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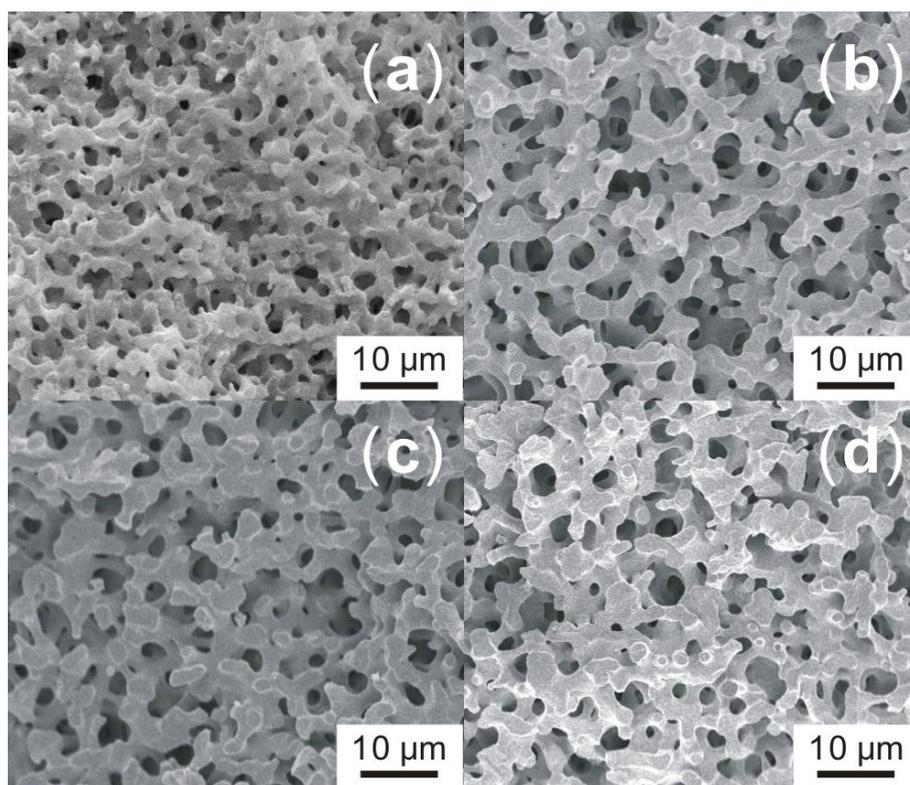
## Reverse Membrane Emulsification Process based on Hierarchically Porous Monolith for High Efficiency Water-Oil Separation

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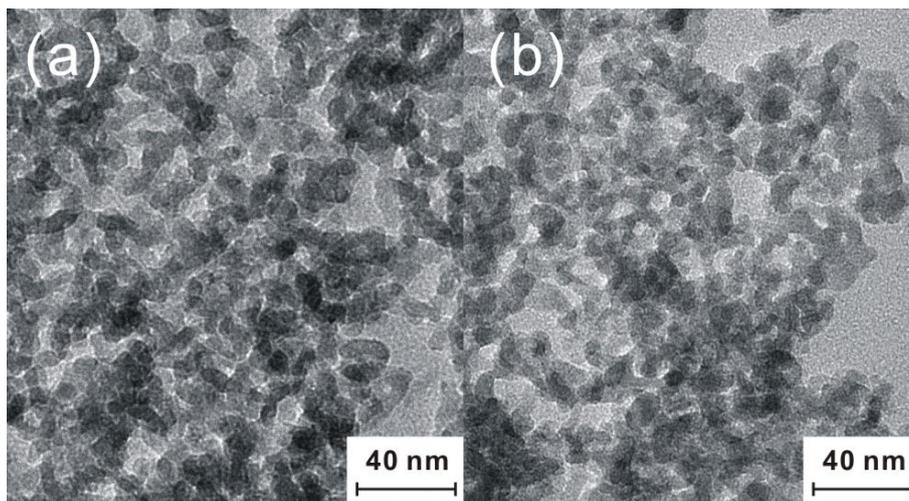
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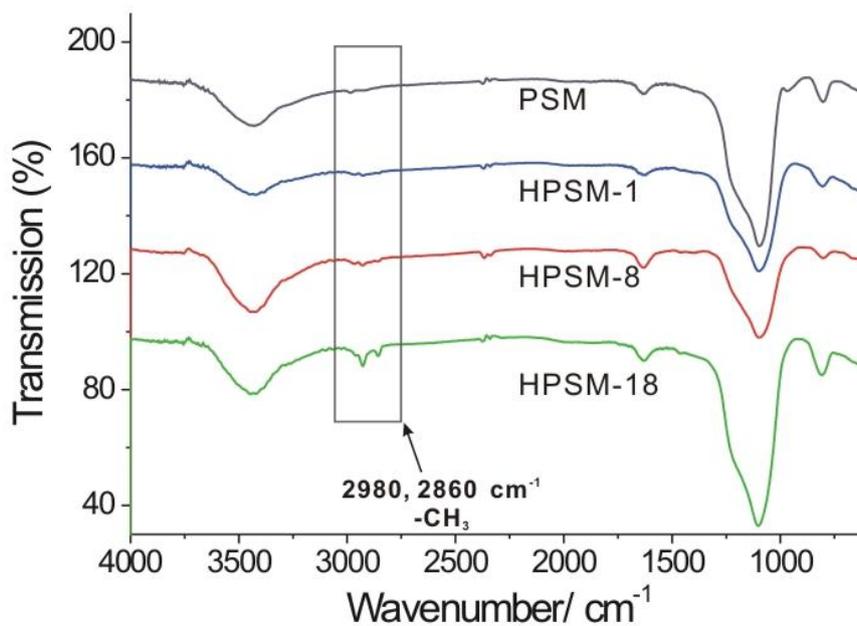
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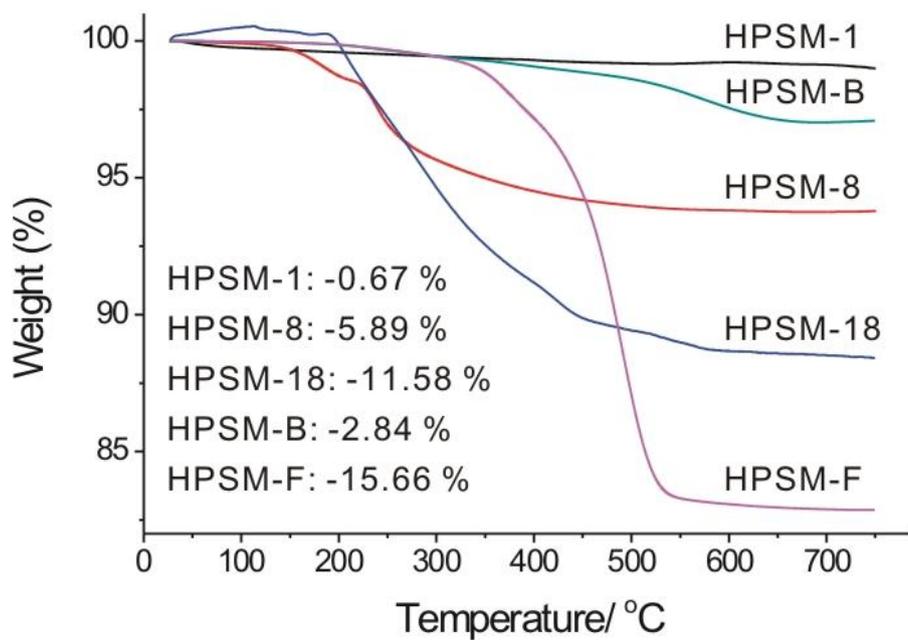
**Figure S1.** SEM images of HPSM-1 (a), HPSM-18 (b), HPSM-B (c) and HPSM (d), respectively.



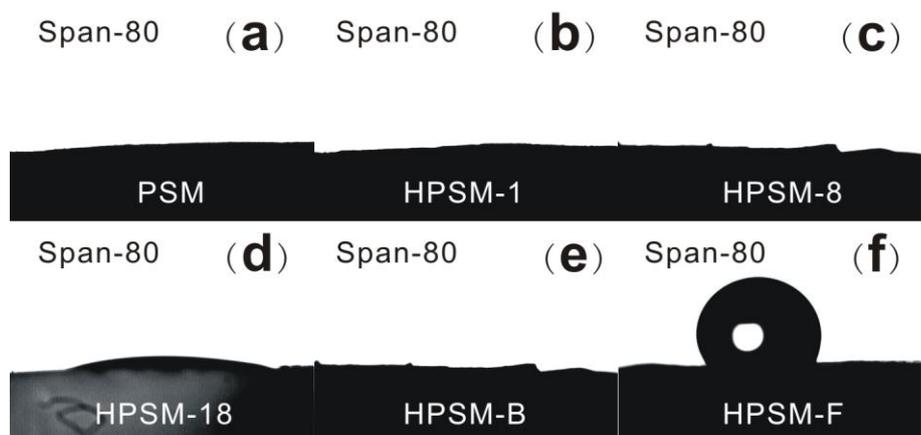
**Figure S2.** TEM images of PSM (a) and HPSM-8 (b), respectively.



**Figure S3.** FT-IR spectrum of PSM and HPSM modified with alkyl groups. Bands of HPSMs at 2980 and 2860 cm<sup>-1</sup> corresponding to -CH<sub>3</sub>, could be observed clearly, illuminate that the alkyl groups have been grafted on the surface successfully.



**Figure S4.** Thermogravimetric Analysis (TGA) of HPSMs. The degree of coverage can be calculated by the data of mass loss from 150 °C to 750 °C, induced by the decomposition of functional groups.



**Figure S5.** The images of the contact angles with surfactant (Span-80, 5 μL) of PSM (A), HPSM-1 (B), HPSM-8 (C), HPSM-18 (D), HPSM-B (E) and HPSM-F (F).