the IFSS of Glass fibre-PP composites. Microbond testing was used to obtain the IFSS between the glass fibre-PP composites. IFSS of glass fibre-PP composites significantly increased with the increase of MAPP % as compared with pure PP.