



Evaluation of different PP grafted sorbent for oil spill cleanup

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ABSTRACT

In this work, a new kind of polypropylene-based sorbent was prepared by ultraviolet radiation-induced graft polymerization of octadecyl acrylate onto polypropylene fiber and polypropylene nonwoven, respectively. Effects of grafting time, monomer concentration, and iniferter concentration on the grafting degree were systematically investigated. FTIR was used to characterize the chemical changes of the polypropylene surface, and SEM results confirmed the morphological changes after graft polymerization. Two forms of modification polypropylene (PP) sorbents were evaluated through oil-over-water experiment in this study in terms of oil sorption capacity, oil-retention property, and reusability performance. The grafted PP sorbent could be straightforward to operate, easy to apply and maintain, affordable to implement, and therefore has the potential to become widely employed for the removal of oil from the spill site.

Keywords: Polypropylene sorbent; Grafting degree; Octadecyl acrylate; Sorption; Reusability

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