Electronic Supplementary Information

Robust superhydrophobic attapulgite coated polyurethane sponge for efficient immiscible oil/water mixture and emulsion separation

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Supplementary figure and movie captions:

Fig. S1. (a) The fine XPS spectrum of C 1s and (b) O 1s in APT monolith modified with OTS before and after.

Fig. S2. The TEM images of (a) pristine APT and (b) APT modified with OTS.

Fig. S3. Photographs of the selective adsorption of (a-c) kerosene (light oil) and (d-f) tetrachloroethane (heavy oil) by the coated sponges (Oil is dyed with Oil Red).

Fig. S4. The effect of loading ratio of superhydrophobic APT on separation efficiency of immiscible kerosene/water mixture and oil content in filtrate.

Fig. S5. Separation efficiency and oil content versus recycle numbers by taking immiscible kerosene/water mixture as an example.

Fig. S6. The process of tetrachloroethane adsorption from (a-d) the ice water mixture, (e-h) tetrachloroethane/water mixture at 60 °C, and (i-l) tetrachloroethane/water mixture under turbulent condition. The tetrachloroethane was dyed with oil red.

Fig. S7. Photographs illustrating the progress of removal of diesel from (a) 1 M HCl, (b) 1M NaCl, (c) 1 M NaOH, and (d) hot water system with violent agitation (Oil is dyed with Oil Red).

Fig. S8. The separation efficiency of diesel and corrosive solutions and hot water mixtures.

Fig. S9. (a) The system of continuously remove kerosene (light oil as an example) from water. (b-d) The process of kerosene adsorption from the water with the help of vacuum system.

Fig. S10. Microscope images and digital photos of the separation results for various

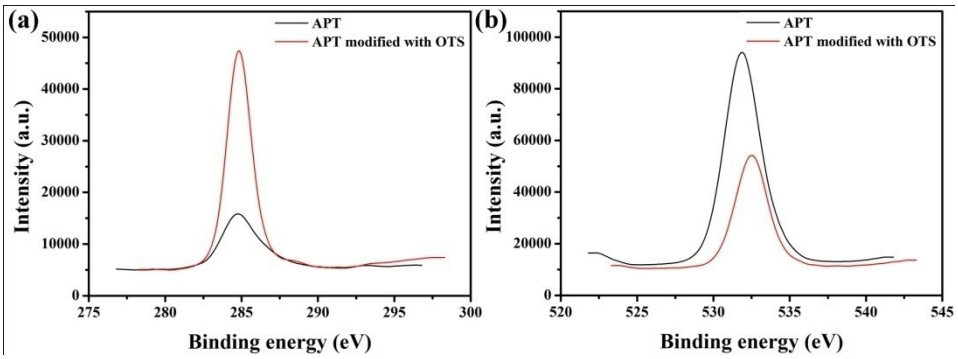
types of oil-in-water emulsions, including (a) kerosene-in-water emulsion, (b) petroleum ether-in-water emulsion, (c) diesel-in-water emulsion, (d) n-hexane-in-water emulsion.

Fig. S11. Particle size distribution before and after separation for various types oil-in-water emulsions, including (a) kerosene-in-water emulsion, (b) petroleum ether-in-water emulsion, (c) diesel-in-water emulsion, (d) n-hexane-in-water emulsion.

Fig. S12. The effect of loading ratio of superhydrophobic APT on separation efficiency of kerosene-in-water emulsion and trace oil content in filtrate.

Fig. S13. (a) FT-IR spectra (b) UV-VIS spectrum of the surfactant stabilized hexane-in-water emulsion before and after separation.

Movie S1. The continuous absorption process by taking kerosene/water mixture as an example (kerosene is dyed with Oil Red O and water is dyed with methylene blue).



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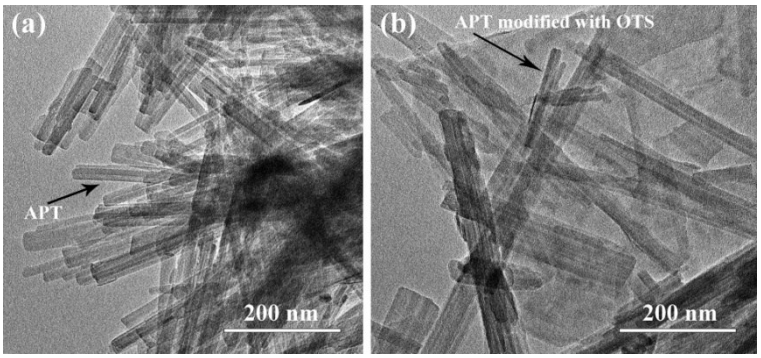
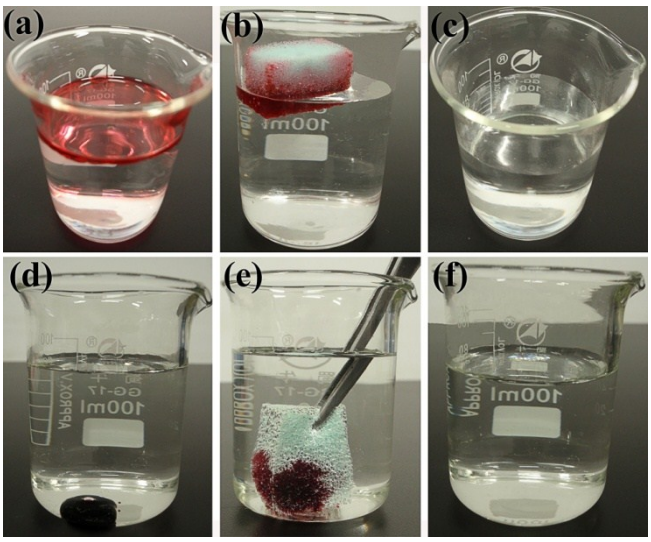


Fig. S2. The TEM images of (a) pristine APT and (b) APT modified with OTS.



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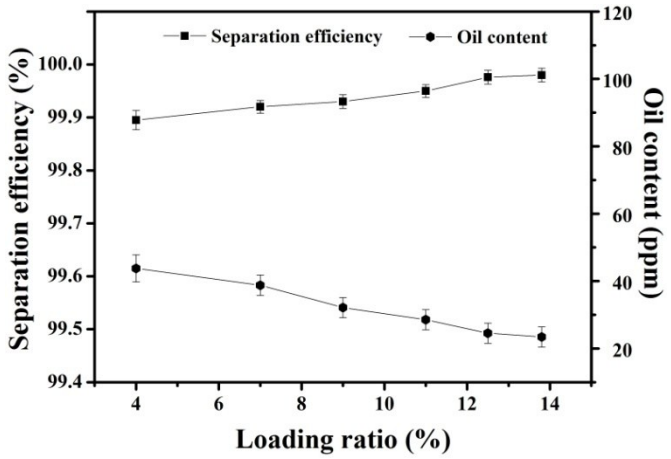


Fig. S4. The effect of loading ratio of superhydrophobic APT on separation efficiency of immiscible kerosene/water mixture and oil content in filtrate.

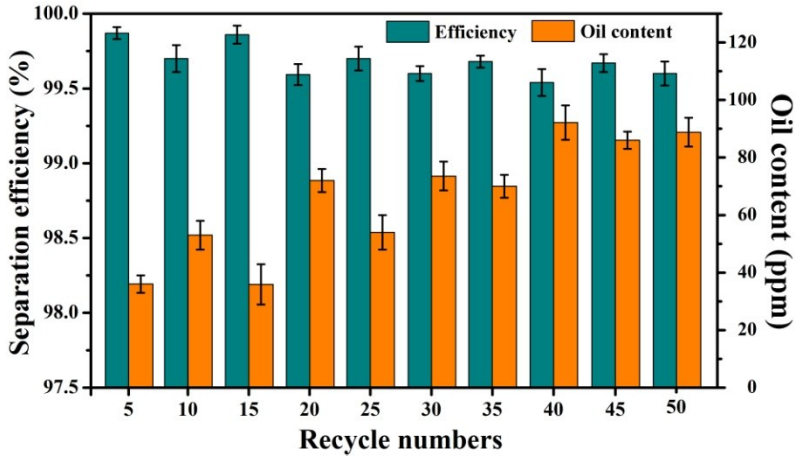
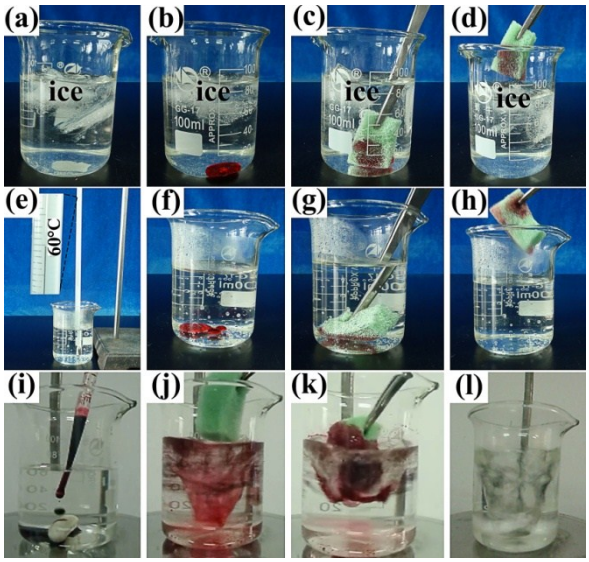


Fig. S5. Separation efficiency and oil content versus recycle numbers by taking immiscible kerosene/water mixture as an example.



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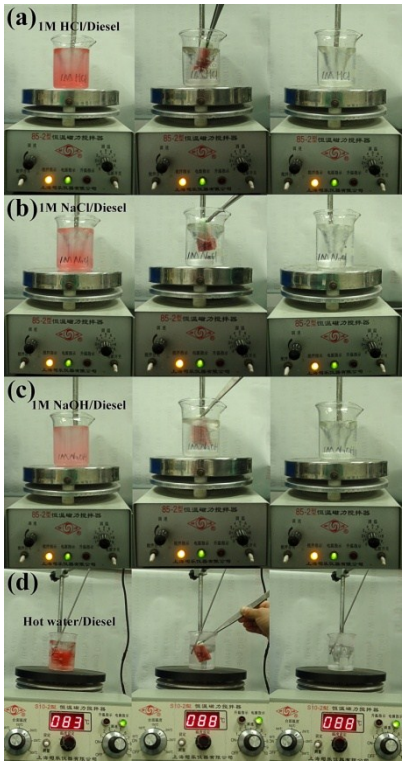

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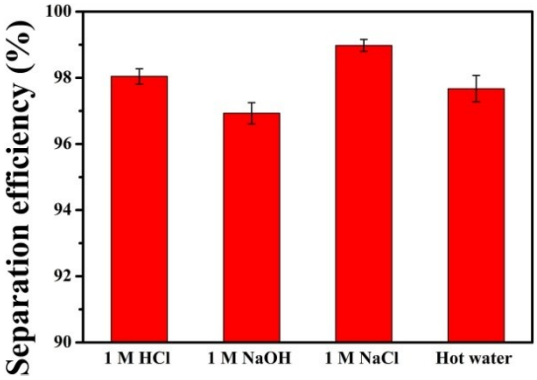

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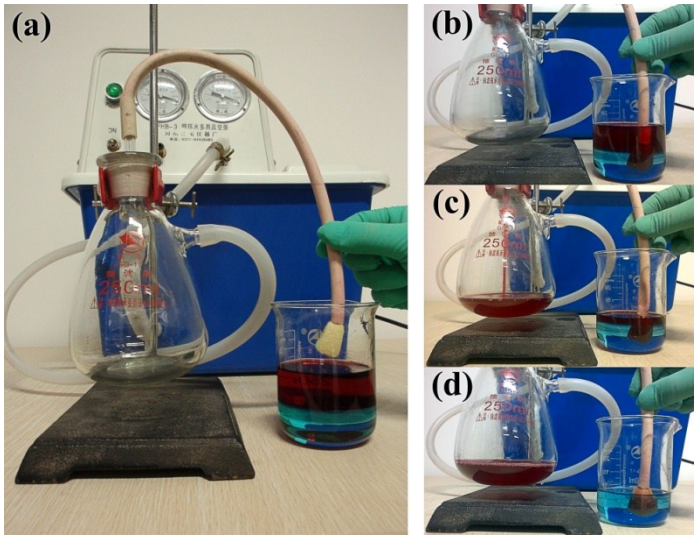

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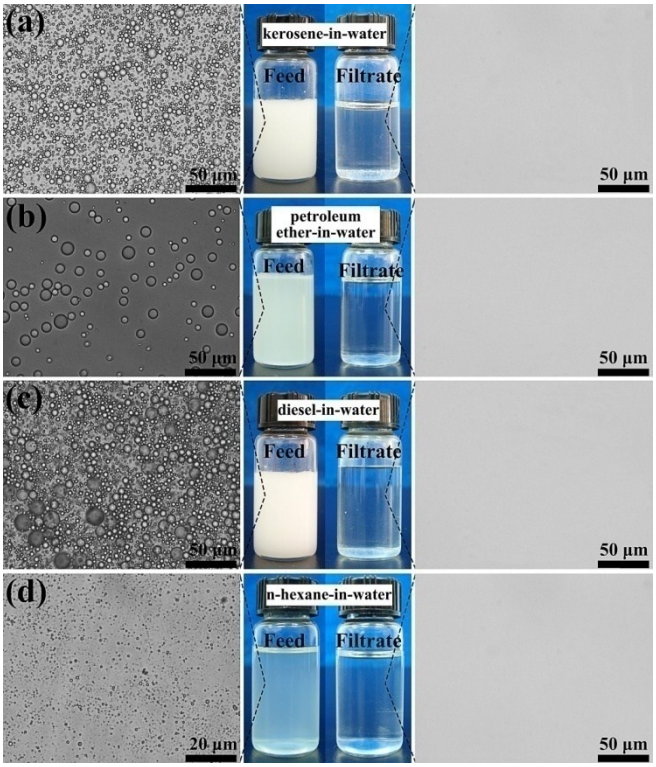

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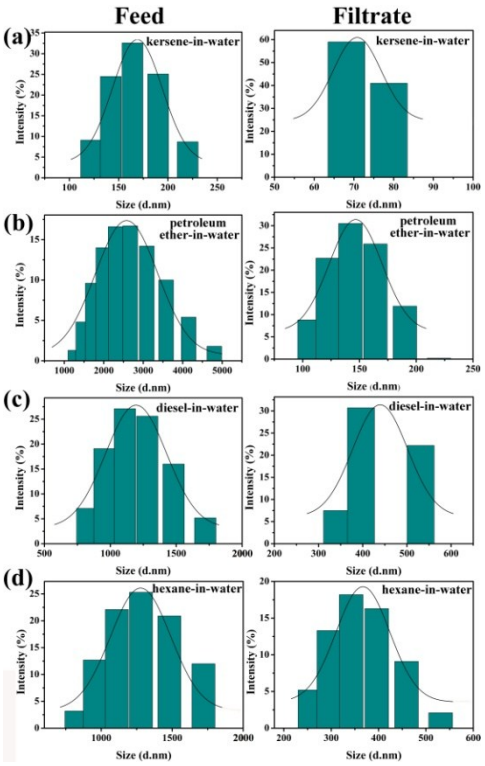

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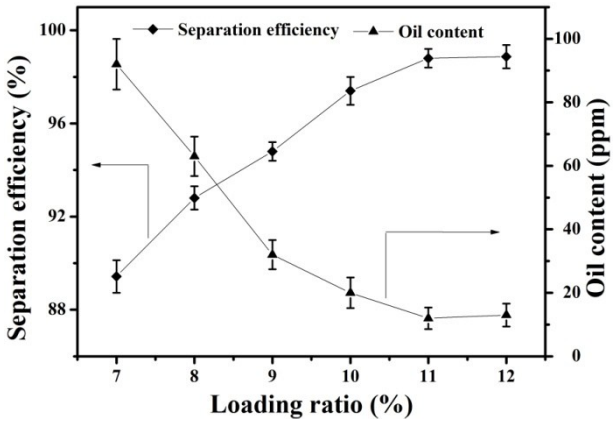

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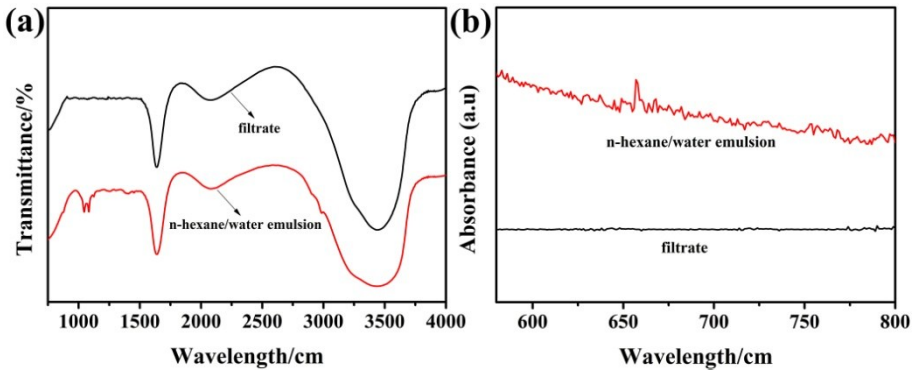

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