

Figure S1. Nitrogen adsorption-desorption isotherms.

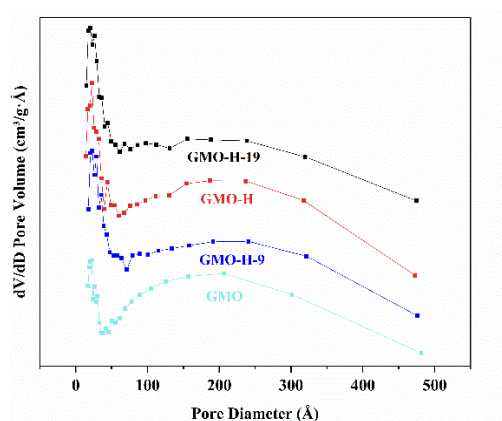


Figure S2. Pore size distribution.

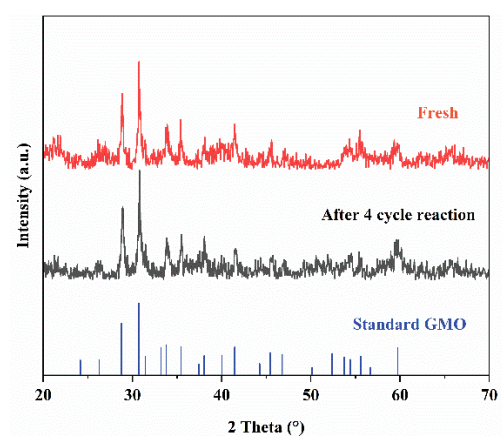
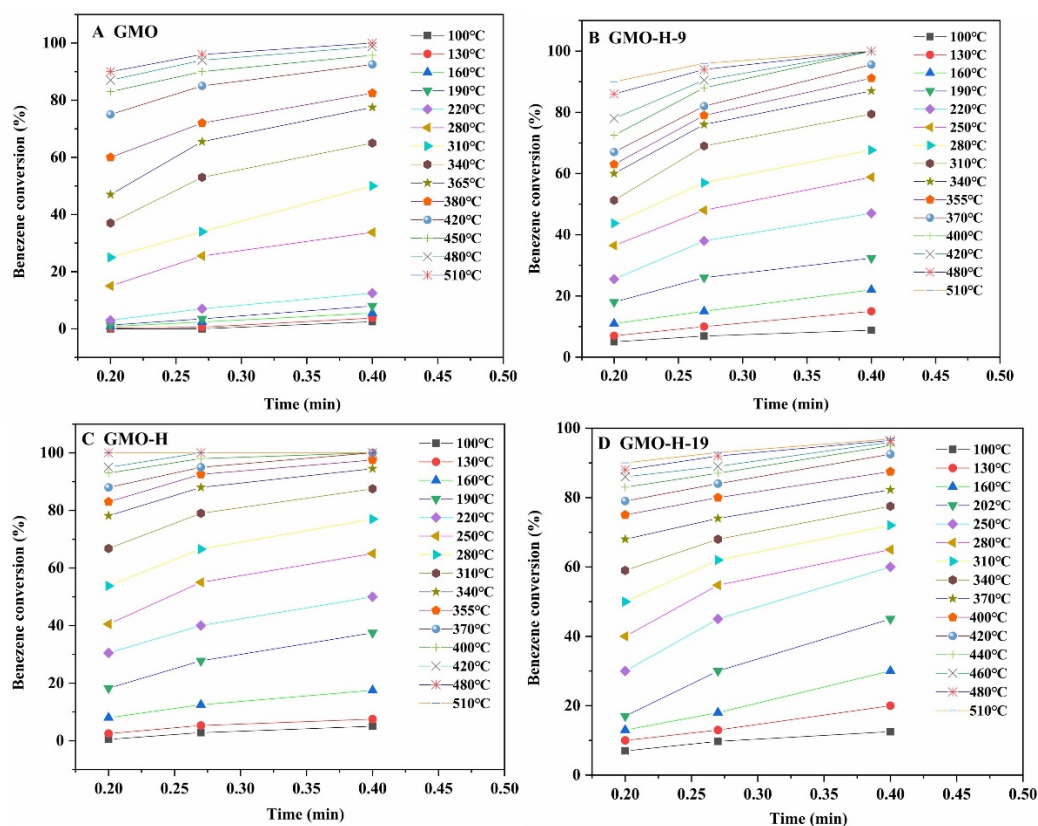


Figure S3. XRD patterns of fresh GMO-H and used GMO-H.



**Figure S4.** Benzene conversion versus time on-stream curves at different temperatures.

**Table S1.** Experimental conditions of temperature programmed experiments.

	Sample Mass	Pretreatment Condition	Adsorption Conditions	Desorption/Reduction Conditions
O <sub>2</sub> -TPD	50 mg	He 200 °C, 1 h	5% O <sub>2</sub> /He 50 °C, 1 h	He 50 °C-700 °C 10 °C/min
H <sub>2</sub> -TPR	50 mg	He 300 °C, 1 h	10% H <sub>2</sub> /Ar 50 °C, 0.5 h	10 % H <sub>2</sub> /Ar 50 °C-700 °C 10 °C/min