Electronic Supplementary Information

Anion Exchange Dynamics in the Capture of Perchlorate by a Cationic Ag-Based MOF

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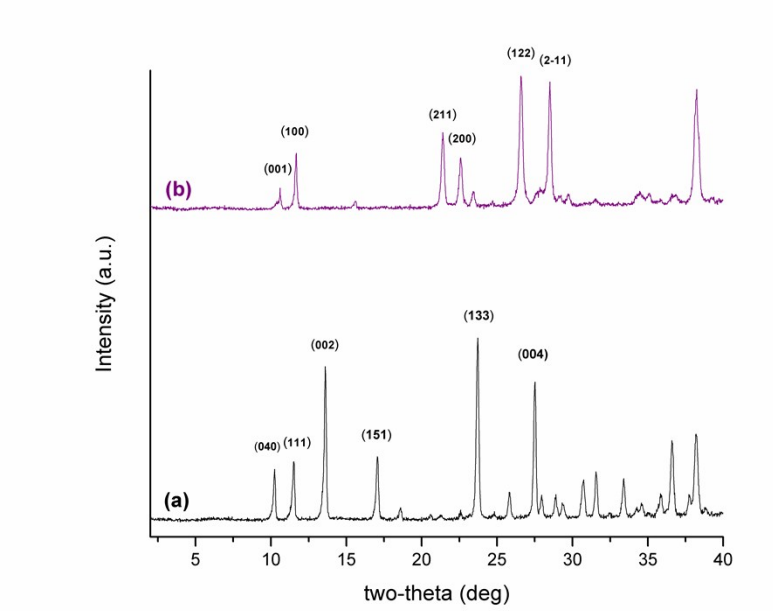

Figure S1. PXRD patterns of: (a) SBN; (b) SBP.

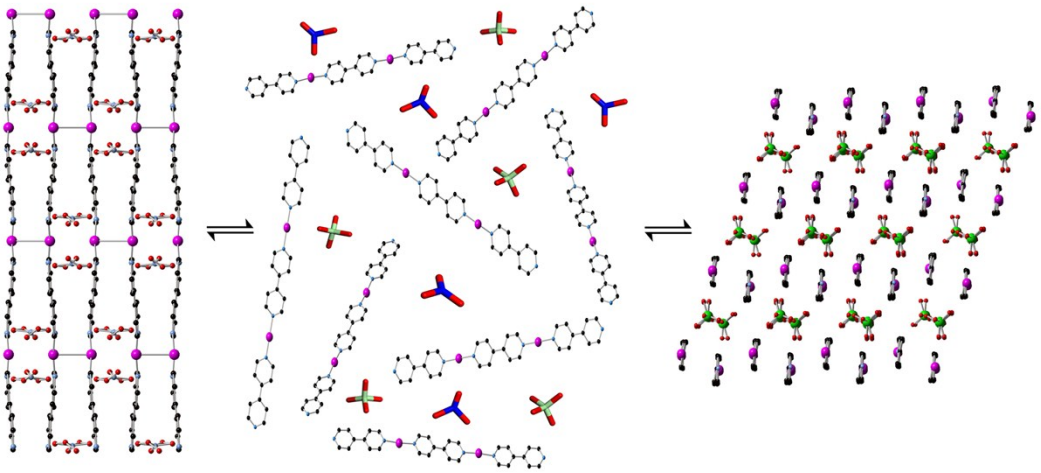

Figure S2. Schematic of perchlorate capture by SBN *via* a solvent-mediated anion exchange to form SBP.

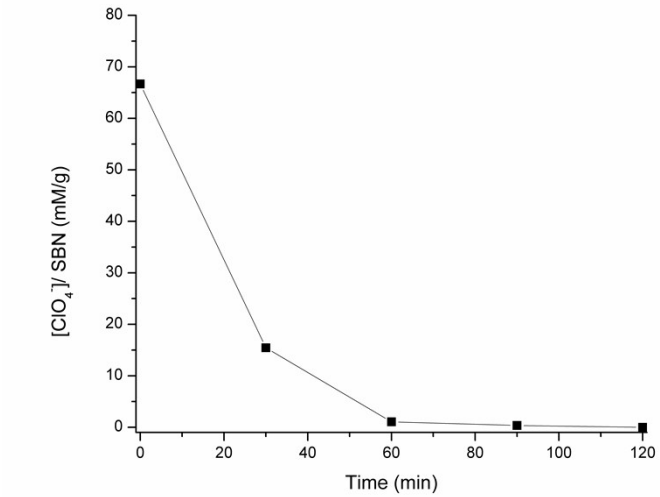

Figure S3. Perchlorate uptake per gram of SBN material versus time.

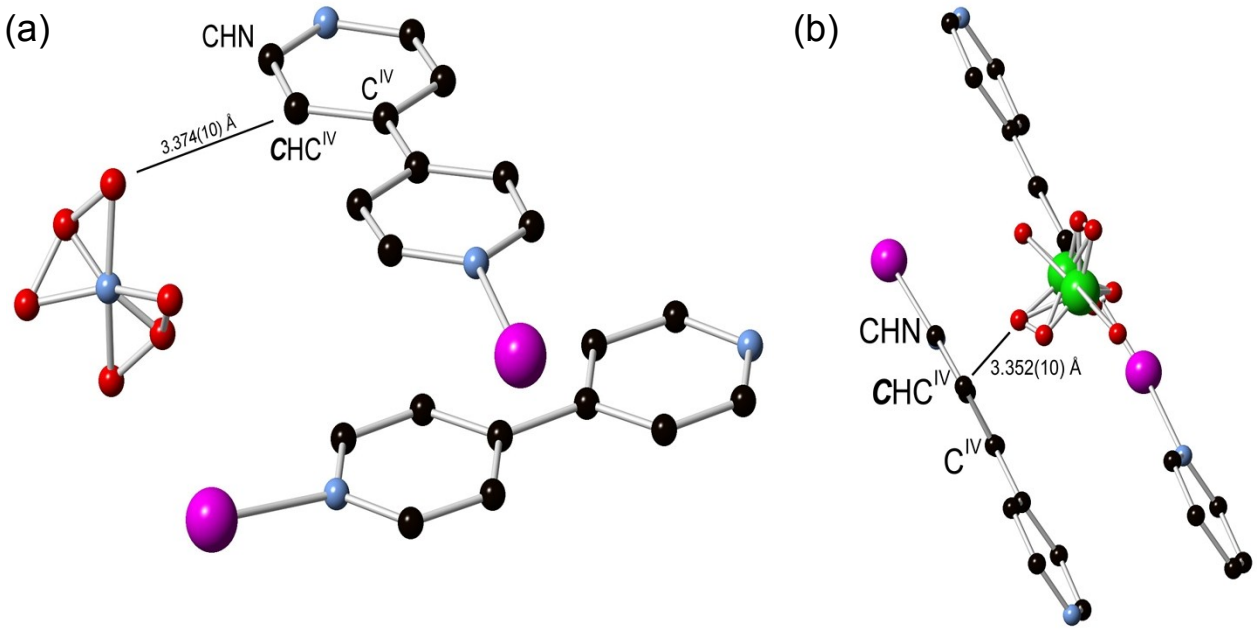

Figure S4. Structural view of the Ag-bipy polymers showing anion oxygen to ***C***HC^{IV} carbon proximity in: (a) SBN; (b) SBP.

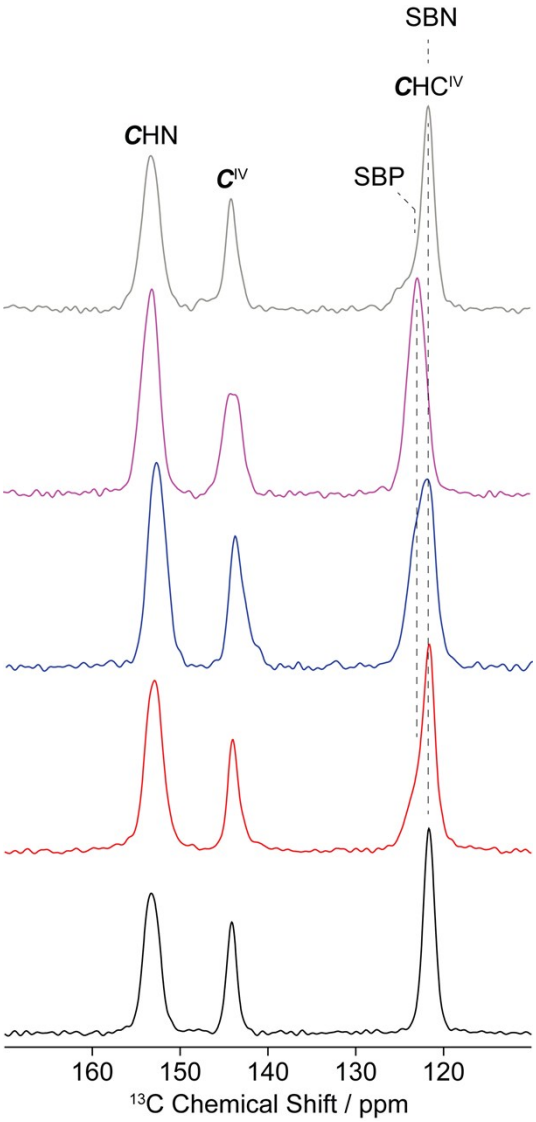

Figure S5. ^{13}C CP MAS NMR of the SBN/SBP anion exchange of SBN pre-exchange (black), after 10 min (red), 25 min (blue), complete exchange to SBP (purple) and regeneration back to SBN (grey) obtained at 9.4 T. Spectral assignments are given in the figure.

Table S1. Acquisition parameters for solid-state NMR experiments[a]

Nuclei	^{13}C	^{13}C	^{15}N	^{109}Ag[b]
Larmor frequency / MHz	100.6	213.8	40.5	18.6
Number of scans	32-64	128	768-1280	1280-10240
MAS / kHz	12	20	6	3
^{1}H rf field during pulse / kHz	83	100	83	70
CP contact time / ms	2	2	5	20
^{1}H rf field during CP contact / kHz	60	90	60	37
X rf field during CP contact / kHz	53	66	42	27
^{1}H rf field during decoupling / kHz	83	100	83	70

[a] Recycle delays were in the range of 30 – 180 s depending on the samples and correspond to 1.3 x ^{1}H T_1; [b] ^{109}Ag CP MAS NMR experiments were set up on $AgSO_3CH_3$ according to a literature procedure.[1]

References

1. G. H. Penner and W. Li, *Solid State Nucl. Magn. Reson.*, 2003, **23**, 168–173.