

Supporting Information

Recrystallization on Alkaline Treated Zeolites in the Presence of Pore-Directing Agents

Eddy Dib,[†] Hussein El Siblani,[†] Shrikant M.Kunjir,[†] Aurelie Vicente,[†] Nicolas Nuttens,[‡] Danny Verboekend,[‡] Bert F. Sels,[‡] and Christian Fernandez*,[†]

[†]*Normandie Univ, ENSICAEN, UNICAEN, CNRS, Laboratoire Catalyse et Spectrochimie,
14000 Caen, France*

[‡]*Department M2S, K.U. Leuven, Celestijnenlaan 200F, 3001 Heverlee, Belgium*

E-mail: christian.fernandez@ensicaen.fr

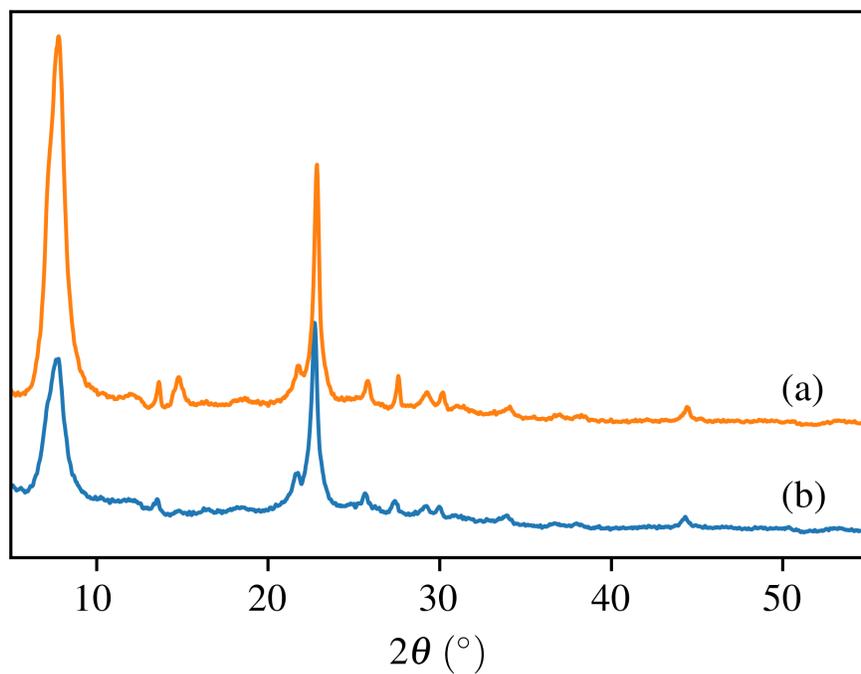


Figure SI-1: Powder XRD patterns of the beta zeolite taken before (a) and after (b) the alkaline treatments in presence of tetra-propyl ammonium ions. These patterns were obtained on a STOE Stadi P instrument in transmission mode using $\text{CuK}\alpha$ radiation. The crystallinity ratio was determined from the intensity of the diffraction peak at approximately 22.8° .

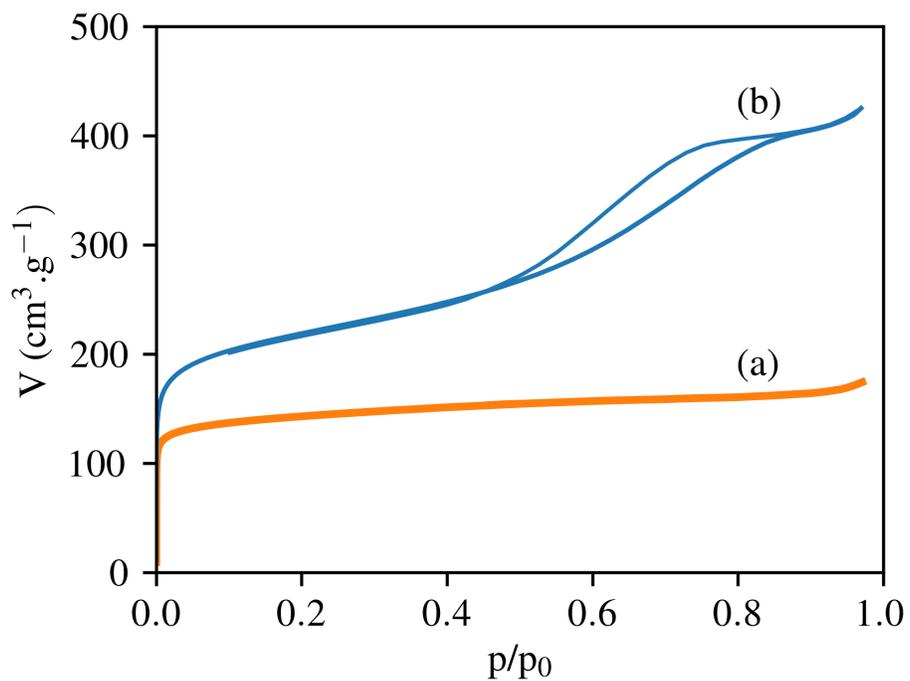


Figure SI-2: Nitrogen isotherms at 77 K taken before (a) and after (b) the alkaline treatments in presence of tetra-propyl ammonium ions. Nitrogen-sorption measurements were executed on a Micromeritics TriStar 3000 instrument. Prior to the sorption experiment, the samples were degassed overnight under a flow of N_2 with heating to 573 K ($5 \text{ K} \cdot \text{min}^{-1}$). The t -plot was used to distinguish between micro- and mesopores.

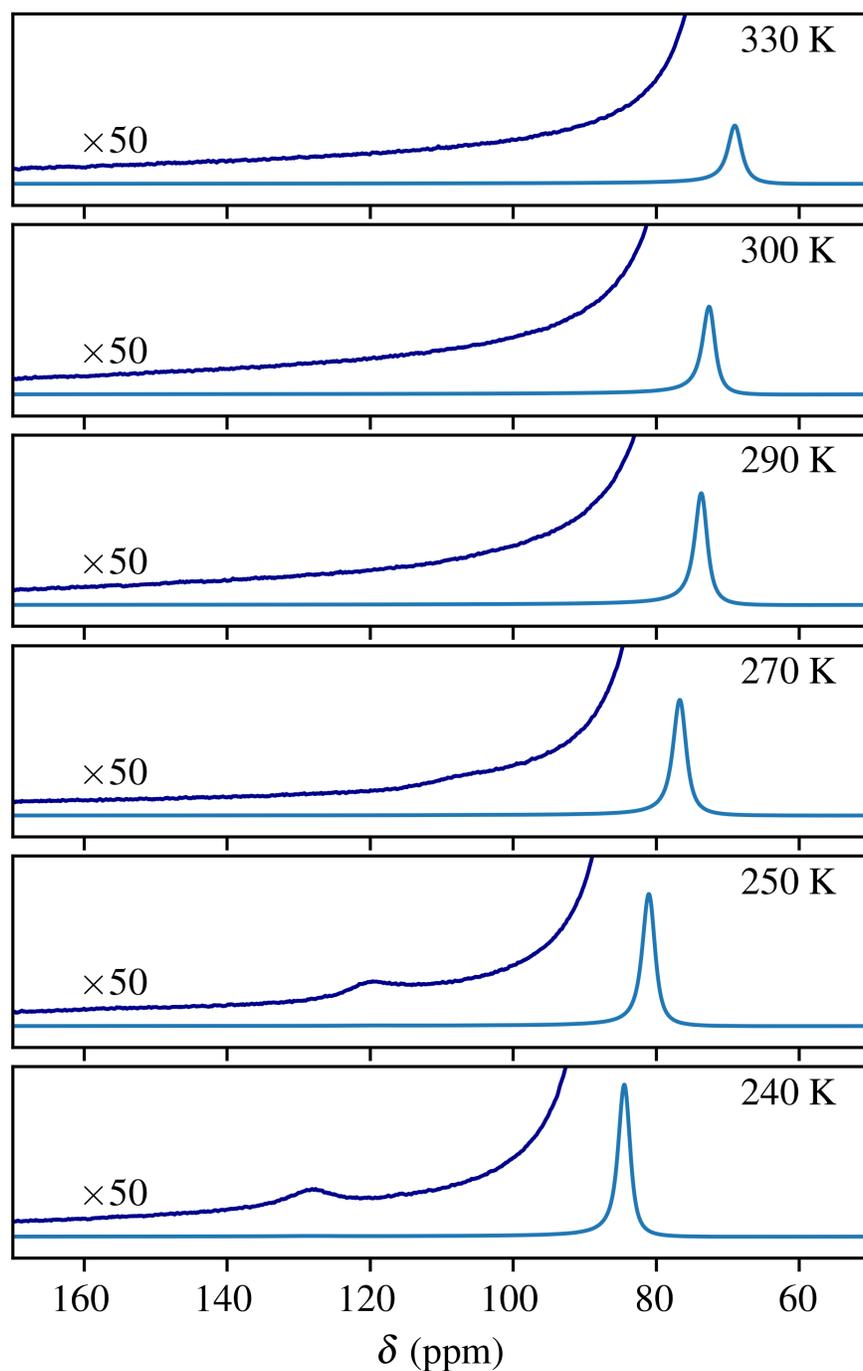


Figure SI-3: NMR spectra of HP ^{129}Xe adsorbed on alkaline treated BEA zeolite recorded at variable temperature. The main resonance corresponds to xenon adsorbed in the BEA micropores. On the expansion of the spectra (factor $\times 50$), a small peak on the left (downfield) of the main resonance appears at temperature below 270 K and is attributed to the presence of MFI in the sample. The resonances are shifted with temperature due to a different equilibrium between the surface adsorbed and the gas phase xenon that are in a regime of fast exchange. Note that the narrow line due to the gas phase is at 0 ppm (reference of chemical shift) and thus does not appear on these spectra. It can be shown on Figure 4 in the main text.