

Robust and Durable Superhydrophobic Cotton Fabrics for Oil/Water Separation

Xiaoyan Zhou,^{†,‡} Zhaozhu Zhang,^{*,†} Xianghui Xu,[†] Fang Guo,[†] Xiaotao Zhu,^{†,‡}

Xuehu Men,^{*,†} Bo Ge,^{†,‡}

[†] State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese
Academy of Sciences, Lanzhou 730000, PR China

[‡] Graduate School, Chinese Academy of Sciences, Beijing 100039, PR China

Corresponding Authors

* Fax: 86-931-4968098. E-mail: zzzhang@licp.cas.cn (Z. Zhang), xhmen@licp.cas.cn

(X. Men).

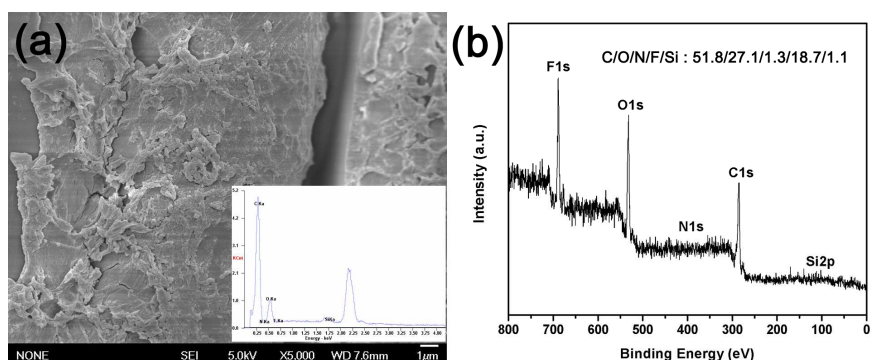


Figure S1. (a) FESEM image and (b) XPS spectrum of the as-prepared superhydrophobic fabric after 30 cycles of oil/water separation. Inset is the corresponding EDS result.

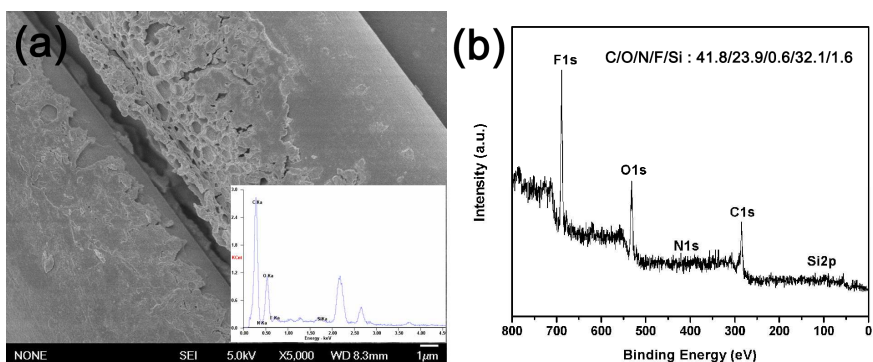


Figure S2. (a) FESEM image and (b) XPS spectrum of the superhydrophobic fabric under 95% RH at 60 °C for 72 h. Inset is the corresponding EDS result.

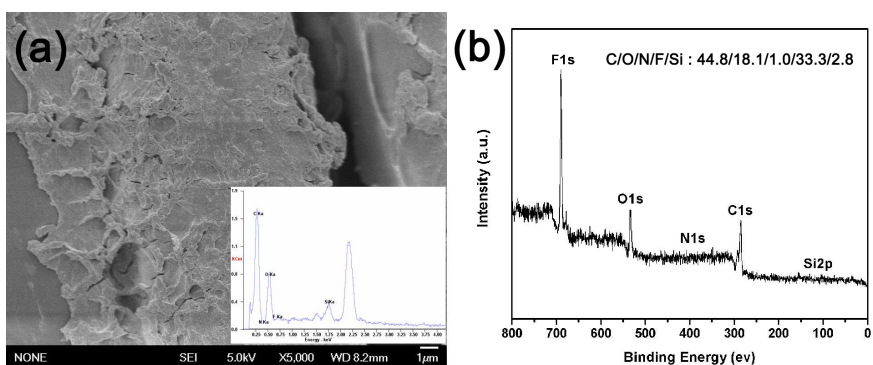


Figure S3. (a) FESEM image and (b) XPS spectrum of the superhydrophobic fabric at 120 °C for 72 h. Inset is the corresponding EDS result.

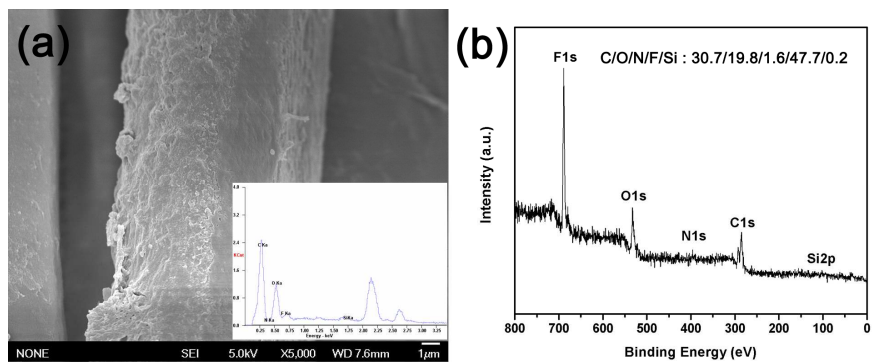


Figure S4. (a) FESEM image and (b) XPS spectrum of the superhydrophobic fabric immersed into the acid solution for 72 h. Inset is the corresponding EDS result.

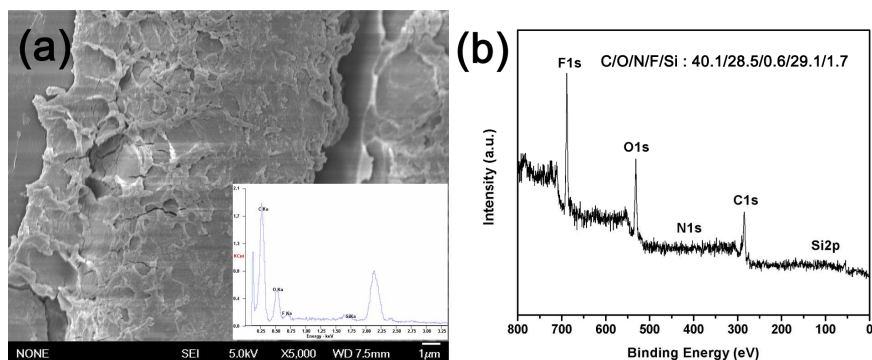


Figure S5. (a) FESEM image and (b) XPS spectrum of the superhydrophobic fabric dipped into the alkaline solution for 72 h. Inset is the corresponding EDS result.

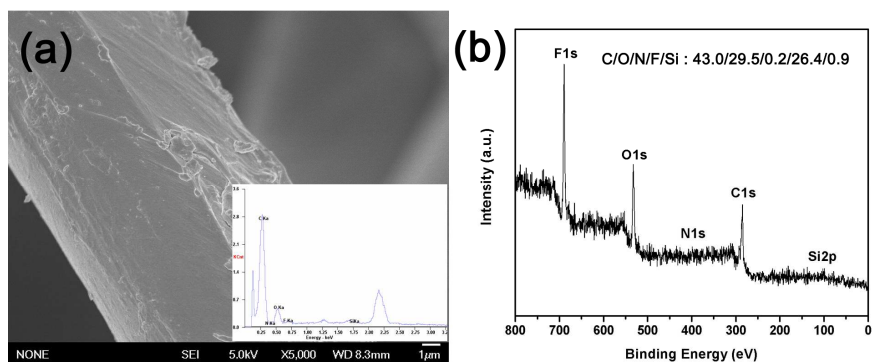


Figure S6. (a) FESEM image and (b) XPS spectrum of the superhydrophobic fabric scratched for 600 times. Inset is the corresponding EDS result.

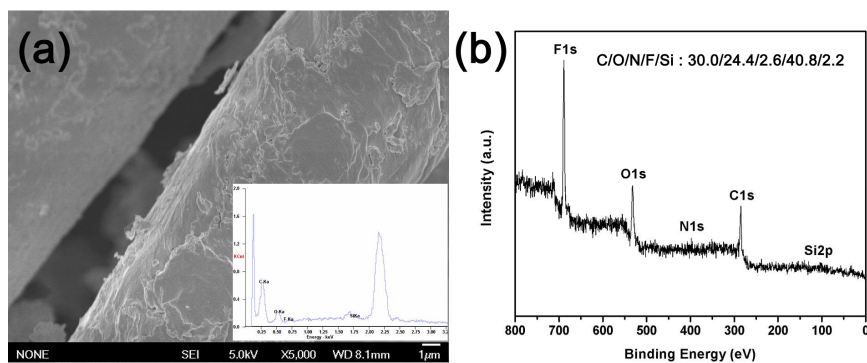


Figure S7. (a) FESEM image and (b) XPS spectrum of the superhydrophobic fabric stretched by a stress of 4×10^5 Pa. Inset is the corresponding EDS result.

Movie caption

Movie S1. This movie demonstrates the separation procedure of the hexadecane-water mixture using our superhydrophobic cotton fabric.