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Ethoxysilyl- modified hyperbranched polyester as an effective hydrophob agent in miniemulsion polymerization

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Abstract : Hydrophobe agent, modified aromatic-aliphatic-hyperbranched polyesters (aaHBP) were synthesised by melt polycondensation reaction of Diphenolic acid as AB_2 type monomer with 4 drops of dibutyltin diacetate with mechanical stirrer, a gas inlet and an outlet. The polycondensation was done in two steps, first in a N_2 stream and second applying vacuum to drive the reaction to higher conversion and molar mass. Then modified with 3-isocyanatopropyl triethoxysilane (IPTES) in the presence of dibutyltin dilaurate as a catalyst to obtain ethoxysilyl-modified aliphatic-aromatic hyperbranched polyesters. The obtained polymer materials were characterized by NMR, FTIR, TGA and DSC. Then these modified ethoxysilyl-modified hyperbranched aromatic-aliphatic polyesters (aaHBPs) were effectively using as hydrophobing agent in the preparation of a spacer in miniemulsion polymerization of polystyrene.
Keywords: Miniemulsion, hyperbranched polyester, polystyrene, nano-polymer and hydrophob.

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