Electronic Supplementary Material (ESI) for Inorganic Chemistry Frontiers.

Supplementary information

Table S1 ¦ Chemical composition of the precursor and the functionalized materials revealed by XRF and CHNS analysis.

	XRF analysis (mol%)									CHNS analysis (wt%)			
	Al	**Si**	**Ca**	**Br**	**K**	**Cu**	**Fe**	**Ti**	**Ba**	**C**	**H**	**N**	**S**
NMF	11.4	50.6	29.7	4.1	0.0	1.8	0.2	0.6	0.6	21	0.1	0.6	0.0
A-NMF	13.8	43.1	31.7	0.0	8.3	1.1	0.3	0.5	0.7	1.2	0.0	0.1	0.0

Table S2 ¦ Textural properties of the original and functionalized materials.

Material	S_{BET} ($m^2.g^{-1}$)	S_{ext} Note 1 ($m^2.g^{-1}$)	V_{mic} Note 1 ($cc.g^{-1}$)	V_{mes} ($cc.g^{-1}$)	V_{tot} Note 2 ($cc.g^{-1}$)	$\bar{D}_p$ Note 3 (nm)
NMF	< 1	0	0.006	0	0.006	-
A-NMF	382.8	364.8	0.005	0.846	0.851	8.9

Note 1 S_{ext} and V_{mic} have been calculated using the t-plot method at a relative pressure range of $3.5 < {}^{P}/_{P_0} < 5$.

Note 2 V_{tot} has been determined at a relative pressure of ${}^{P}/_{P_0} = 0.98$.

Note 3 $\bar{D}_p$ has been calculated assuming a cylindrical geometry of the pores according to the shape of the hysteresis loop of the isotherm graph.

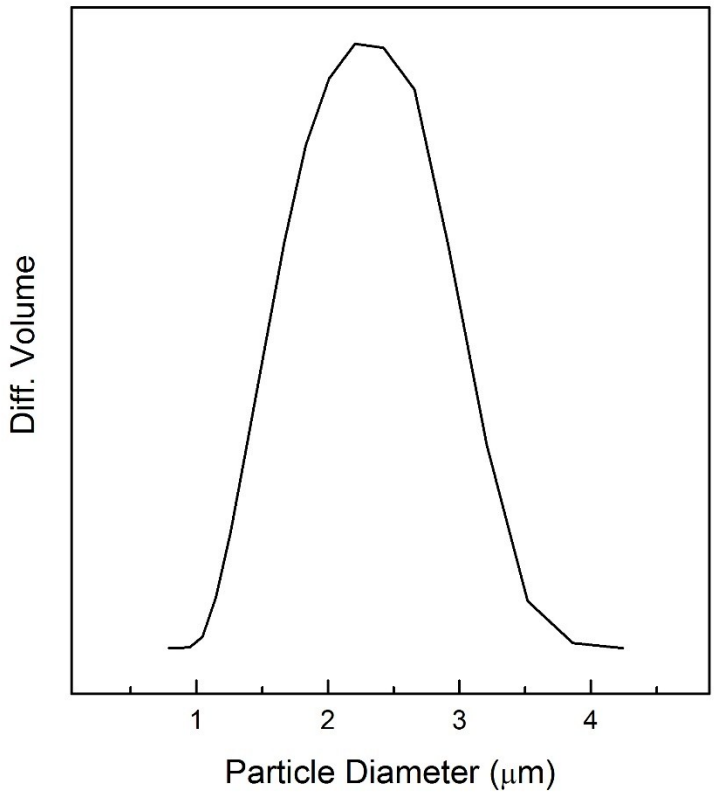


Figure S1 ¦ Particle size distribution for the precursor (NMF).

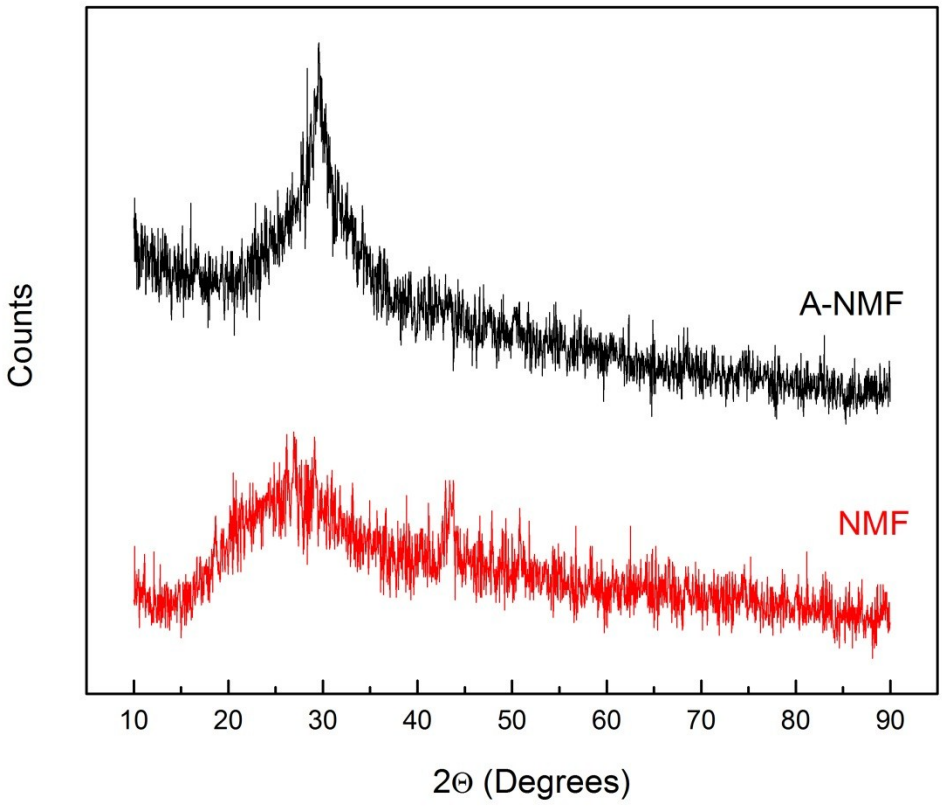
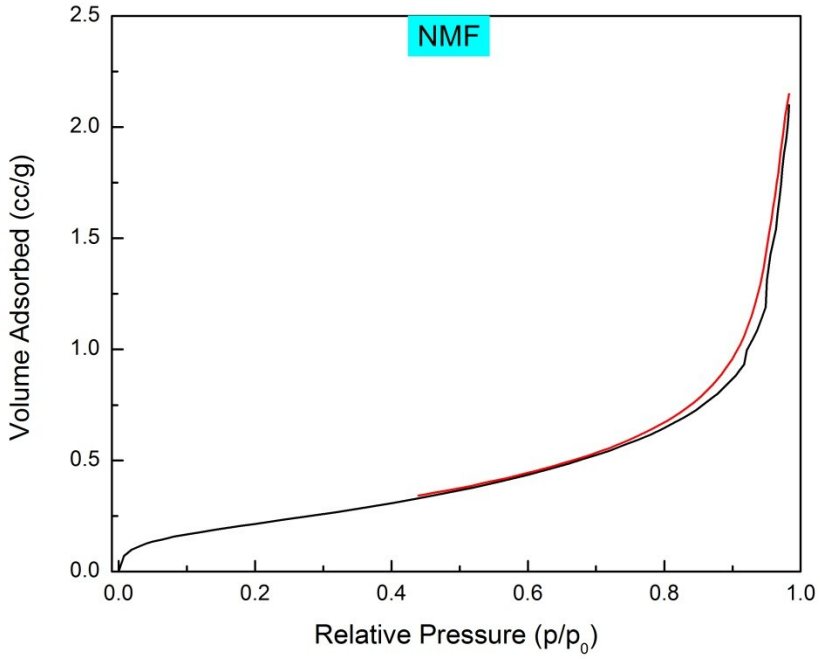


Figure S2 ¦ XRD pattern for the precursor (NMF) and the functionalized materials (A-NMF).



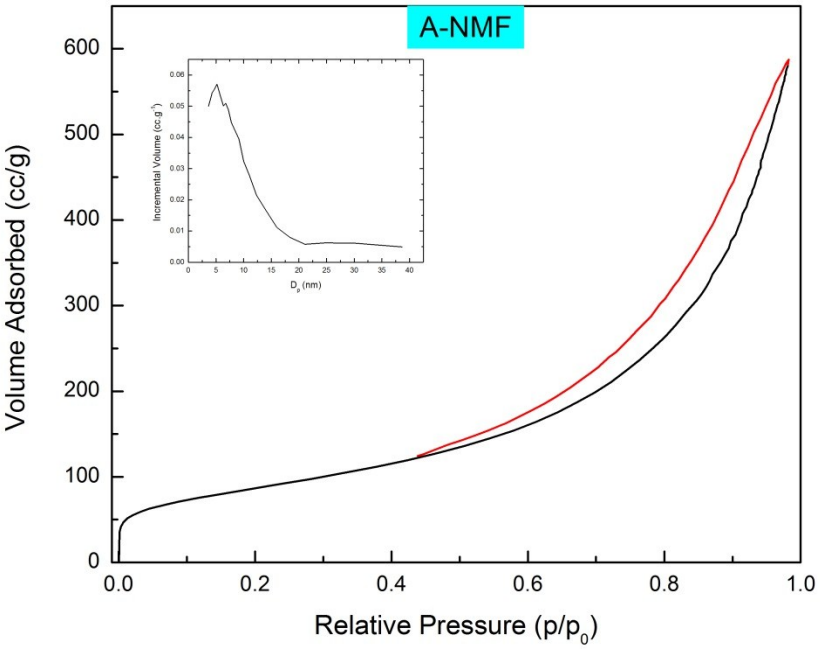


Figure S3 ¦ Nitrogen adsorption-desorption curve for (a) the precursor (NMF), and (b) the functionalized material (A-NMF).

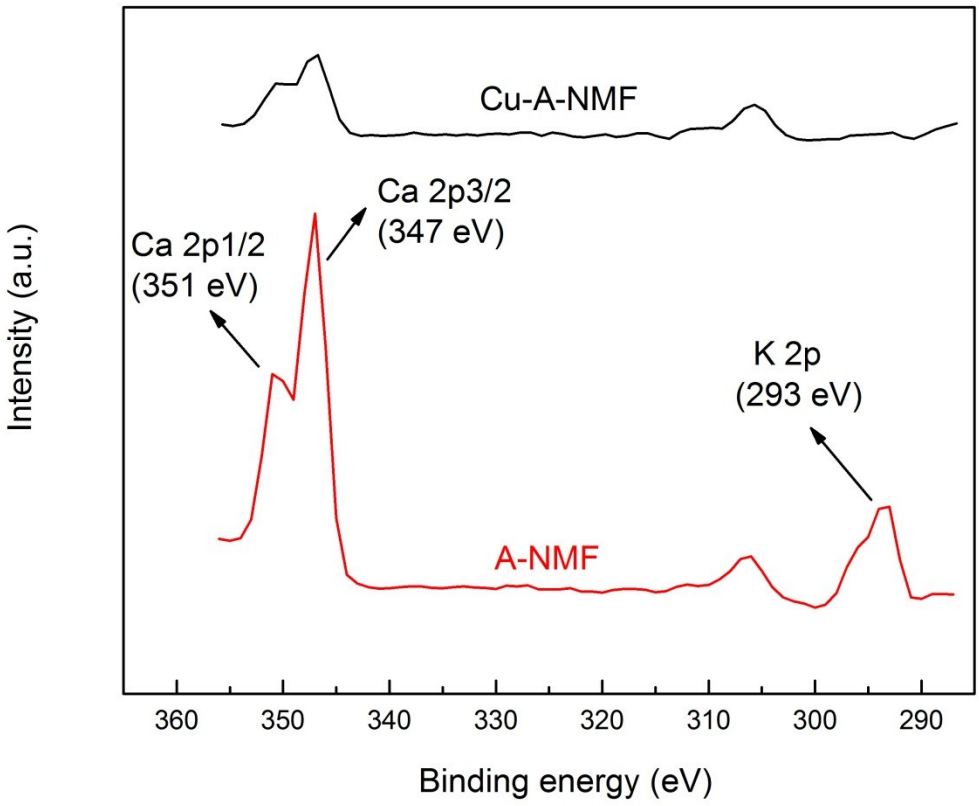


Figure S4 ¦ Change in the intensities of the K 2p and Ca 2p peaks before and after the ion exchange process.

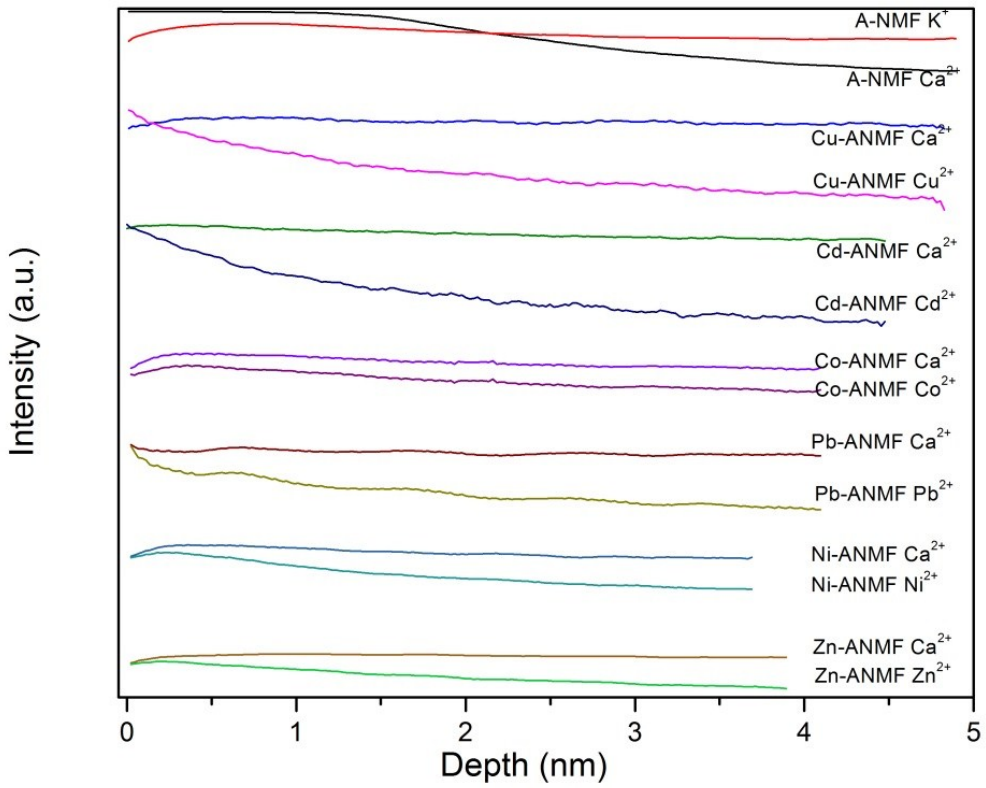


Figure S5 ¦ TOF-SIMS depth profile of the A-NMF and metal-deposited material. The heavy metal concentration profile is identical to that of the potassium ions in the A-NMF, but not the calcium ions. This is related to the sole role of the potassium ions as network modifiers for ion exchange, whereas a major fraction of the calcium ions play the role of charge compensators for AlO_4^- clusters which cannot participate in ion exchange.