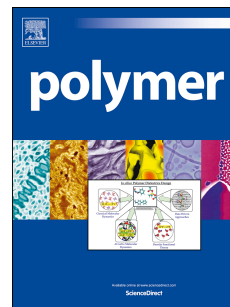


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Lignin-based polymeric surfactants for emulsion polymerization

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KEYWORDS Emulsion polymerization, lignin, polymeric surfactant, poly(ethylene oxide)

ABSTRACT A non-ionic surfactant system is synthesized by standard grafting of poly(ethylene oxide) from renewable lignin fragments and used for the emulsion polymerization of styrene. The lignin precursors is formed by hydrogenolysis and utilized as initiator for the oxyanionic polymerization of ethylene oxide leading to amphiphilic polymers, very similar to standard nonionic surfactant synthesis. Subsequently, the formed amphiphilic polymers are employed as stabilizers in the heterophase polymerization of styrene with various initiators. Poly(styrene) latexes with solids contents of up to 21% depending on stabilizer concentration have been obtained. Stabilizer efficiencies and performances were nicely comparable with those of nonylphenol-based, non-ionic industrial performance surfactants.

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