

Supplementary Information for:

Reversible, selective trapping of perchlorate from  
water in record capacity by a cationic metal-organic  
framework

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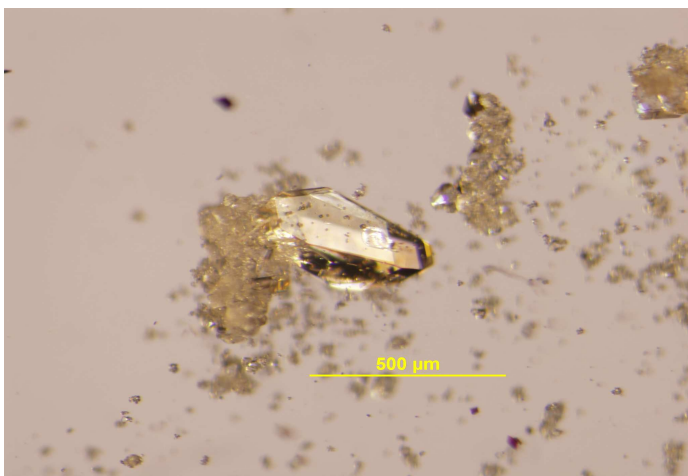
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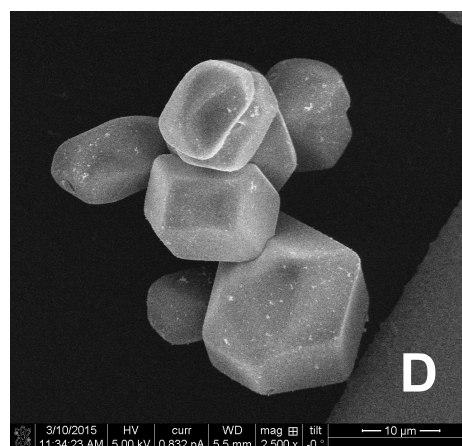
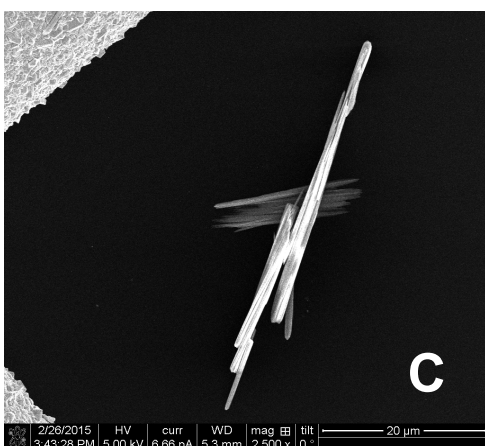
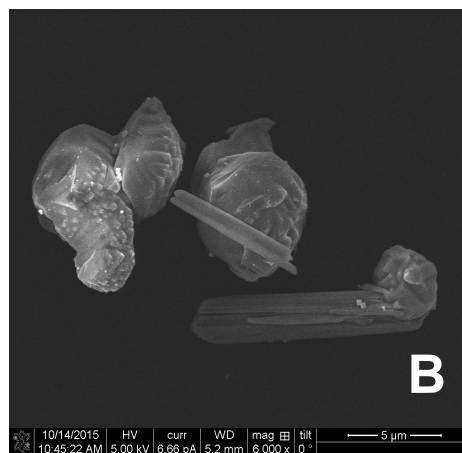
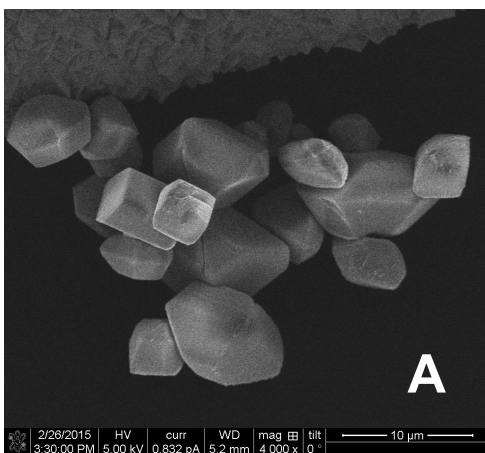
Number of Pages: 9

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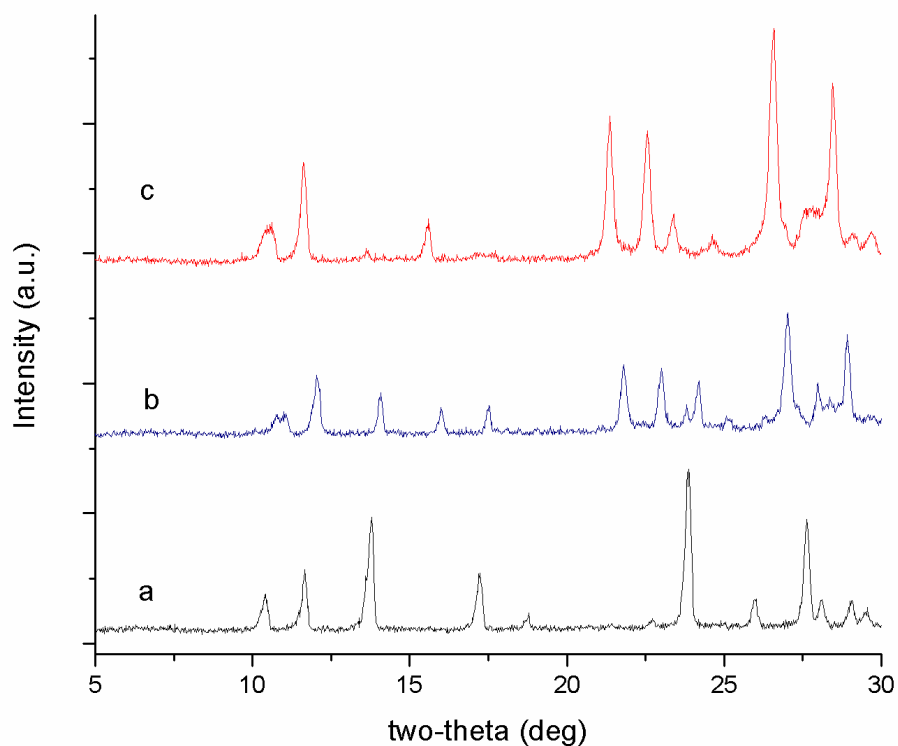
Number of Figures: 9



**Figure S1.** Optical micrograph of Hydrothermal SBN.



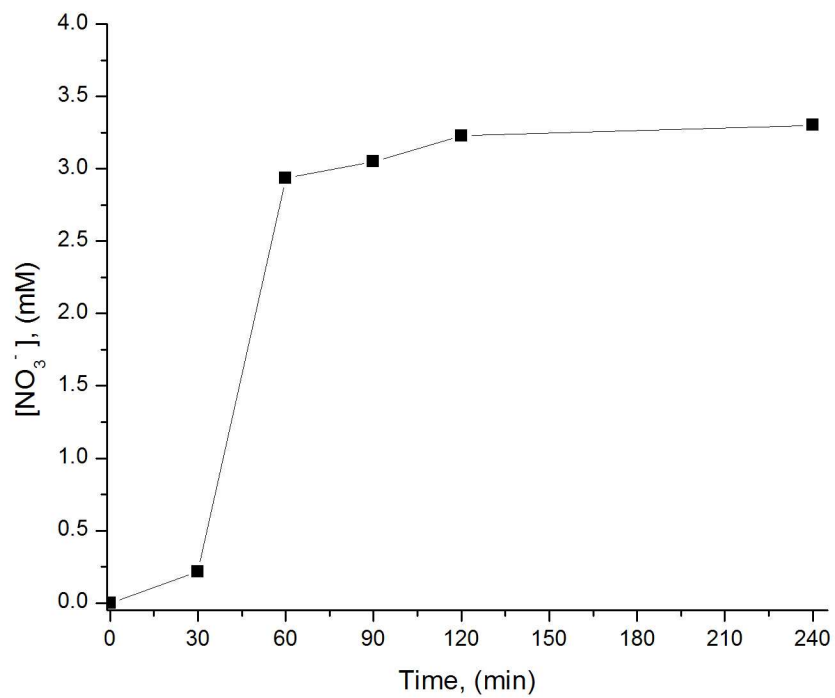
**Figure S2.** SEM images of: (a) SBN; (b) SBN/SBP after 20 min exposure to perchlorate solution; (c) SBP after 70 min exposure to perchlorate solution; (d) 2-SBN (first cycle of regenerated SBN).



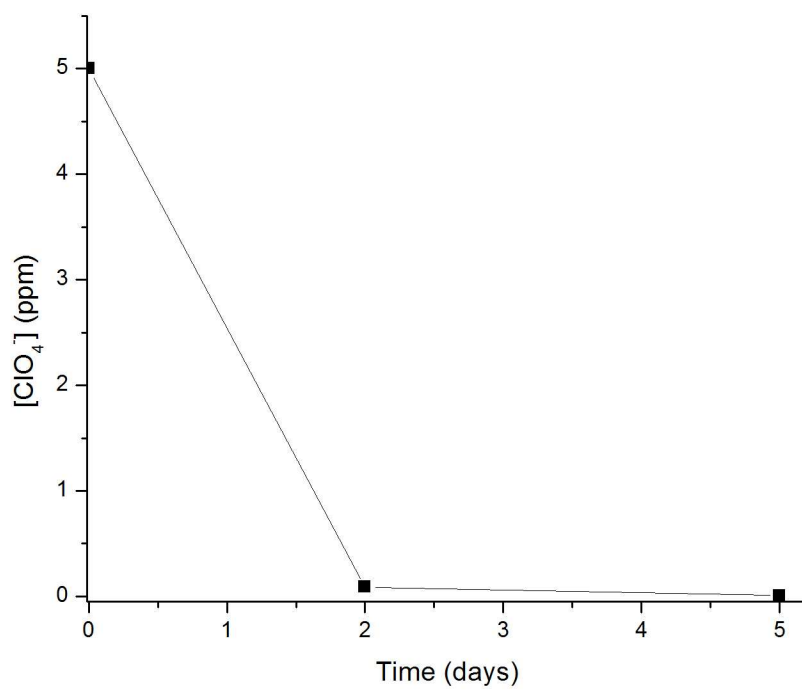
**Figure S3.** PXRD of SBN perchlorate trapping kinetics: (a) SBN pre-exchange; (b) SBN/SBP mixture 20 minutes into the exchange; (c) SBP after 70 minutes and complete exchange.

**Table S1.** Adsorption capacities of perchlorate trapping cycles by SBN

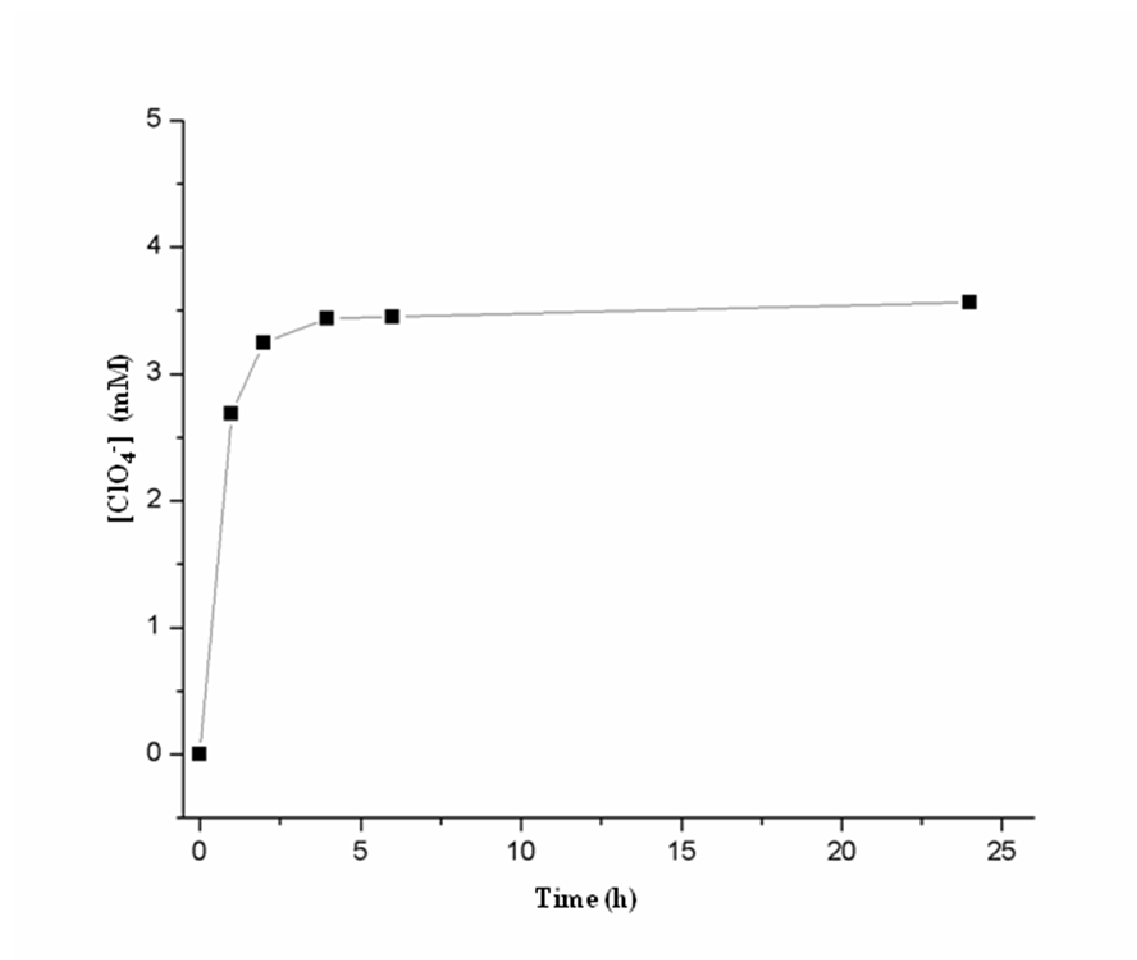
Cycle No.	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>
<b>mol/mol</b>	1.129	0.868	0.815	0.796	1.081	0.709	0.641
<b>mg/g</b>	344.36	264.93	248.63	243.05	329.86	216.35	195.59
<b>meq/g</b>	3.463	2.664	2.500	2.444	3.316	2.175	1.966



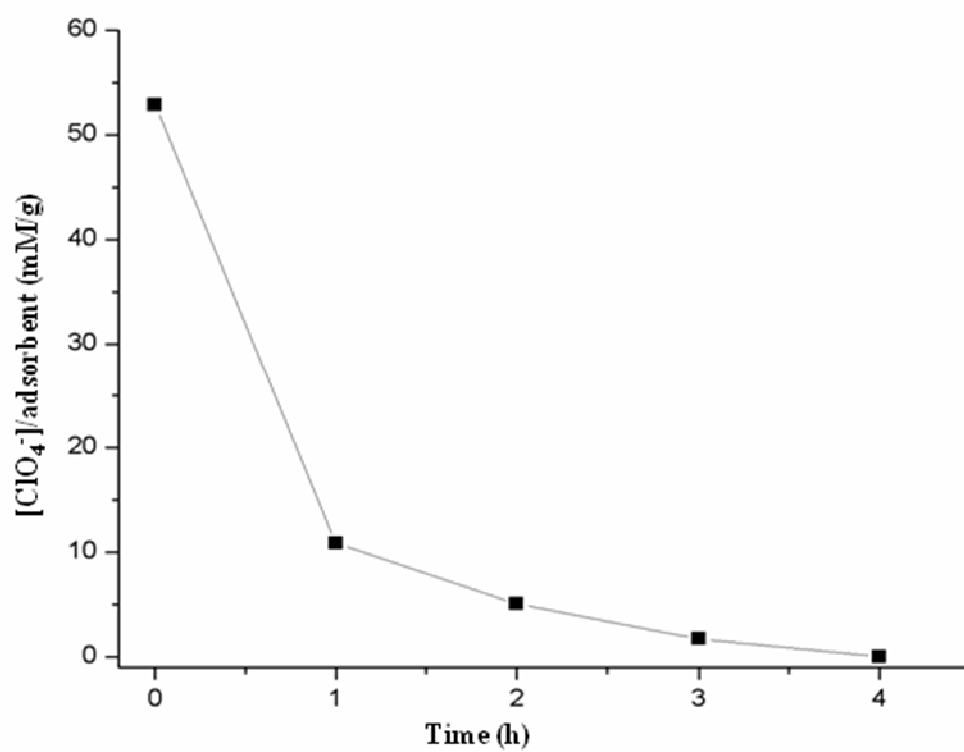
**Figure S4.** SBN nitrate release versus time for stoichiometric anion exchange with perchlorate.



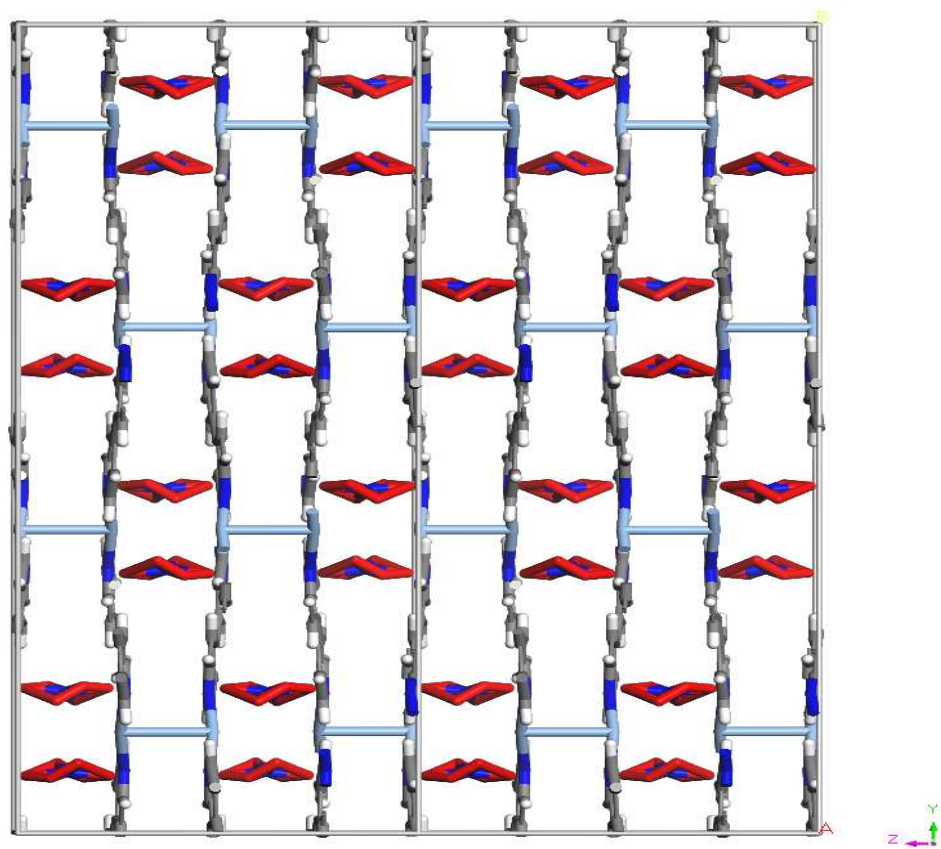
**Figure S5.** 5 ppm perchlorate removal by SBN.



**Figure S6.** SBN regeneration: plot of perchlorate release from SBP versus time in 20-fold molar excess sodium nitrate solution.

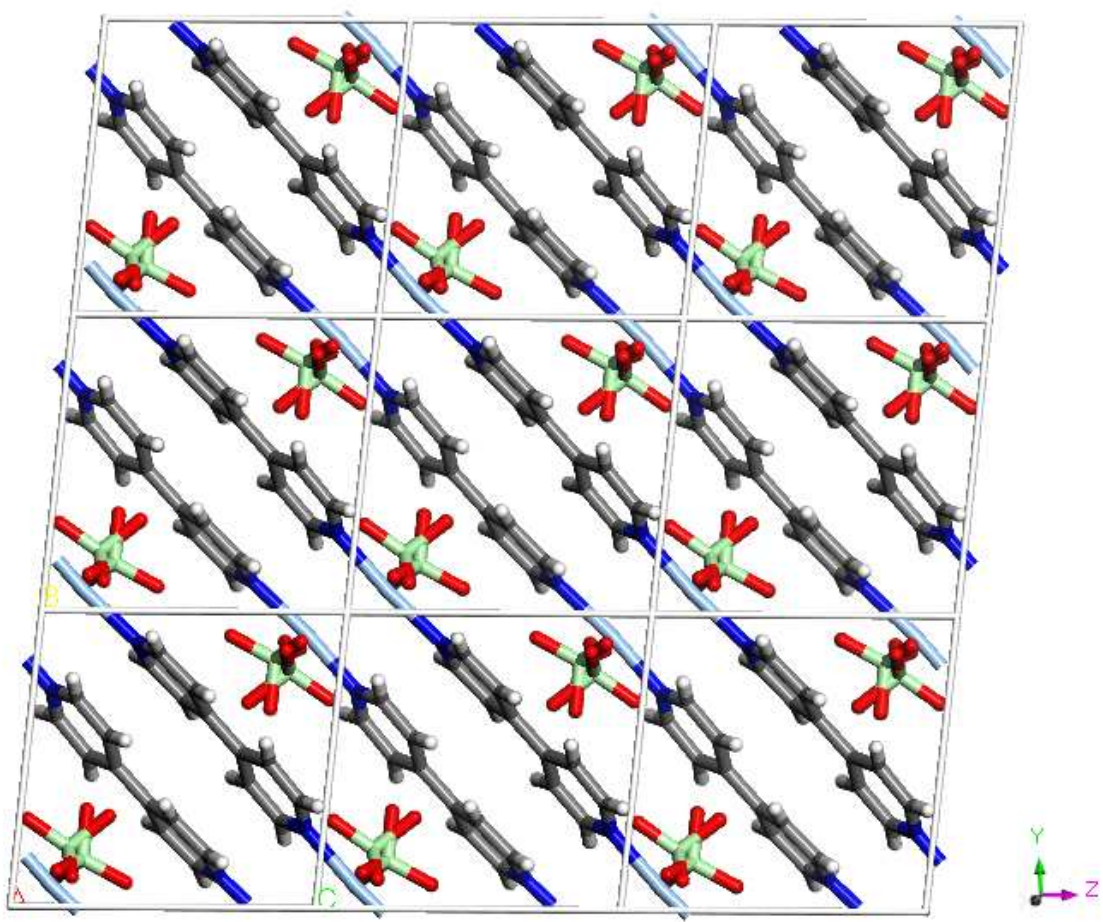


**Figure S7.** Second cycle perchlorate uptake per gram of SBN solid versus time.



**Figure S8.** Crystallographic view of SBN with partially disordered nitrates included.





**Figure S9.** Crystallographic view of SBP with disordered perchlorates included.