Oil Contaminate Removal from Wastewater with Novel Nanofiber-Based Membranes

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Abstract : Oil pollution is typically caused by oil and gas-related operations such as vessel accidents, which can pollute waterways as well as the environment and damage the ecosystem. Tanker ship cleaning contributes to oil spills, which have a negative impact on coastal countries due to protracted service disruption. It is critical for coastal countries to develop efficient oil taint cleanup technology. There are various oil/water separation technologies, such as gravity separation, hydrocyclone, air flotation, and membrane filtration, among others. Among these, membrane filtration has been shown to produce high-quality effluent. Commercial membranes, on the other hand, nevertheless face significant practical challenges, such as a high susceptibility for membrane fouling when dealing with greasy effluent. We developed a unique anti-fouling filtering membrane for oil/water separation in this work. The membrane was made of inorganic nanofibers, which possesses the advantages of low membrane fouling, high permeation flux and long-term durability. This results from this study could facilitate to pave a new way for membranes filtration's practical applications in oil/gas industry.

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