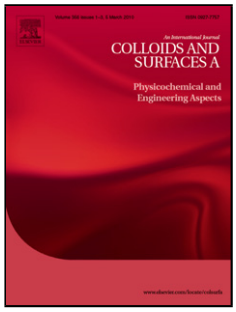

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Simple yet powerful nanofilters with tunable pore sizes and superhydrophilicity-underwater superoleophobicity for oil spill treatment

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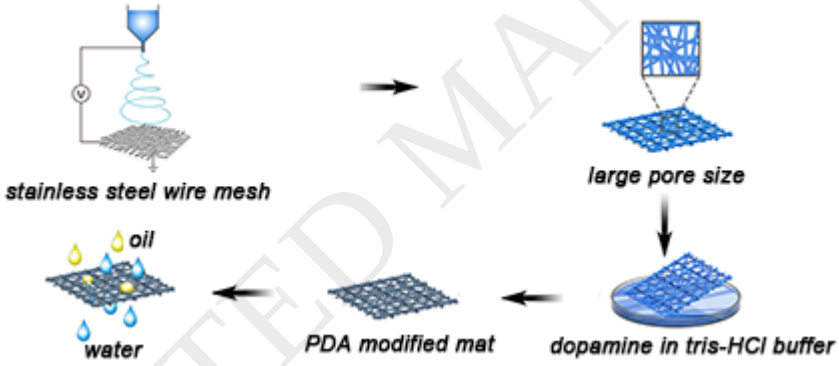
Graphical abstract



Abstract

Using filtration materials possessing superhydrophilic-underwater superoleophobic property to separate oil/water mixtures has become a research hotspot. However, most of the works are concentrated on building filtration materials with special wettability, ignoring the pore structures. Herein, polydopamine-modified (PDA-modified) nanofibrous mats with tunable pore sizes and special wettability were prepared by combining the electrospinning technique with a very simple modification process for oil/water separation. The results indicated that the pore structure of the PDA-modified nanofibrous mats could be finely modulated by utilizing different kinds of stainless