

Supporting Information

Pressing-Induced Large-Scale Supramolecular Film for Oil Capture

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Table S1. Table of a comparison of theoretical and experimental results of Elemental Analysis of DTTAB-PSS.

| Element | N | C | H |
|--------------|---|-------|-------|
| Experimental | 2.14 | 69.76 | 11.65 |
| Theoretical | 2.14 | 69.75 | 10.94 |
| Final Result | C₃₀H₆₄BrN C₈H₇NaO₃S • 2H₂O | | |

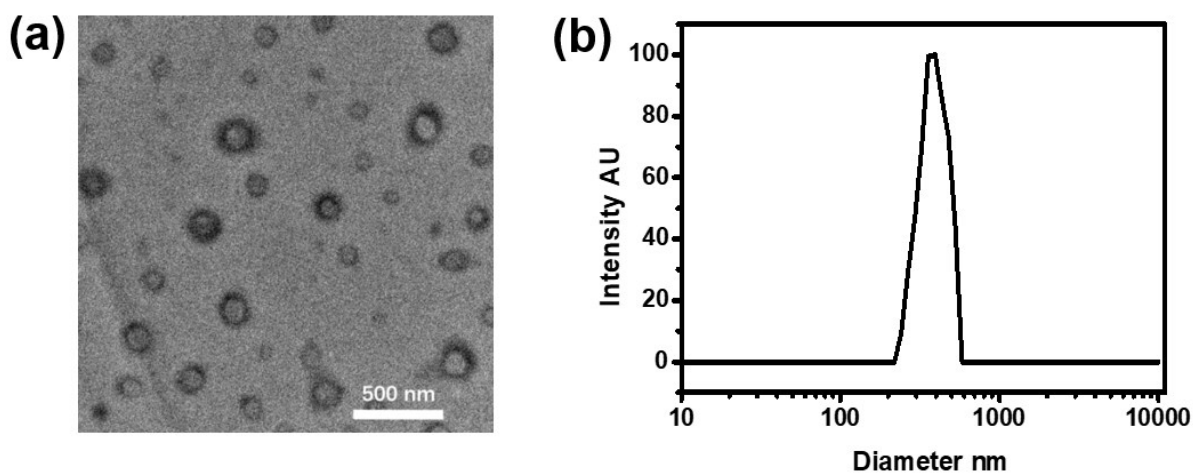


Figure S1. (a) TEM image of vesicles in 20 mM DTTAB, (b) DLS result for the diameter of the vesicles in 20 mM DTTAB. (T= 20 °C)

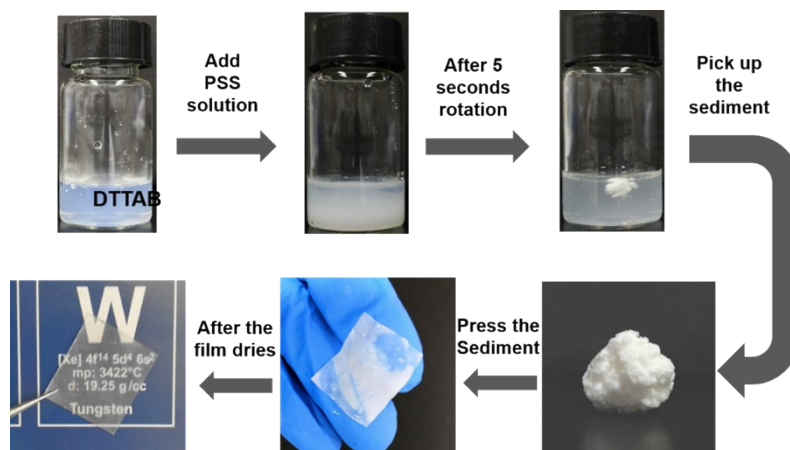


Figure S2. Optical images of the preparation process of DTTAB -PSS film.

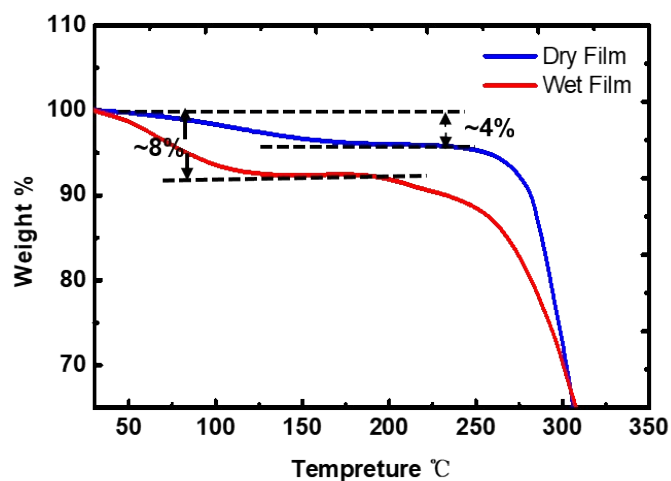


Figure S3. TGA results for the dry and wet DTTAB-PSS film (30°C—300°C).

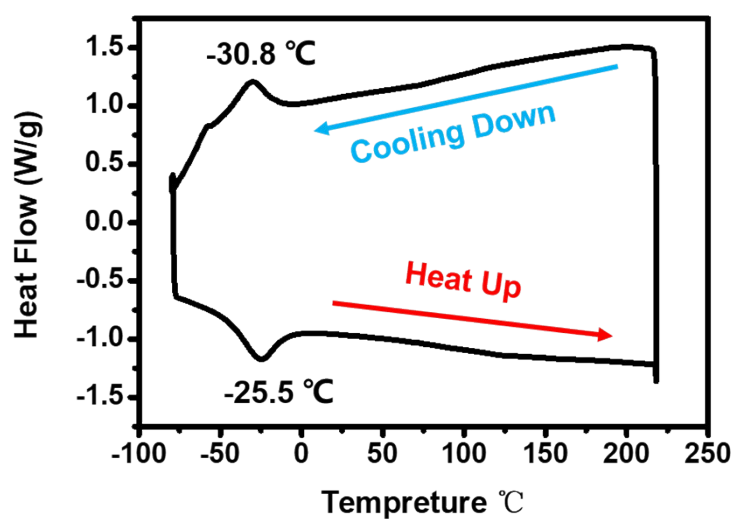


Figure S4. DSC trace of DTTAB-PSS film.

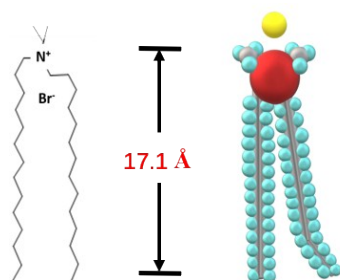


Figure S5. The chemical structure, length and model of DTTAB.

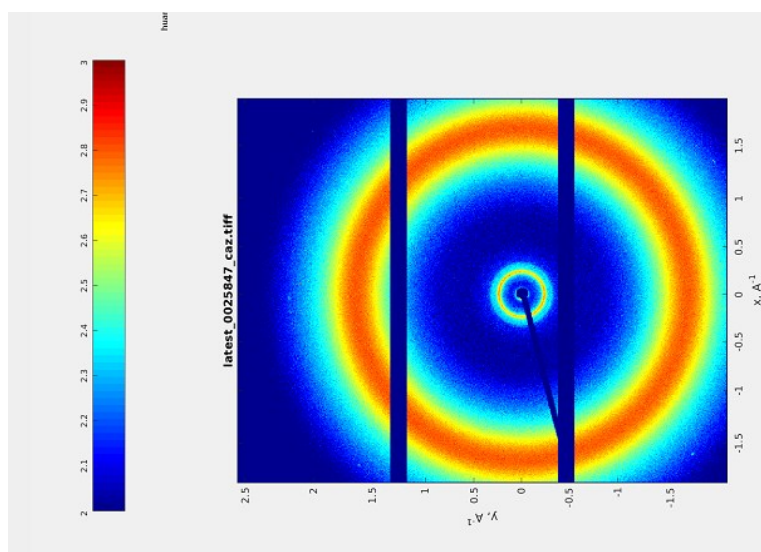


Figure S6. 2D XRD patterns for DTTAB-PSS film.

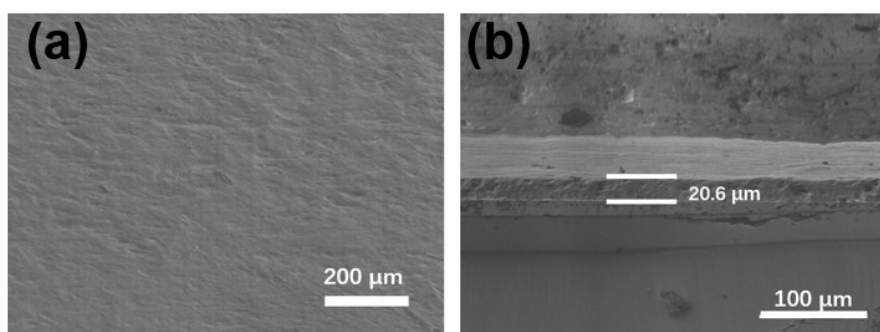


Figure S7. (a) SEM image of the surface of DTTAB-PSS film and (b) SEM image of the cross section of DTTAB-PSS film, which are prepared by hand pressure.

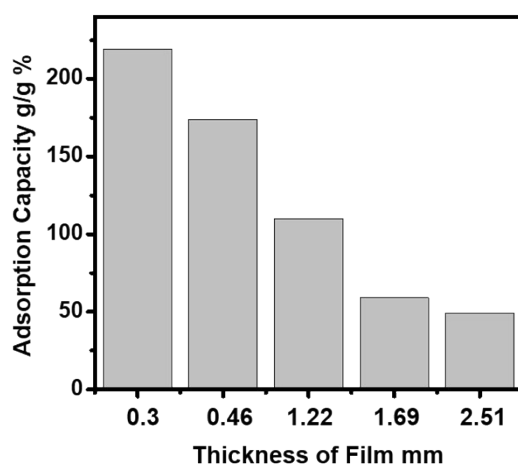


Figure S8. The influence of film thickness (0.30 mm, 0.46 mm, 1.22 mm 1.69 mm and 2.51 mm) on relative adsorption capacity toward petroleum.

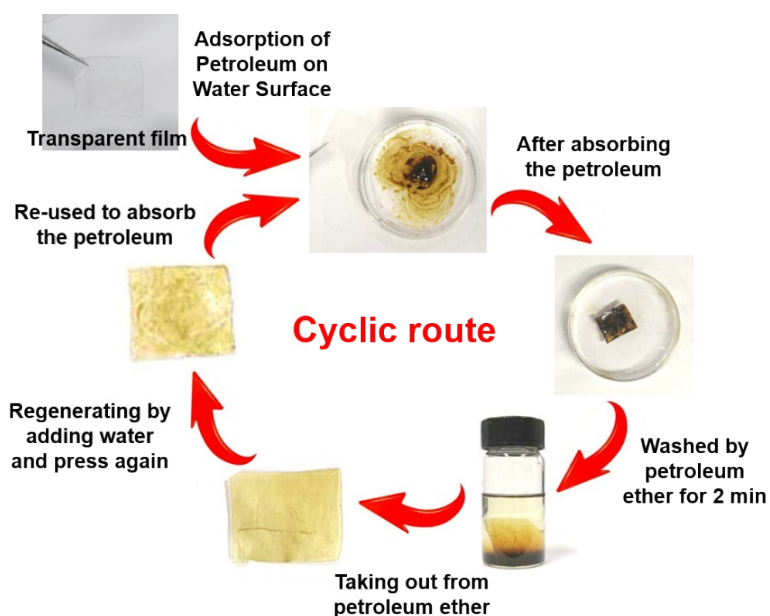


Figure S9. Schematic diagram of recycle of the film for petroleum adsorption in DI water.

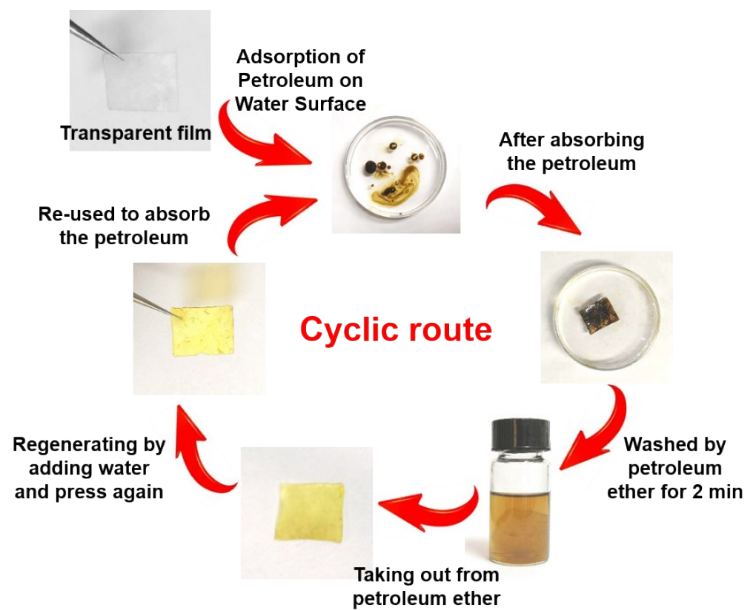


Figure S10. Schematic diagram of recycle of the film for petroleum adsorption in 33 wt. % NaCl solution.

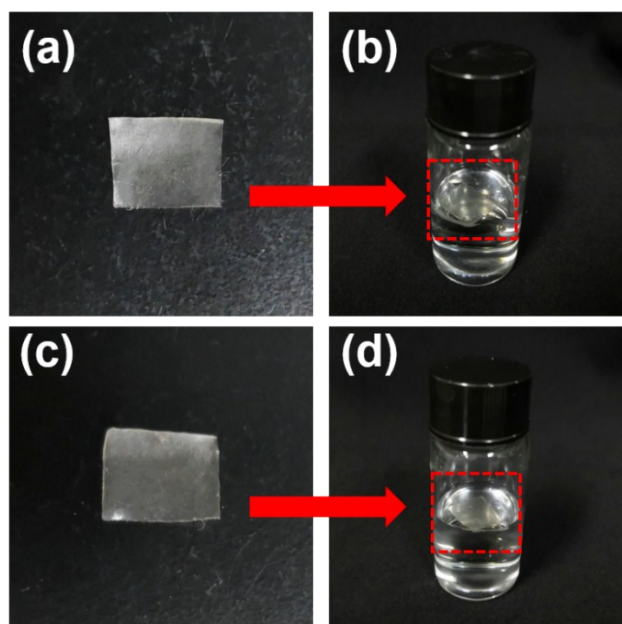


Figure S11. Photographs of DTTAB-PSS film immersed in DI water (a) before and (b) after 72 h, respectively; Photographs of DTTAB-PSS film immersed in 33 wt. % NaCl solution (c) before and d) after 72 h, respectively.

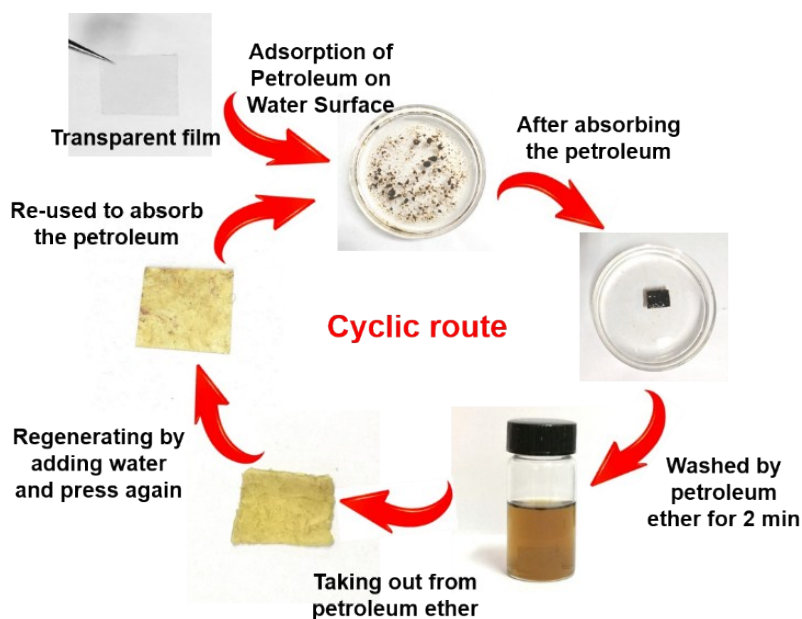


Figure S12. Schematic diagram of recycle of the film for petroleum adsorption in dirty water that contains many dusts, respectively.

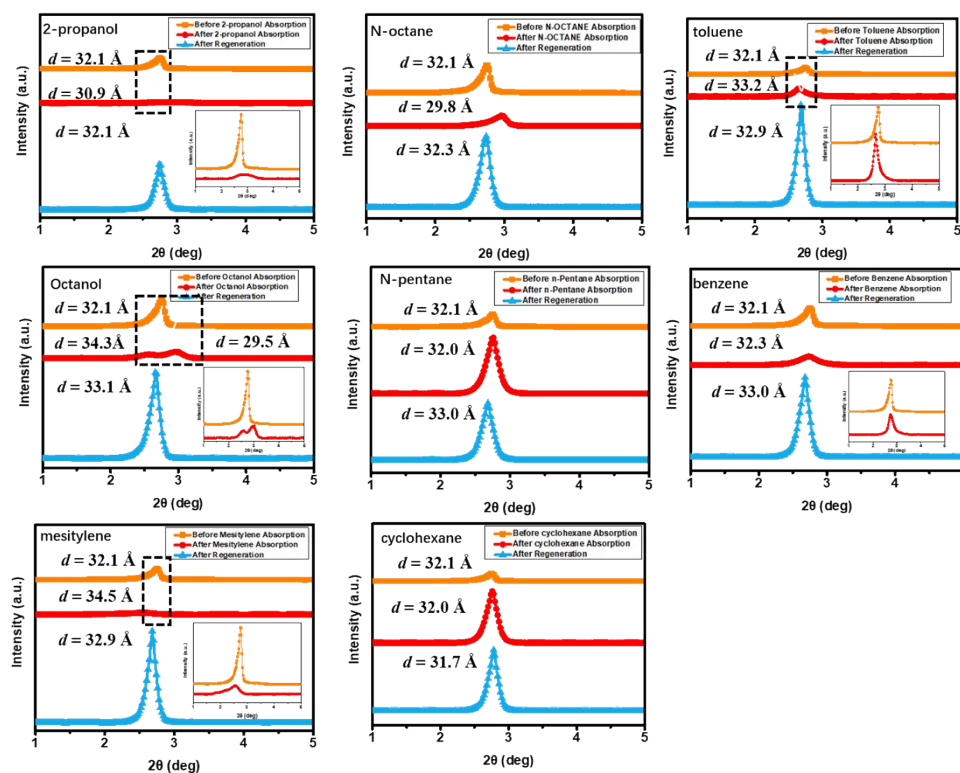


Figure S13. XRD patterns of DTTAB-PSS film during before adsorption, after adsorption and after regeneration for different 9 organic solvents, respectively.