

**A facile approach to achieve multifunctional polyethylene  
terephthalate fabrics with durable superhydrophobicity,  
photocatalysis and self-quenched flame retardance**

Yanrong Lan<sup>1</sup>, Yingchun Wang<sup>1</sup>, Han Zhang<sup>1</sup>, Shan Peng<sup>1, 2\*</sup>, Xiaomeng Shi  
Mengying Long<sup>3\*</sup>

1 College of Chemistry and Environmental Science, Hebei University, Baoding  
071002, Hebei, China

2 Institute of Life Science and Green Development, Hebei University

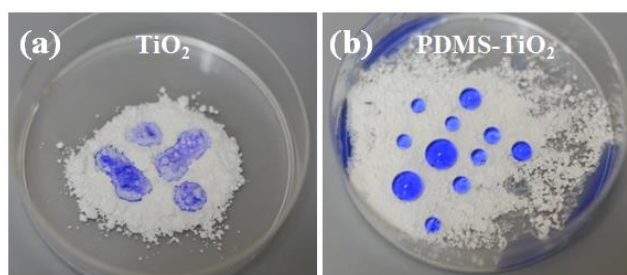
3 Joint School of National University of Singapore and Tianjin University,  
International Campus of Tianjin University, Binhai New City, Fuzhou 350207, China.

Yanrong Lan and Yingchun Wang are co-first authors; they contributed equally to the  
work.

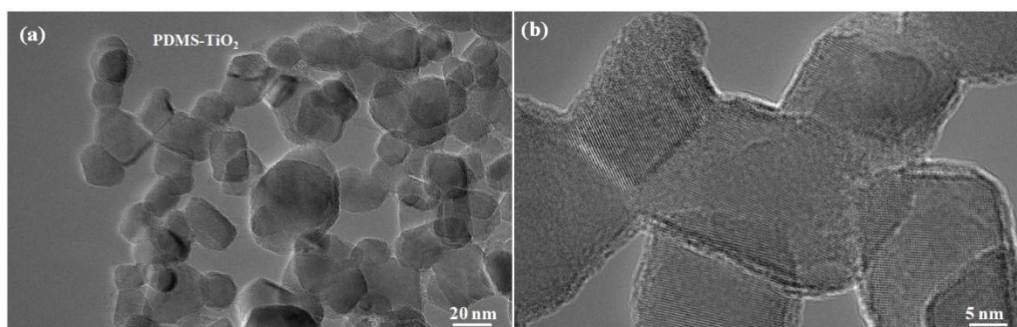
Corresponding author. E-mail: pengshan5213@163.com

Phone: (+86)15013038214

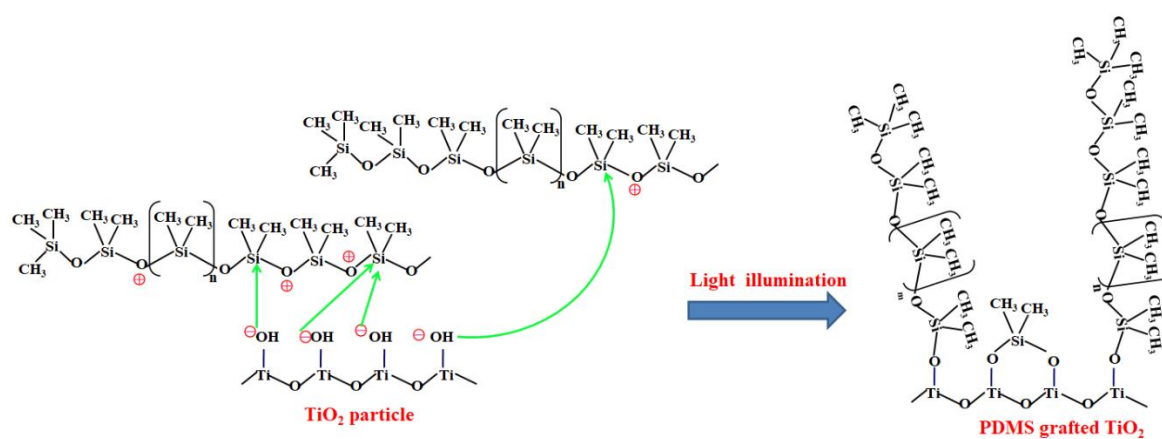
To submitted: New Journal of Chemistry



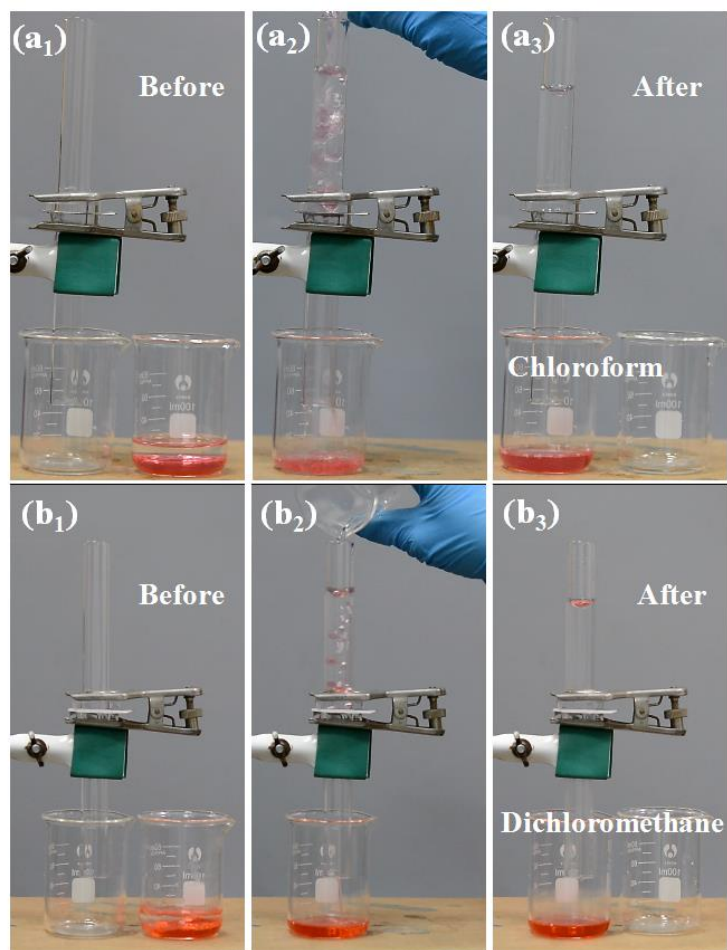
**Fig. S1.** Pictures showing water drops positioned onto TiO<sub>2</sub> particles before and after grafted with PDMS.



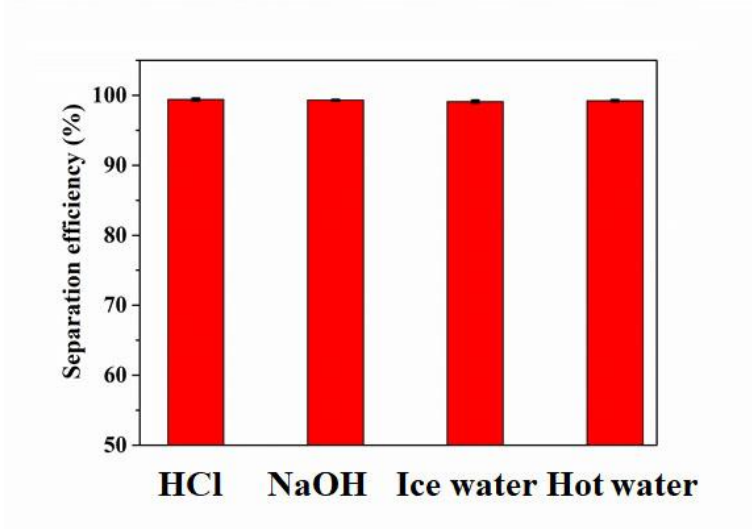
**Fig. S2.** Low- and high-magnification TEM images for PDMS-TiO<sub>2</sub> particles



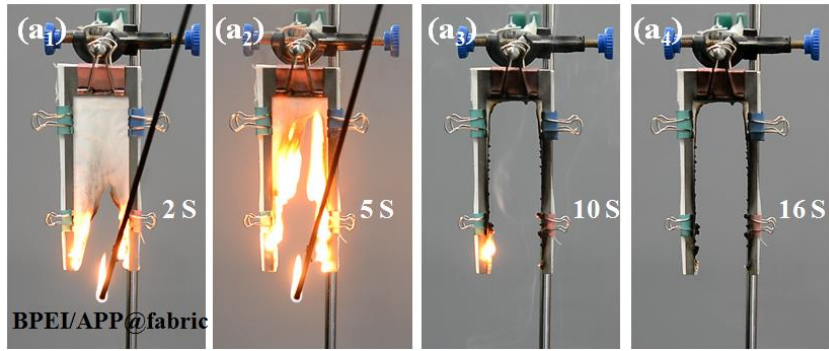
**Fig. S3.** Schematic for reaction process between PDMS and TiO<sub>2</sub>.



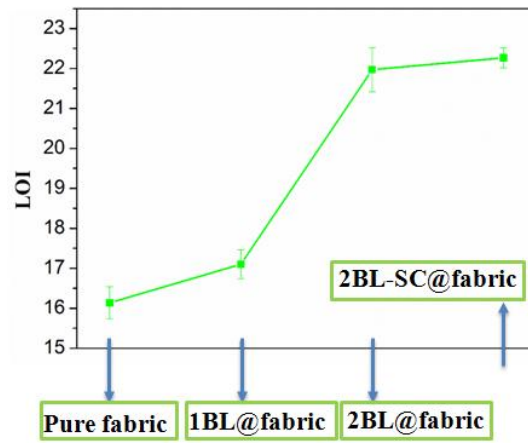
**Fig. S4.** Separation processes of the chloroform-water and dichloromethane-water mixtures by the fabric. Heavy oils flowed into the bottom beaker, while water was blocked onto the glass tubes.



**Fig. S5.** Separation efficiencies for various mixtures. The oil was chloroform, and the water phase included HCl, NaOH, ice water, and hot water.



**Fig. S6.** Combustion behavior of BPEI/APP@fabric.



**Fig. S7.** LOI values for various samples