

## Supporting Information

### Preparation of Translucent Silicalite-1 Bulk Ceramics by Spark Plasma

#### Sintering

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# Experimental

## *Defect-healing treatment for zeolite*

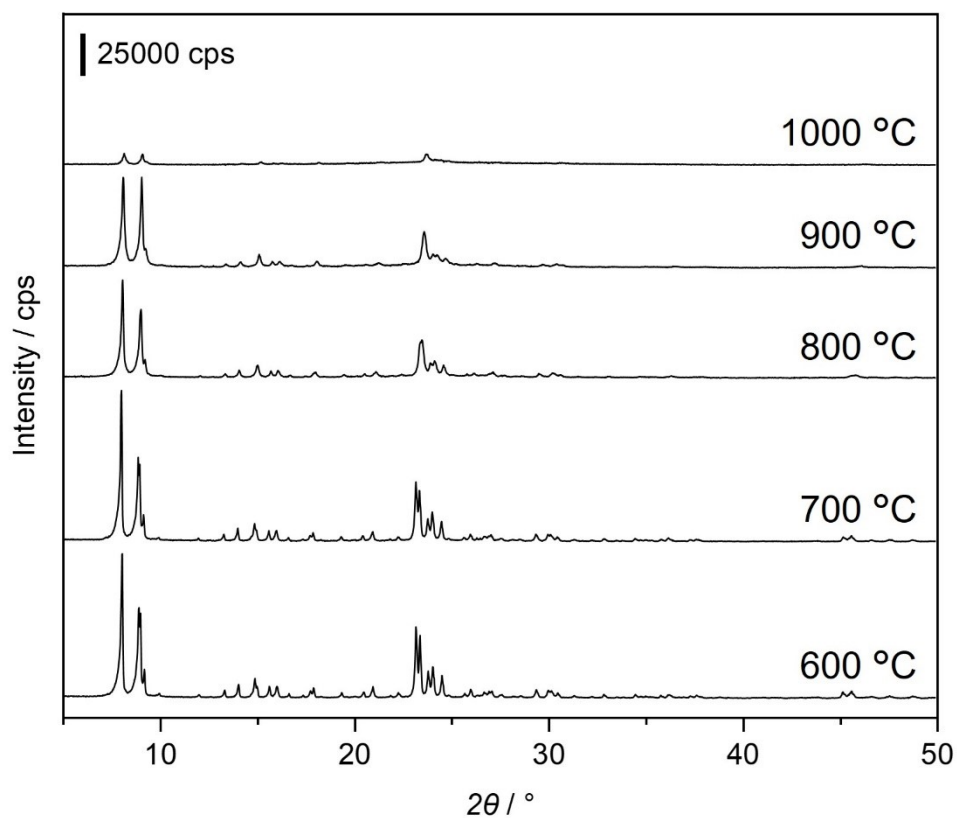
According to our previous report,<sup>[1]</sup>  $\text{NH}_4\text{F}$  was dissolved in a dilute solution of tetraethylammonium hydroxide (TEAOH) to prepare a solution with a molar composition of 1.00 TEAOH: 1.14  $\text{NH}_4\text{F}$ : 15.19  $\text{H}_2\text{O}$ . Calcined silicalite-1 powder was slowly added to this solution at a solid-to-liquid weight ratio of 1:2. The resulting mixture was heated in an autoclave at 170 °C for 24 h. The solid product was collected via filtration, washed with pure water, and dried at 80 °C overnight. The product was calcined at 550 °C for 6 h.



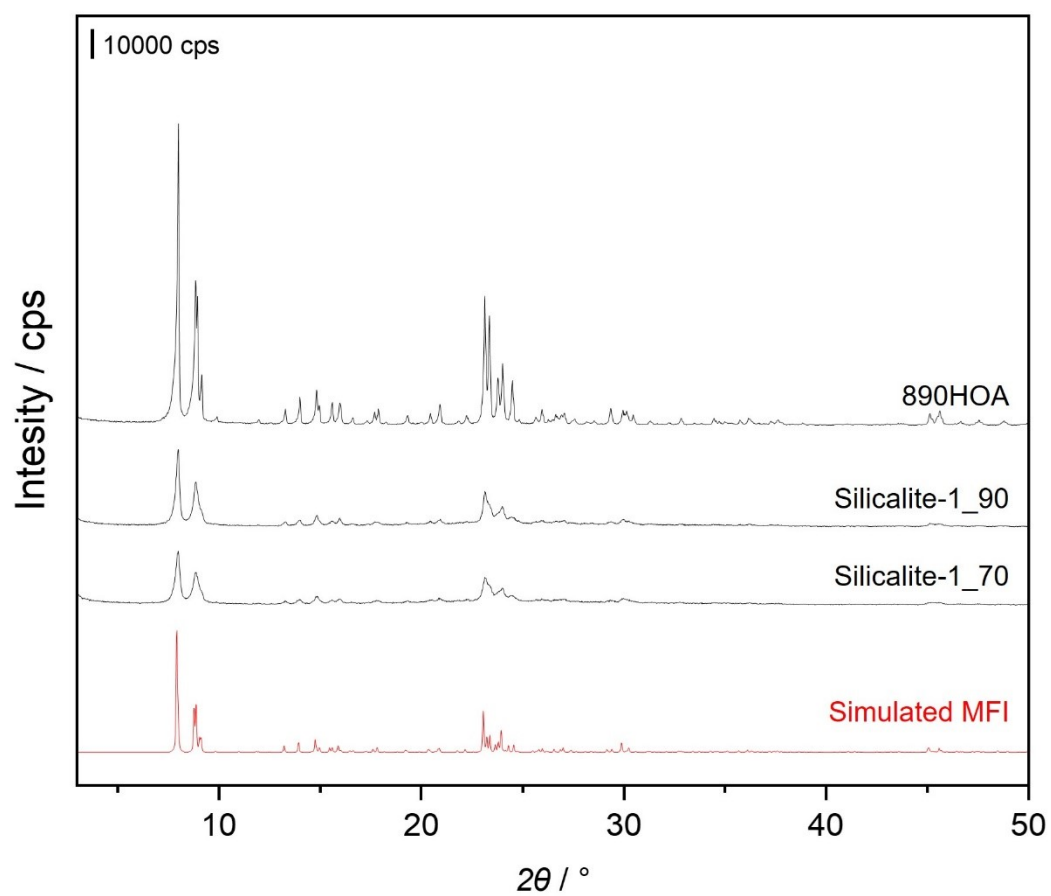
**Figure S1.** Photograph of SPS apparatus.<sup>[2]</sup>



**Figure S2.** Photograph of silicalite-1 ceramic corresponding to the one shown in Figure 1(a) after a drop of water was applied.



**Figure S3.** PXRD patterns of the samples after SPS treatments, where 890HOA was used as a silica source, and all samples were sintered at 50 MPa for 5 min at varying temperatures using the graphite carbon die. The ramping rate was 70 °C·min<sup>-1</sup>.



**Figure S4.** PXRD patterns of 890HOA, silicalite-1\_90, and silicalite-1\_70.

# Reference

1. K. Iyoki et al., *J. Am. Chem. Soc.* **2020**, 142, 3931–3938.
2. [https://www.fdc.co.jp/sps/products/labjr/j\\_labjr.html](https://www.fdc.co.jp/sps/products/labjr/j_labjr.html)