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SUPPLEMENTARY INFORMATION

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A procedure for identifying possible products in the assembly–disassembly–organization–reassembly (ADOR) synthesis of zeolites

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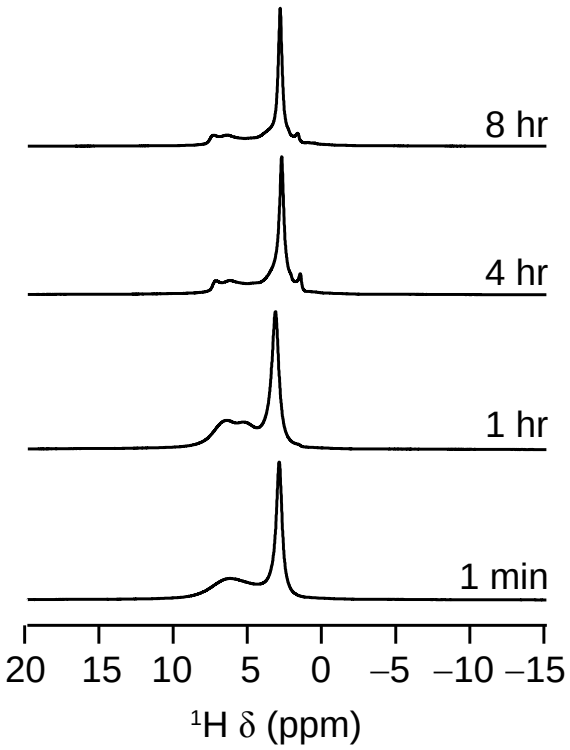
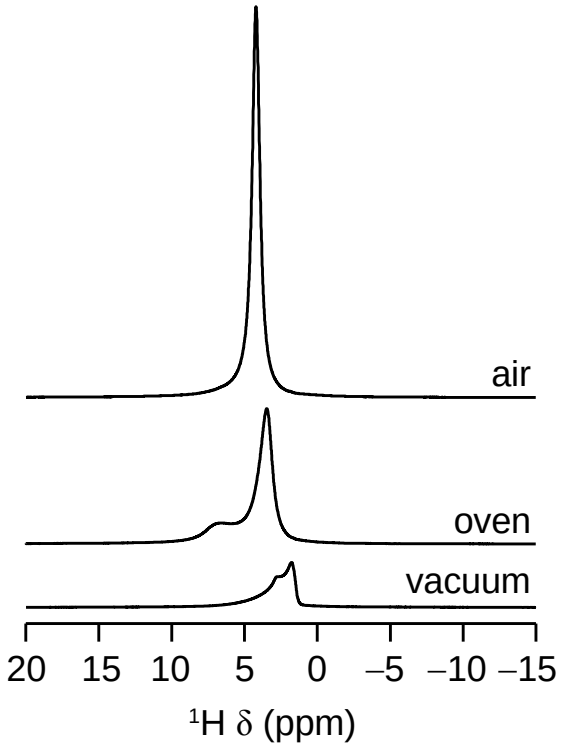


Supplementary Figure 1

Figure 1. ^{1}H MAS NMR spectra (9.4 T, 10 kHz MAS) showing the changes in ^{1}H environments in Ge-UTL occurring during hydrolysis at 100 °C in water.

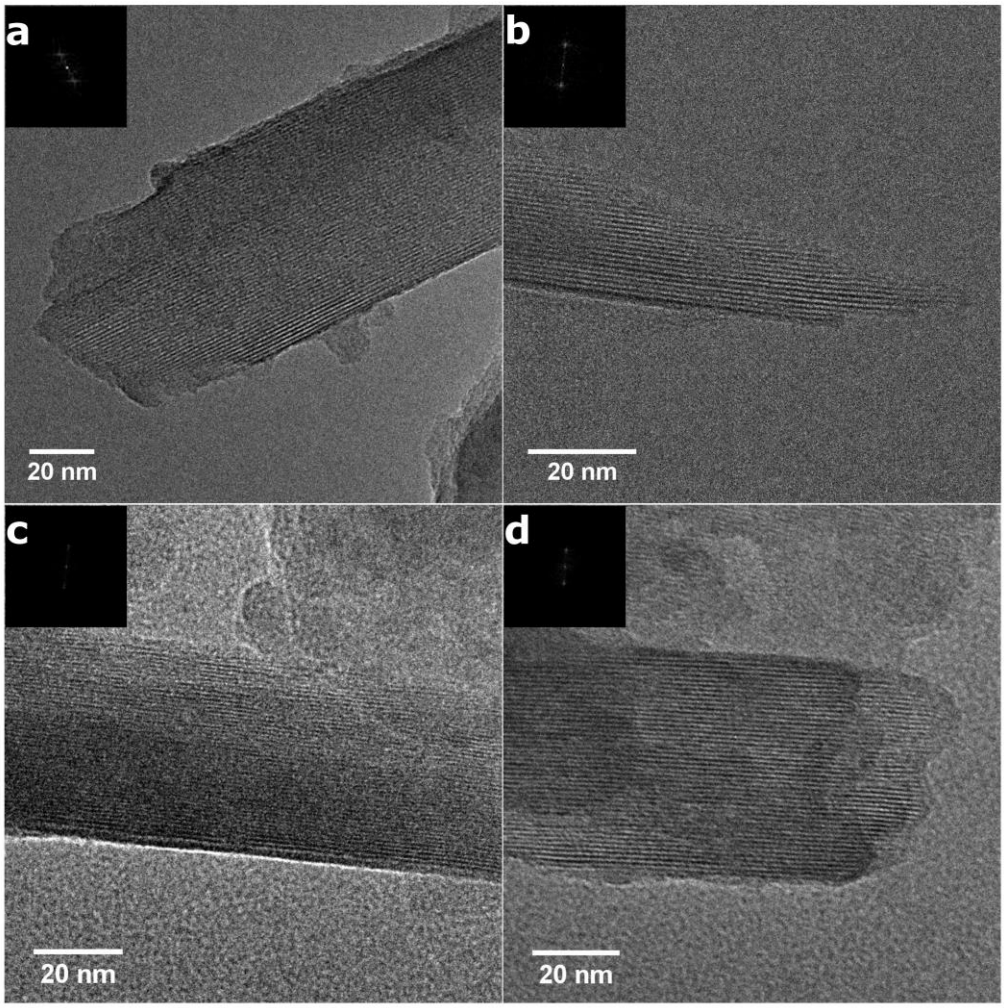
3 p.p.m. – Sharp peak from non-coordinated water; 4-10 p.p.m. - Unresolved hydroxyls. No proton signals other than minimal probe background is observed for calcined Ge-**UTL**.



Supplementary Figure 2

Figure 2. ^{1}H MAS NMR spectra (9.4 T, 10 kHz MAS) showing the different proton environments in hydrolyzed Ge-UTL (5 min; water; 18 °C), utilizing different drying methods.

Drying in the oven was chosen for this study as it produces a relatively dry sample (compared to air drying) suitable for PXRD collection and NMR acquisition, with confirmed presence of hydroxyls. Although the samples produced via vacuum drying and argon loading are drier, due to the high-throughput nature of the PXRD area of this study, oven drying, which takes only 10 minutes, was deemed the most suitable method to proceed with. All reactions involved hydrolyzing 50 mg of calcined Ge-**UTL** in 50 mg of distilled water. Air drying was carried out at 18 °C for 10 minutes, with oven drying taking place at 110 °C for the same amount of time. Vacuum drying was carried out using Schlenk apparatus at 110 °C overnight to give a vacuum approaching 10^{-5} Torr. Samples dried in this manner were cooled to room temperature, flushed with argon and then flame sealed under argon. Spectra are scaled according to proton peak intensity (Vacuum : Oven : Air = 1 : 2.7 : 8.7).



Supplementary Figure 3

Figure 3. TEM images of the samples of Ge-UTL hydrolyzed in water at 100 ºC.

a = Parent Ge-**UTL**; b = after 1 min; c = after 1 hr; d = after 4 hr. FFT images are shown as insets. *d* spacings can be measured using standard software.

Time	Q^3 %	Q^4 %	Q^3:Q^4	PXRD structure
Calcined	0	100	∞	**UTL**
1 hr	30.0	70.0	1:2.3	IPC-1P
4 hr	17.4	82.6	1:4.8	IPC-2P
8 hr	17.6	82.4	1:4.7	IPC-2P