

Synthesis of Epoxidized Castor Oil Using a Sulphonated Polystyrene Type Cation Exchange Resin and Its Blend Preparation with Epoxy Resin

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Abstract : Epoxidized oils can replace petroleum derived materials in numerous industrial applications, because of their respectable oxirane oxygen content and high reactivity of oxirane ring. Epoxidized castor oil (ECO) has synthesized in the presence of a sulphonated polystyrene type cation exchange resin. The formation of the oxirane ring was confirmed by Fourier Transform Infrared Spectroscopy (FTIR) analysis. The epoxidation reaction was evaluated by Nuclear Magnetic Resonance (NMR) studies. ECO is used as a toughening phase to increase the toughness of petroleum-based epoxy resin.

Keywords : epoxy resin, epoxidized castor oil, sulphonated polystyrene type cation exchange resin, petroleum derived materials

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