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Synthesis, Characterization, and Evaluation of New Series of Oil Sorbers Based on Maleate Esters

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Abstract : Two malice anhydride esters were prepared using long chain aliphatic alcohols (C8H17OH and C12H25OH, 1:1 mole ratio). Three series of crosslinked homo and copolymers of maleate esters with octadecyl acrylate and acrylic acid were prepared respectively through suspension copolymerization. The monomers were mixed with 0.02 Wt% of BP initiator, PVA 1% (170 ml for each 100g of monomers) and different weight ratios of DVB crosslinked (1% and 4%) in cyclohexane. The prepared crosslinked homo and copolymers were characterized by SEM, TGA and FTIR spectroscopic analyses. The prepared polymers were coated onto poly (ethylene terephethalate) nonwoven fiber (NWPET). The effect of copolymerization feed composition, crosslinker wt% and reaction media or solvent on swelling properties of crosslinked polymers were studied through the oil absorption tests in toluene and 10% of diluted crude oil with toluene.

Keywords : acrylic acid, crosslinked copolymers, maleate ester, poly(ethylene terephethalate) nonwoven fiber (NWPET), oil absorbency, octadecyl acrylat
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