

Supplementary materials

Table S1 Structural Parameters of Crosslinked Polymer Resins Using Different Porogen Agents.

Sample	Types of Impregnating Agents (10:1)	Specific surface area ($\text{m}^2 \cdot \text{g}^{-1}$)	Average pore size (nm)	Pore volume ($\text{cm}^3 \cdot \text{g}^{-1}$)
PD-40-3-0.1	Toluene	48.85	1.24	0.124
PD-40-1-0.1	Toluene	82.00	8.99	0.184
PD-40-1-0.1-a	Toluene : n-Heptane	55.55	7.72	0.110
PD-40-1-0.1-b	Toluene : isooctane	65.03	6.84	0.118
PD-40-1-0.1-c	Toluene : n-Hexane	77.89	8.65	0.175

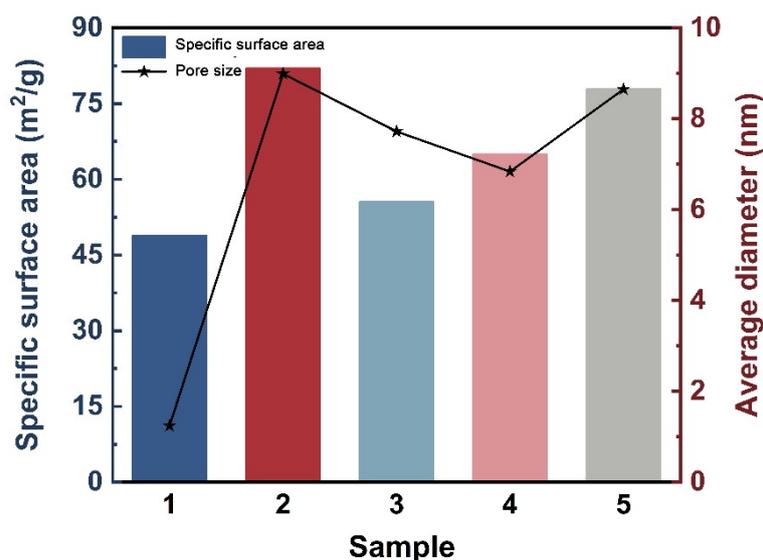


Figure S1 Effects of Different Pore-Forming Agents on the Specific Surface Area and Pore Size Distribution of Resins

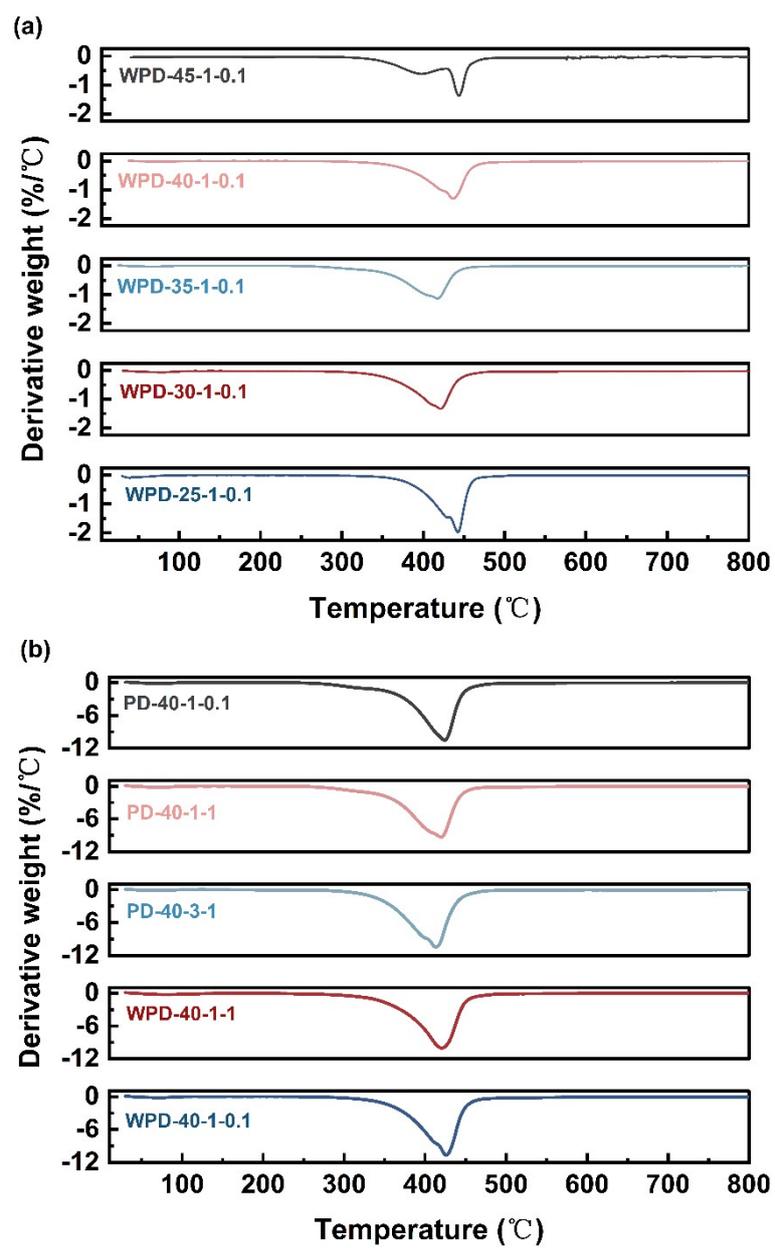


Figure S2 DTG curves of (a) resins with different crosslinking degrees and (b) resins with the same crosslinking degree.

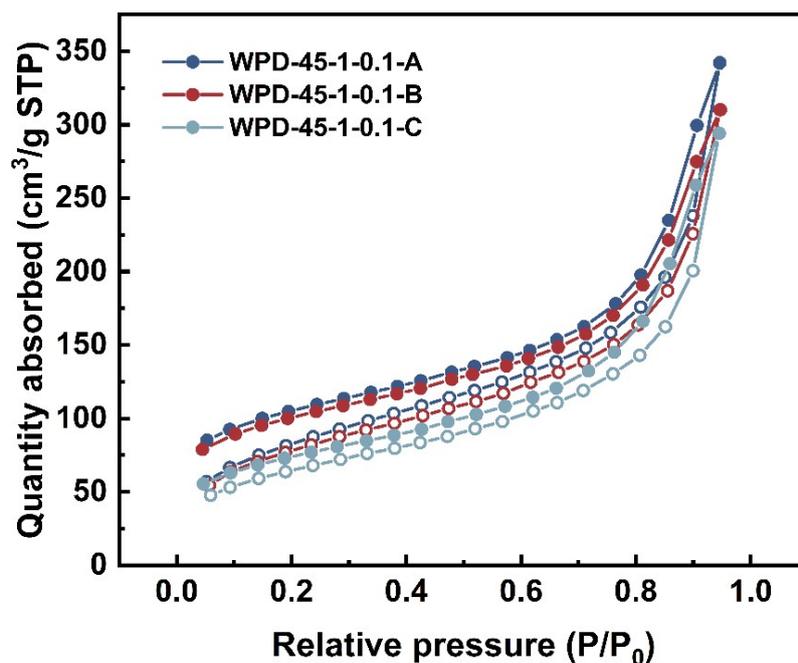


Figure S3 Nitrogen adsorption-desorption isotherms under different test conditions

Table S2 Specific surface area and pore structure data of resins under different testing conditions

Sample	Specific surface area ($\text{m}^2 \cdot \text{g}^{-1}$)	Average pore	Pore volume ($\text{cm}^3 \cdot \text{g}^{-1}$)
		size (nm)	
WPD-45-1-0.1-A	287	7.3	0.52
WPD-45-1-0.1-B	279	6.9	0.48
WPD-45-1-0.1-C	210	8.5	0.45

WPD-45-1-0.1-A: Pre-treatment temperature = 300°C; Desorption time = 3h

WPD-45-1-0.1-B: Pre-treatment temperature = 100°C; Desorption time = 5h

WPD-45-1-0.1-C: Pre-treatment temperature = 100°C; Desorption time = 3h

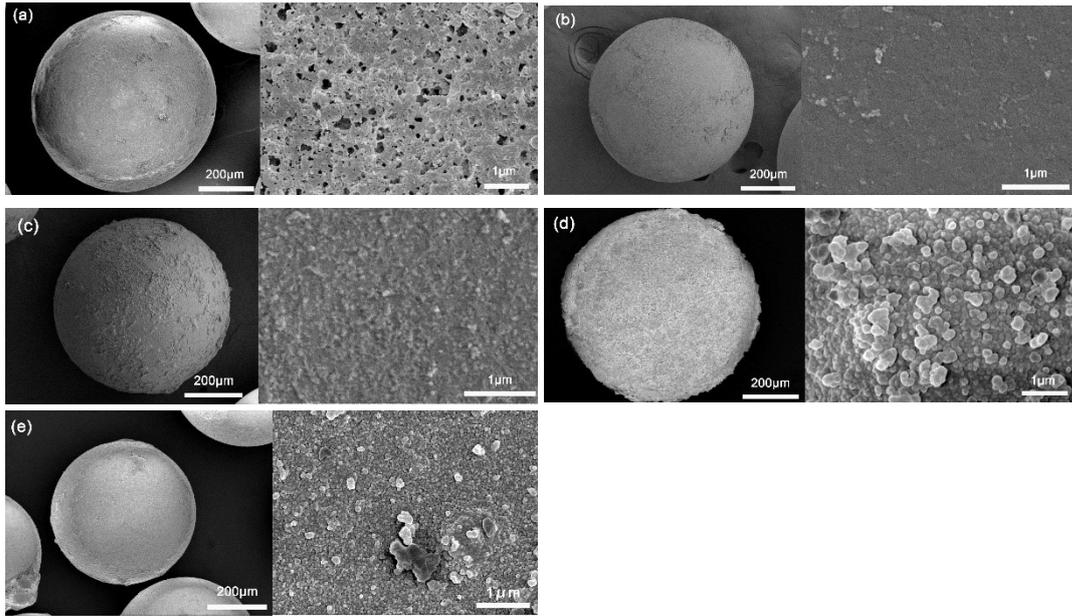


Figure S4 SEM images of five groups of resins with different crosslinking degrees (a) WPD-25-1-0.1 (b) WPD-30-1-0.1 (c) WPD-35-1-0.1 (d) WPD-40-1-0.1 (e) WPD-45-1-0.1

Table S3 Performance Comparison of Different HF Adsorbents

Sample	S _{BET} (m ² ·g ⁻¹)	HF capacity (mg·g ⁻¹)	Reconditioning conditions	Cycle Count	Retention Rat
NaF	0.11	1980	553 K	1 time	invalid
Mg-Al mixed oxide	212.02	31.94	873 K	1 time	invalid
MIL-101	2199	227.8	373 K	2 times	90%
Zeolite 3A	402.81	0.420	393 K	2 times	96%
WPD-25-1-0.1	64.9	853.4	373 K	5 times	97%