

Supplementary information

A multifunctional sponge incorporated with TiO₂ and graphene oxide as
reusable absorbent for oil/water separation and dye absorption

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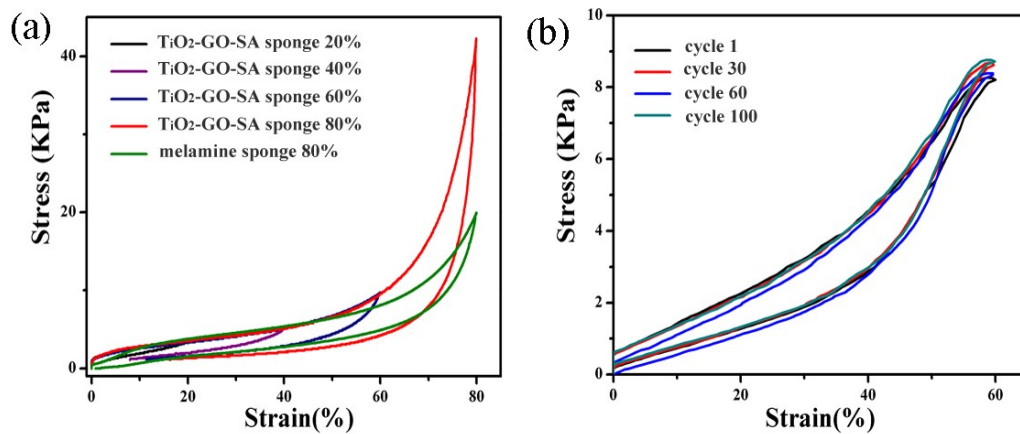


Figure S1. Mechanical stability of TiO₂-GO-SA sponge. Stress-strain curves of TiO₂-GO-SA sponge (a) under different amount of compressions (40 %, 60 %, 80 %) and (b) after 100 cycles of 60 % compression.

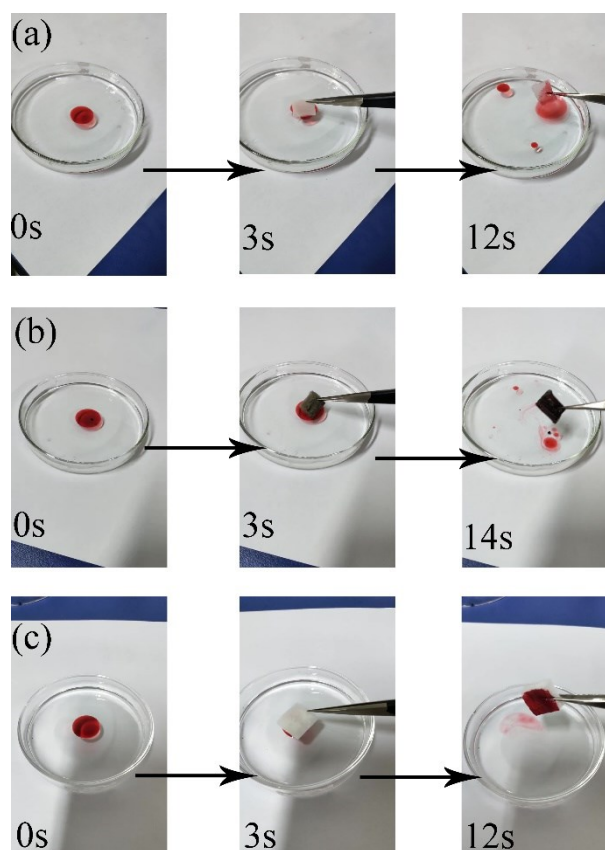


Figure S2. Photographs of the rapid process by which (a) melamine sponge, (b) GO sponge (c) TiO₂ sponge absorb pump oil on the water surface.

Table S1 Isotherm parameters for the absorption of organic dyes onto TiO₂-GO-SA sponge

Dyes	Model	Parameters	R ²	
R6g	Langmuir	$K_L=0.0070$ L/mg	$q_m=137.174$ mg/g	0.97876
	Freundlich	$K_F=4.151$	$n=1.818$	0.98555
MG	Langmuir	$K_L=0.0027$ L/mg	$q_m=117.786$ mg/g	0.973
	Freundlich	$K_F=0.796$	$n=1.3525$	0.992
MB	Langmuir	$K_L=0.0093$ L/mg	$q_m=62.422$ mg/g	0.98772
	Freundlich	$K_F=2.520$	$n=1.919$	0.98357

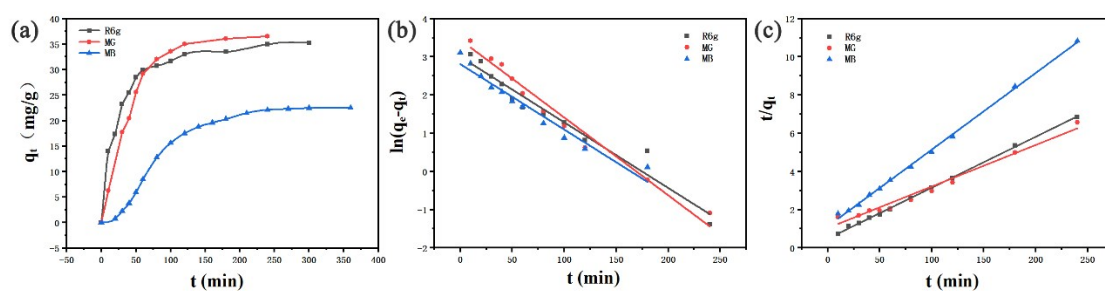


Figure S3. (a) Absorption kinetics, (b) pseudo-first-order model, and (c) pseudo-second-order model of R6G, MG and MB onto TiO₂-GO-SA sponge.