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Synthesis and self-assembly of amphiphilic maleic anhydride–stearyl methacrylate copolymer

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Abstract

Amphiphilic maleic anhydride–stearyl methacrylate (MA–SMA) random copolymer was synthesized via the free radical copolymerization and its amide was prepared through the MA moieties being reacted with morpholine. Polymers obtained were characterized by GPC and ^{1}H NMR. The aggregating behaviors of copolymers were investigated by first dissolving them in tetrahydrofuran (THF) and then adding water to induce association of the long alkyl chains and observed over the range of copolymer concentrations from 0.028 to 0.22 wt% and water content from 5.32 to 34.85 wt%. Resultant aggregates show new potential application in the fields of drug delivery systems, microcapsules and so on.

Keywords: Maleic anhydride; Stearyl methacrylate; Self-assembly