

Supplementary Material

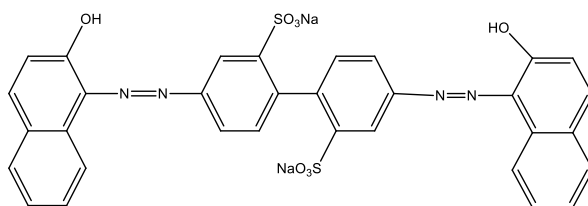


Figure S1. Chemical structure of AR97.

Many “flower buds” could be seen on every EG “worm” (Figure S2a). The tip of the “flower bud” was open and the pores inside could be seen. But after catalytic reaction, the tips of the “flower buds” were closed (Figure S2b), which could lead to deactivation of the catalyst. The isotherm of EG was a mixture of type II and type III adsorption isotherm, showing typical adsorption characteristics of macroporous and mesoporous materials with wide pore diameter distribution [58,59]. After reaction, the pore diameter of decreased as show in Figure S2d.

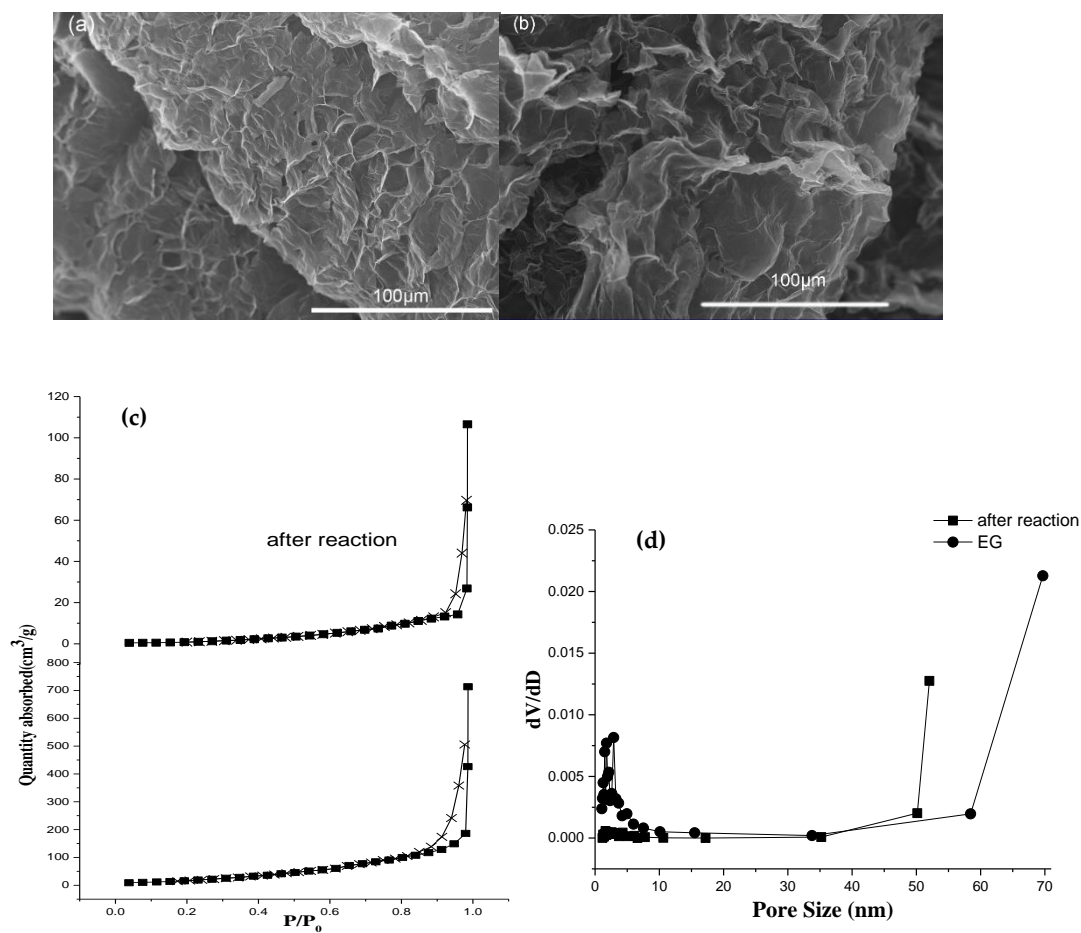


Figure S2. SEM pictures of EG (a), EG after reaction (b), N₂ sorption isotherms (c), and pore size distributions of the EG samples (d).

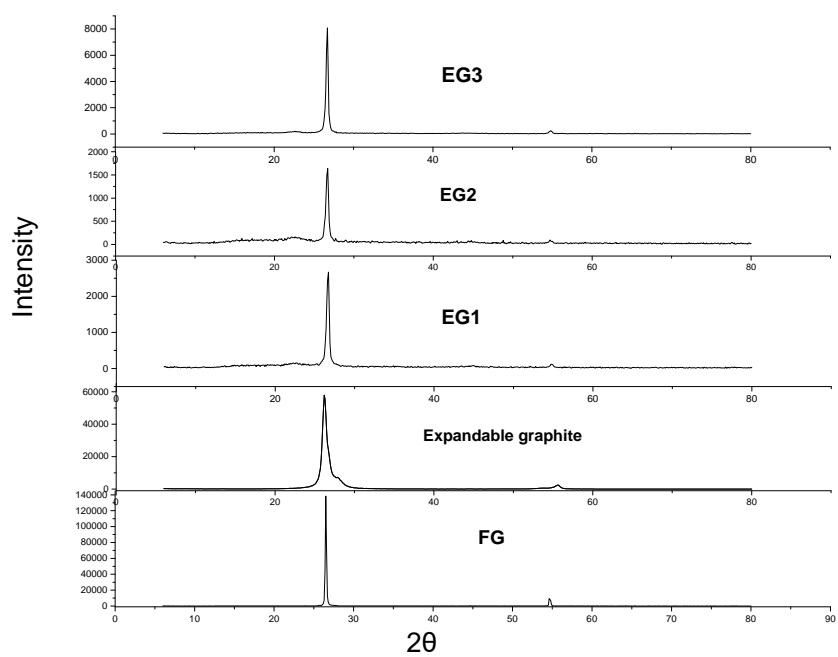


Figure S3. XRD patterns of EG

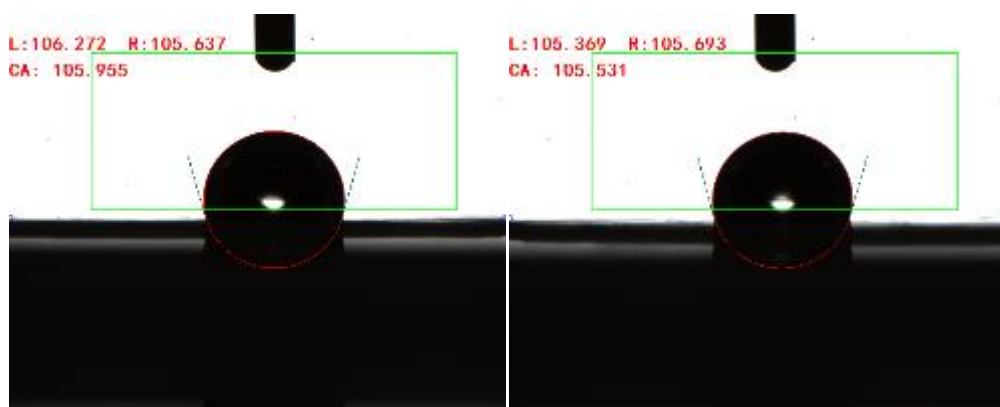


Figure S4. Contact angle measurement diagram of EG.

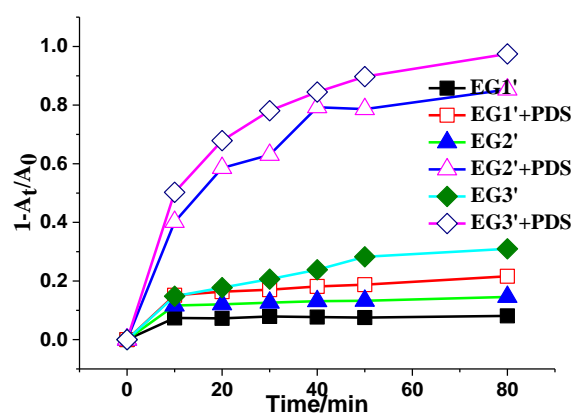


Figure S5. The removal of AR97 under different EG' [$\text{AR97}]_0 = 50 \text{ mg} \times \text{L}^{-1}$; $[\text{PDS}]_0 = 2 \text{ mmol} \times \text{L}^{-1}$; $\text{pH} = 6.9$; $[\text{EG1}']_0 = 1 \text{ g} \times \text{L}^{-1}$; $[\text{EG2}']_0 = 1 \text{ g} \times \text{L}^{-1}$; $[\text{EG3}']_0 = 1 \text{ g} \times \text{L}^{-1}$

Table S1. Elemental compositions and textural properties of the EG samples.

Sample	Elemental composition (wt.%)				Textural properties	
	C	O	S	N	SSA (m ² × g ⁻¹)	Expansion Volume (mL × g ⁻¹)
EG1	79.92	14.02	3.78	2.27	6.682	123
EG2	97.59	2.07	0.14	0.2	45.798	221
EG3	97.78	1.88	0.17	0.17	72.430	300

Table S2. Langmuir isothermal adsorption equations of AR 97 to EG.

T/K	Regression Equation	q0 (mg/g)	b (L/mg)	R
291	1/qe = 0.09079 + 1.43178/Ce	11.01	0.06341	0.99841
311	1/qe = 0.07148 + 1.05787/Ce	13.99	0.06757	0.99933

Table S3. Freundlich isothermal adsorption equations of AR 97 to EG.

T/K	Regression Equation	R
291	logqe = 0.52849 + 0.21984 logCe	0.93098
311	logqe = 0.63001 + 0.22380 logCe	0.95114