Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B

Microporous titanosilicates Cu^{2+}- and Co^{2+}-ETS-4 for storage and slow release of therapeutic nitric oxide.

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Nitrogen adsorption

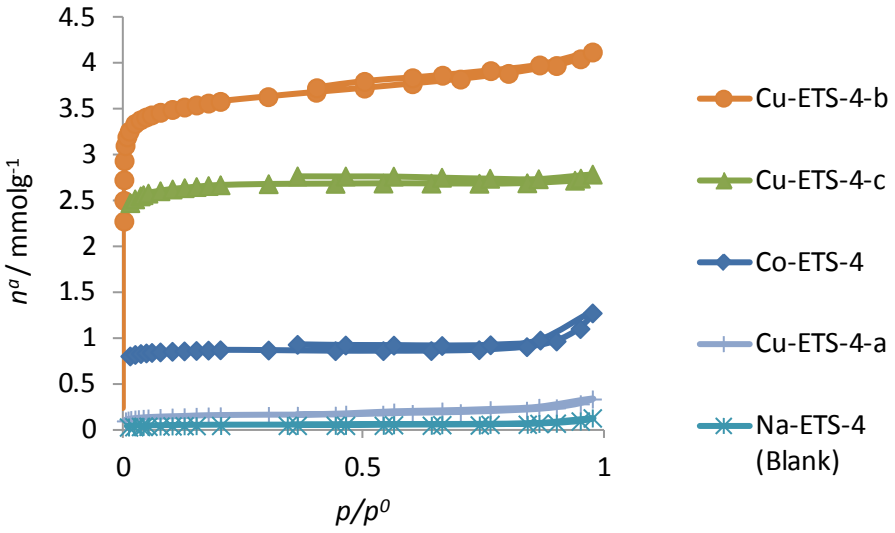

Figure S1 – Low temperature nitrogen adsorption-desorption isotherms of the Na-ETS-4 and the Co^{2+} and Cu^{2+} exchanged samples.

Dynamic light scattering

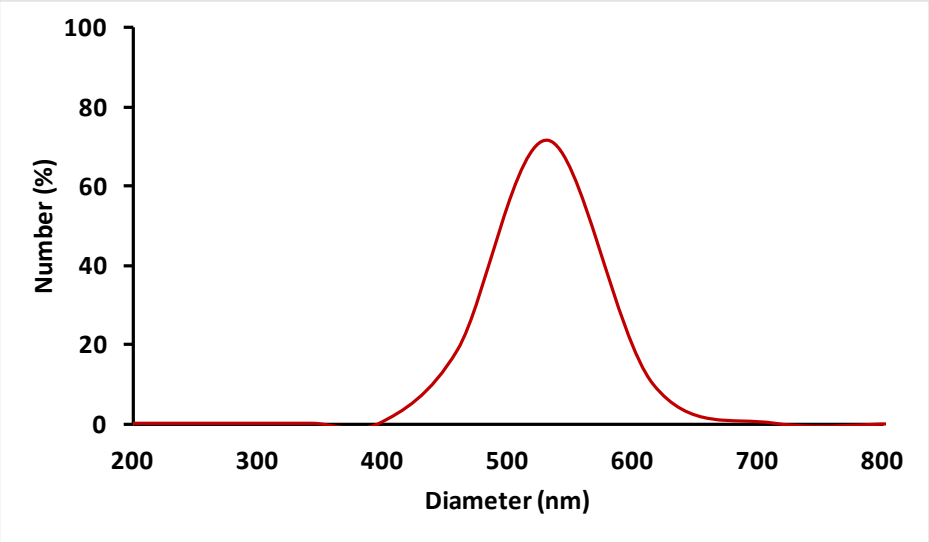

Figure S2 – Particle size distribution of the Na-ETS-4 sample, determined by DLS.

XRD

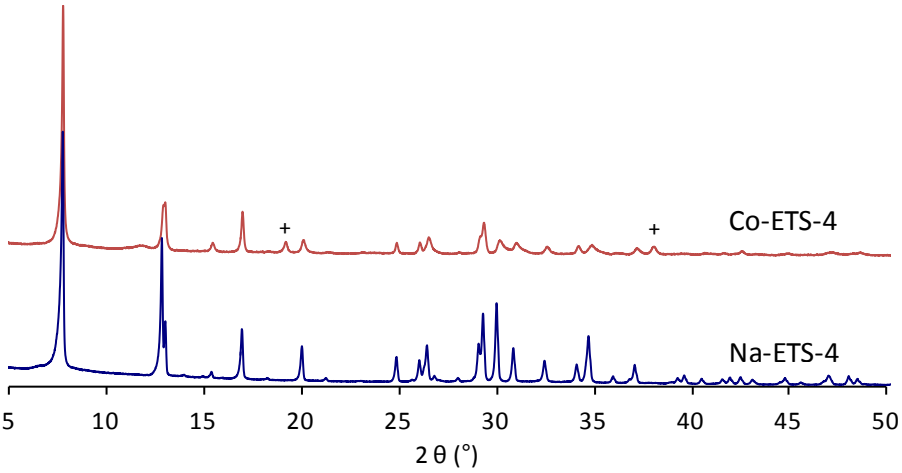

Figure S3 – XRD patterns of the Co^{2+} exchanged samples and the initial Na-ETS-4.

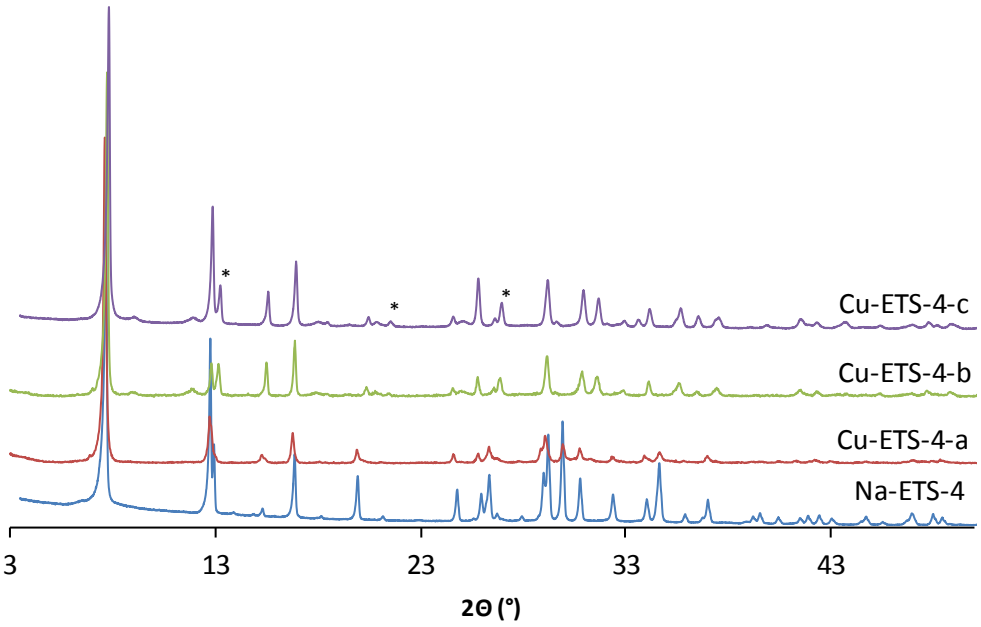

Figure S4 - XRD patterns of the Cu^{2+} exchanged samples and the initial Na-ETS-4.

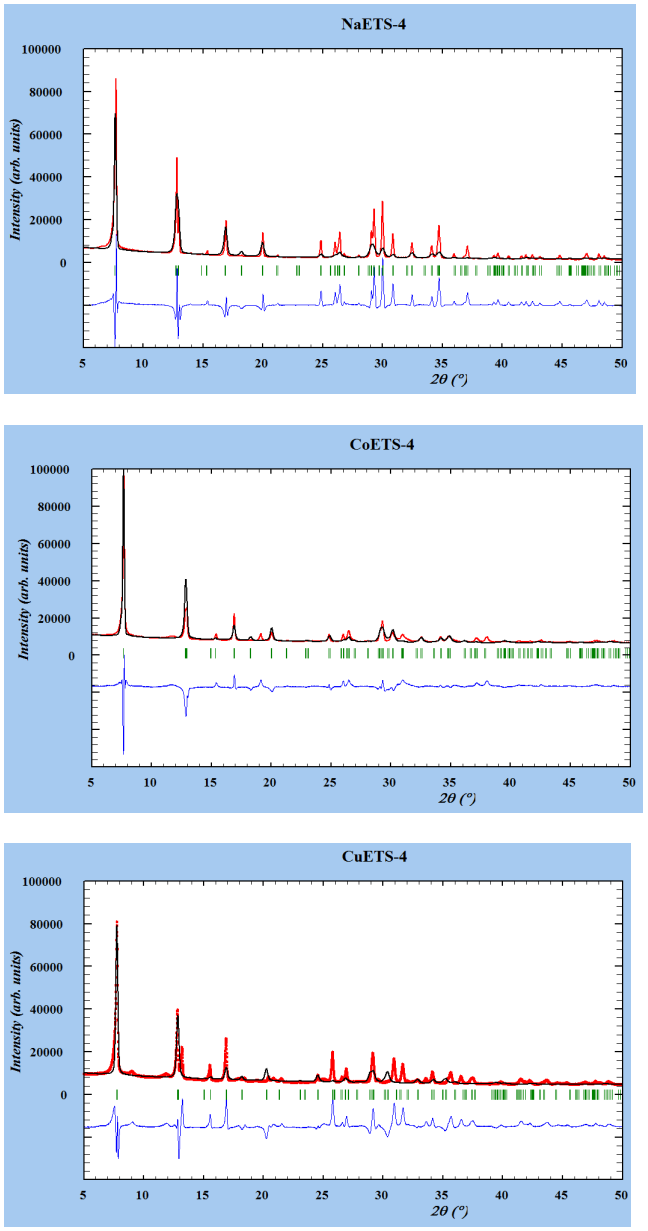

Figure S5 – Comparison plots of the XRD of the samples with the diffraction pattern of ETS-4.

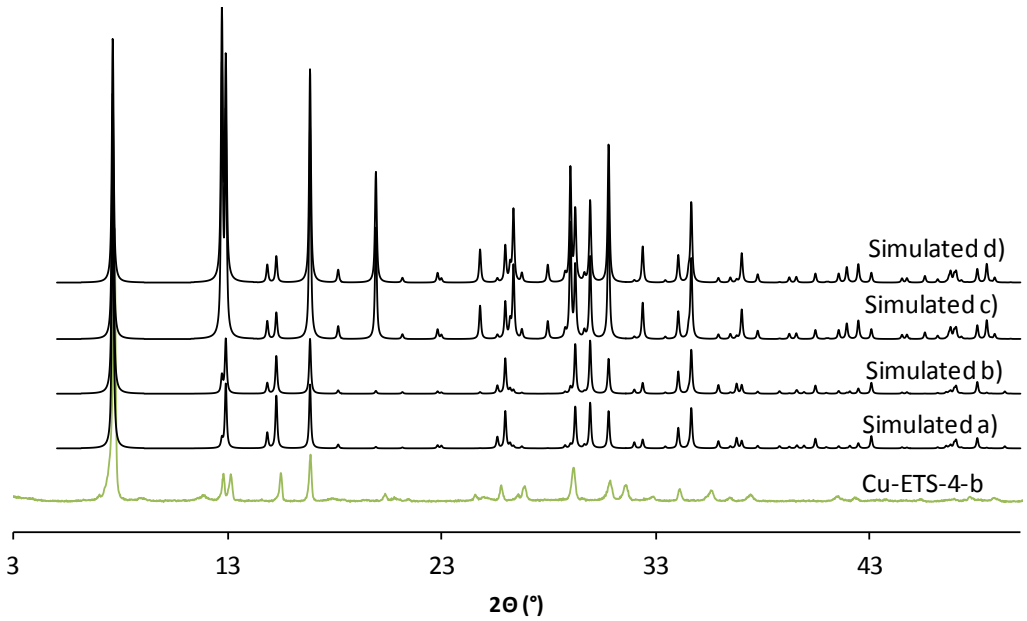

Figure S6 – Comparison of experimental XRD powder pattern of Cu-ETS-4-b with simulated powder patterns of ETS-4 structure with substitution of Na^{+} by Cu^{2+} on different cation sites: a) Cu^{2+} at site 1 and Na^{+} at site 1, b) Cu^{2+} at site 1 and Na^{+} at site 2, c) Cu^{2+} at site 2 and Na^{+} at site 1 and d) Cu^{2+} at site 2 and Na^{+} at site 2.

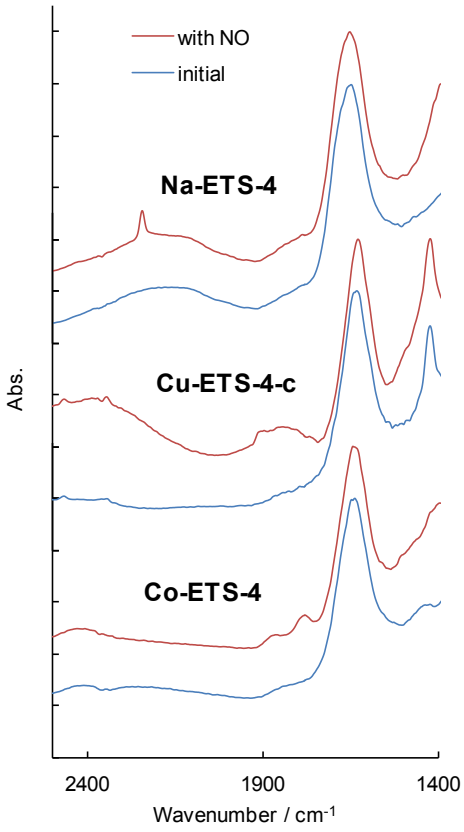

Figure. S7 - DRIFT spectra of the materials loaded/not loaded with NO.

NO release kinetics

To make a more detailed analysis of the release kinetic data of the materials, the pseudo-second order equation (Equation 1) was adjusted, were k_2 is the kinetic constant, q_e is the equilibrium released amount and q_t is the amount released at time t.

Equation 1

$$\frac{t}{q_t} = \frac{1}{k_2 q_e^2} + \left(\frac{1}{q_e}\right) t$$

The fitting of the above equation to the release data is depicted in Figure S6

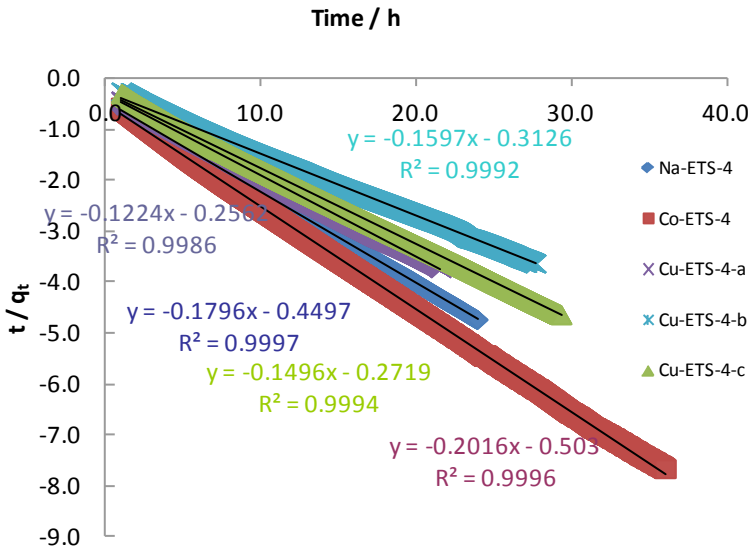

Figure S8 – Fitting of the pseudo-second order equation to the release data of NO under high-vacuum, from the studied materials