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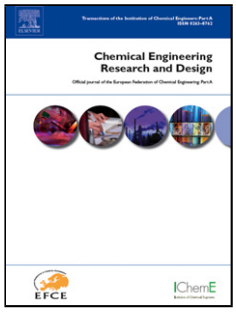

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Highly hydrophilic and antifouling nanofiltration membrane incorporated with water-dispersible composite activated carbon/chitosan nanoparticles

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Highlights

- Water-dispersible composite activated carbon/chitosan nanoparticles.
- PES based NF membrane was modified by incorporation of composite nanoparticles.
- Higher hydrophilicity/porosity obtained by utilizing composite nanoparticles.
- Water flux/salt rejection increased sharply by activated carbon/chitosan nanoparticles.
- Flux recovery in modified membrane found twice that of a pristine membrane.

Abstract

Novel composite activated carbon/chitosan nanoparticles(ACh) were synthesized by dipping and incorporated into poly(ether)sulfone (PES) based nanofiltration membranes, to investigate their effect on the membrane properties and performance. The hydrophobic activated carbon