

ABSTRACT

A series of acrylic oligomers e.g., carboxyl terminated poly (2-ethyl hexyl acrylate) (CTPEHA) and carboxyl randomized poly (2-ethyl hexyl acrylate) (CRPEHA) i.e 2- ethyl hexyl acrylate/ acrylic acid copolymer, having different molecular weight and functionality, were synthesized by bulk and solution polymerization technique. The products were characterized by FTIR and ^{13}C NMR spectroscopic analysis, nonaqueous titration, Vapour Pressure Osmometry (VPO) and Gel Permeation Chromatography (GPC) analysis. The liquid rubbers were prereacted with the epoxy and the modified epoxy networks were made by curing with ambient temperature curing agent. The Modified epoxy networks were evaluated with respect to their mechanical, thermal, impact and adhesive properties. Incorporation of the oligomers, having controlled molecular weight and functionality, are seen to improve the impact strength. The optimum properties were obtained at about 10 to 15 phr concentration of the modifier. Fracture surface analysis by Scanning Electron Microscopy (SEM) indicates the presence of two phase microstructure.