



P-10-109

PHASE SEPARATION AND DYNAMICAL-MECHANICAL PROPERTIES OF POLYSULFIDE MODIFIED EPOXY RESIN

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Polysulfide resin can be used to toughen epoxy resins. In this work, FT-IR spectroscopy, viscometry and GPC were used to verify the reactive modification. Results obtained from DMTA and SEM showed that phase separation of epoxy resin from the copolymer matrix took place and according to the tan delta graphs phase separation in copolymer was decreasing with decreasing polysulfide in copolymer combination so that in 30wt% of polysulfide, phase separation was not noticed and glass transition temperature (T_g) of the cured copolymer was decreased from 125 °C (for net epoxy) to 92 °C. Samples with long time interaction (between epoxy and polysulfide) had lower maximum tan delta and high storage modulus.