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阴离子功能化大孔树脂用于二氧化硫的多位点高效捕集

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Ultra-high SO_2 Capture by Anion Functionalized Resins through Multiple-Site Adsorption

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Table S1 Element analysis of the anion functionalized resins [IRA-900][An].

Material	C (%)	H (%)	N (%)	Anion sites (mmol g^{-1}) [a]
[IRA-900][Cl]	63.46	8.40	5.35	3.82
[IRA-900][$B(Im)_4$]	58.86	7.57	23.43	1.86
[IRA-900][Triz]	63.66	8.84	19.95	3.56
[IRA-900][Tetz]	59.07	8.45	25.89	3.70

[a] Calculated by the nitrogen element content.

Table S2 The comparison of SO_2 adsorption capacities by [IRA-900][$B(Im)_4$] with other selected sorbents at 0.1 bar.

Entry	Material	Temperature (°C)	Pressure (kPa)	SO_2 adsorption capacity (mmol g^{-1})	Reference
1	[IRA-900][$B(Im)_4$]	20	10.13	10.62	This work
2	SIFSIX-1-Cu	25	10.13	8.74	S1
3	SIFSIX-2-Cu-i	25	10.13	6.01	S1
4	SIFSIX-3-Ni	25	10.13	2.55	S1
5	NOTT-202a	10	10.13	6.2	S2
6	Pillar[5]arene 4Tetz	20	10.13	8.2	S3
7	[TMEDAMR]Cl	30	101.3	6.40	S4
8	[P_{66614}][Im]	20	10.13	3.76	S5
9	[Emim][SCN]	20	10.13	5.83	S6

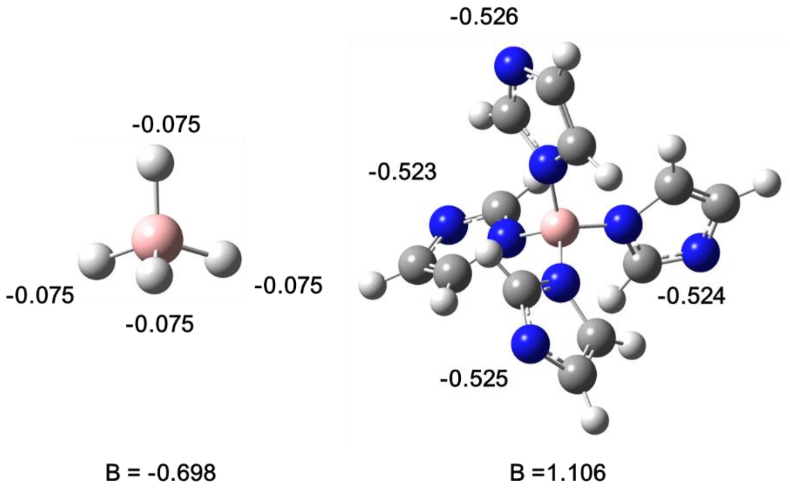

Fig. S1 NBO charges of atoms on [BH_4] (left) as well as electronegative nitrogens and boron on [$B(Im)_4$] (right).

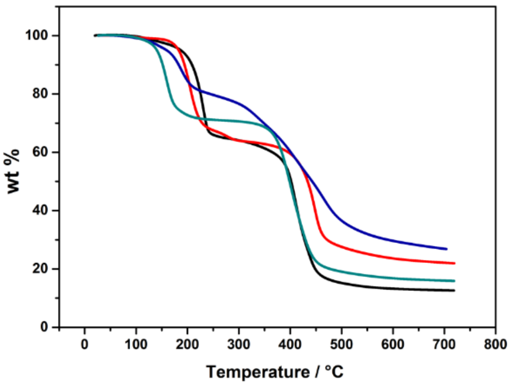

Fig. S2 Thermostabilities of the anion functionalized macro-porous resins by TGA. [IRA-900][Cl] (black), [IRA-900][Triz] (green), [IRA-900][Tetz] (red), [IRA-900][B(Im)$_4$] (blue).

All the heating rates were controlled as 10 ℃ min^{-1}.

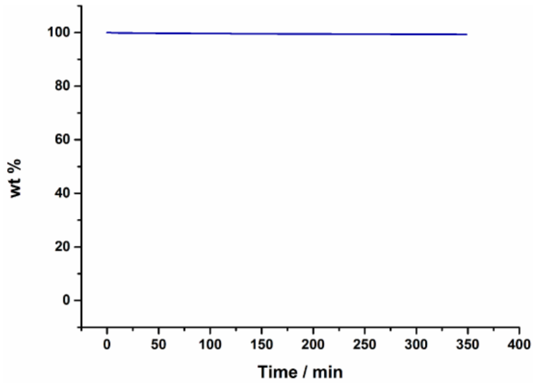

Fig. S3 Thermostability of the anion functionalized macro-porous resin [IRA-900][B(Im)$_4$] by TGA.

Temperature was controlled at 70 ℃ at N_2 atmosphere for 6 h.

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