

Supporting information

Poly(dimethylsiloxane)/graphene oxide composite sponge: A robust and reusable adsorbent for efficient oil/water separation

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Table S1. The Density and Viscosity Values of Tested Oils and Organic Solvents¹

	density (g cm ⁻³)	viscosity (cP, 20 °C)
DMF	0.94	0.92
chloroform	1.48	0.57
THF	0.89	0.55
soybean oil	0.90	57.0
pump oil	0.95	90.0

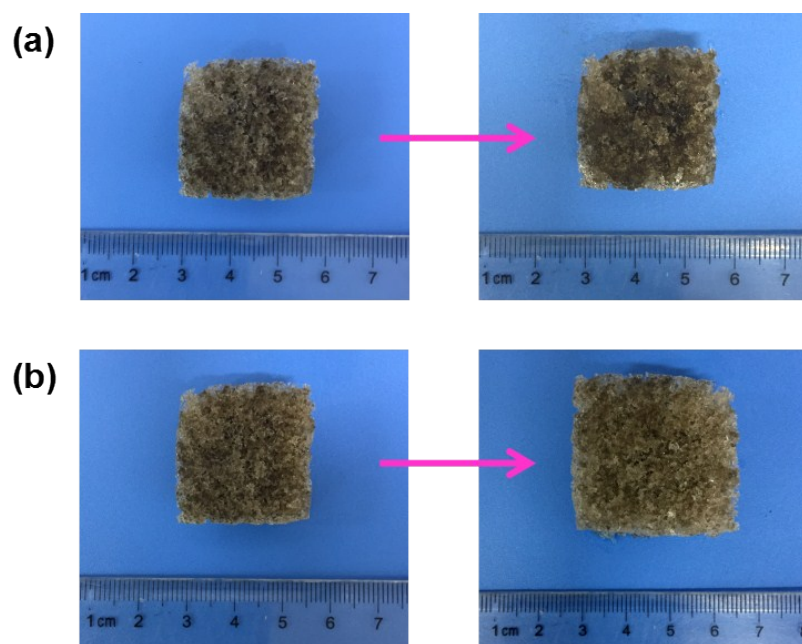


Figure S1. Digital photographs of the swelling of the PDMS/GO sponge before and after adsorption of (a) DMF and (b) chloroform, respectively.

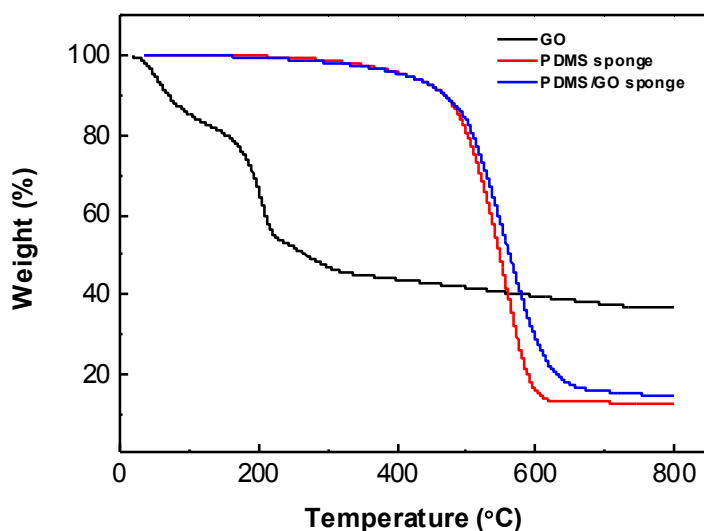


Figure S2. TGA curves of GO, pure PDMS sponge and PDMS/GO sponge.

The weight loss of PDMS/GO composite at high temperature was determined from two independent parts: one is the GO carbonization, and the other is thermal degradation of PDMS. The weight loss at 770 °C of GO powder, PDMS sponge, and PDMS/GO sponge was about 63.5%, 87.0%, and 85.3%, respectively. The whole weight loss of composite is composed by two components: nanosheets and polymer matrix. Assuming that the content of GO in composite is x , the weight loss of GO is $0.635x$. Accordingly the content of PDMS in composite is $(1-x)$, and the weight loss of PDMS matrix is $0.870(1-x)$. The total loss of PDMS/GO sponge is 0.853 at 700 °C, which is comprised by the loss for GO as $0.635x$ and the weight decrease for PDMS as $0.870(1-x)$. Thus, the content of GO in the PDMS/GO sponge could be calculated according to the following formula:

$$0.635x + 0.870(1-x) = 0.853 \quad (1)$$

where the x is the GO content. From the equation above, the x was estimated to be about 7.0%.

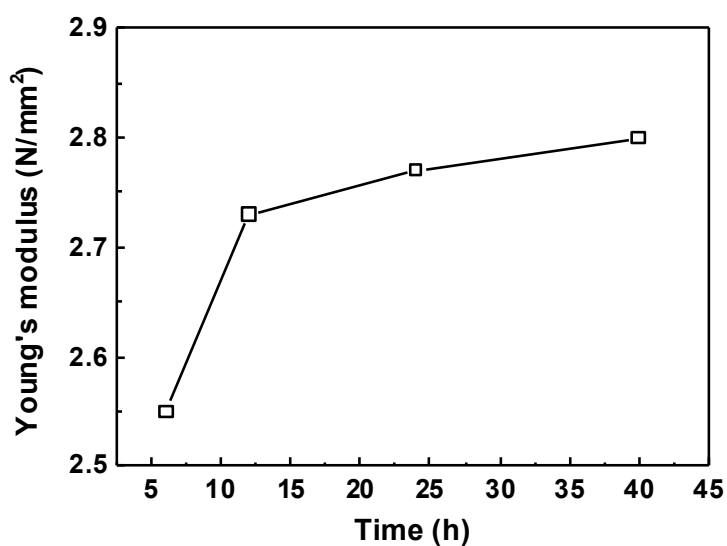


Figure S3. The effect of curing time on the Young's modulus of PDMS

Movie S1: Contact angle measurement of a n-hexane droplet dropping onto the surface of the PDMS/GO sponge.

Movie S2: Selective adsorption of cyclohexane (dyed with Sudan III) on the water with PDMS/GO sponge.

Movie S3: Selective adsorption of chloroform (dyed with Sudan III) in water with PDMS/GO sponge.

Movie S4: Continuous separation of toluene from water with the vacuum device.