

Supporting Information

High-Temperature, High-Pressure Hydrothermal Synthesis, Crystal Structure, Thermal Stability, and Solid State NMR Spectroscopy of an Aluminum Borate, $\text{Ba}[\text{AlB}_4\text{O}_8(\text{OH})]$

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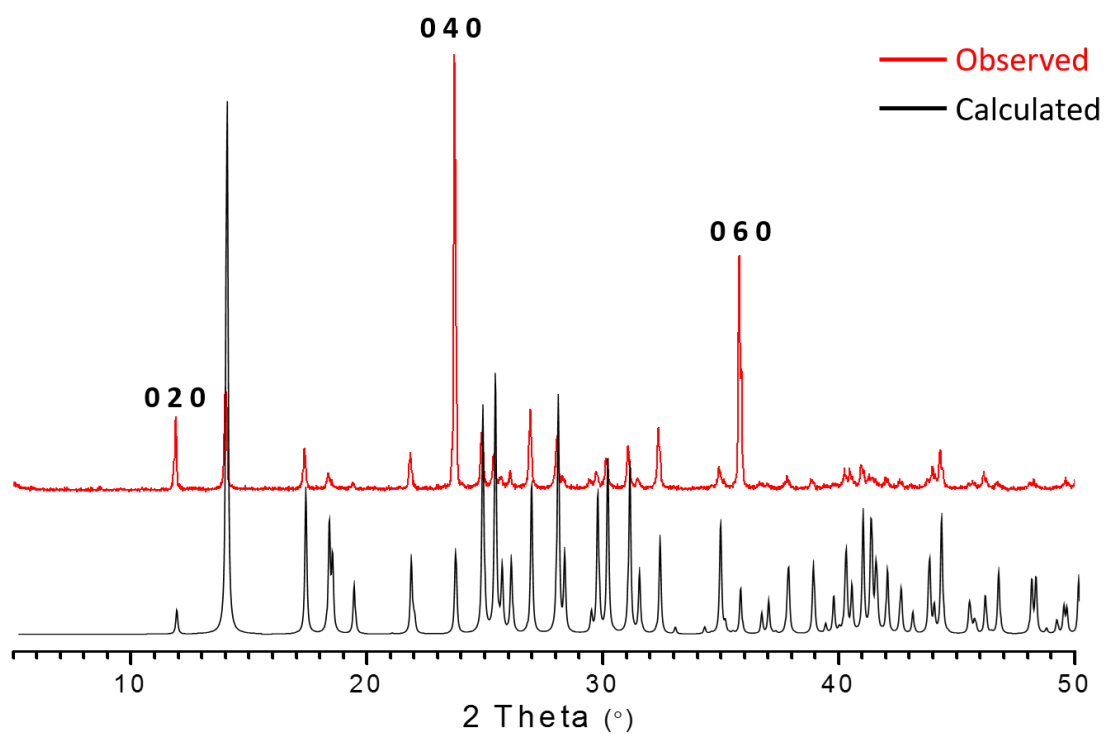


Figure S1. The observed and simulated X-ray powder patterns of Ba[AlB₄O₈(OH)]. The differences between the observed and calculated intensities are due to the effect of preferred orientation. Several 0k0 reflections are indicated.

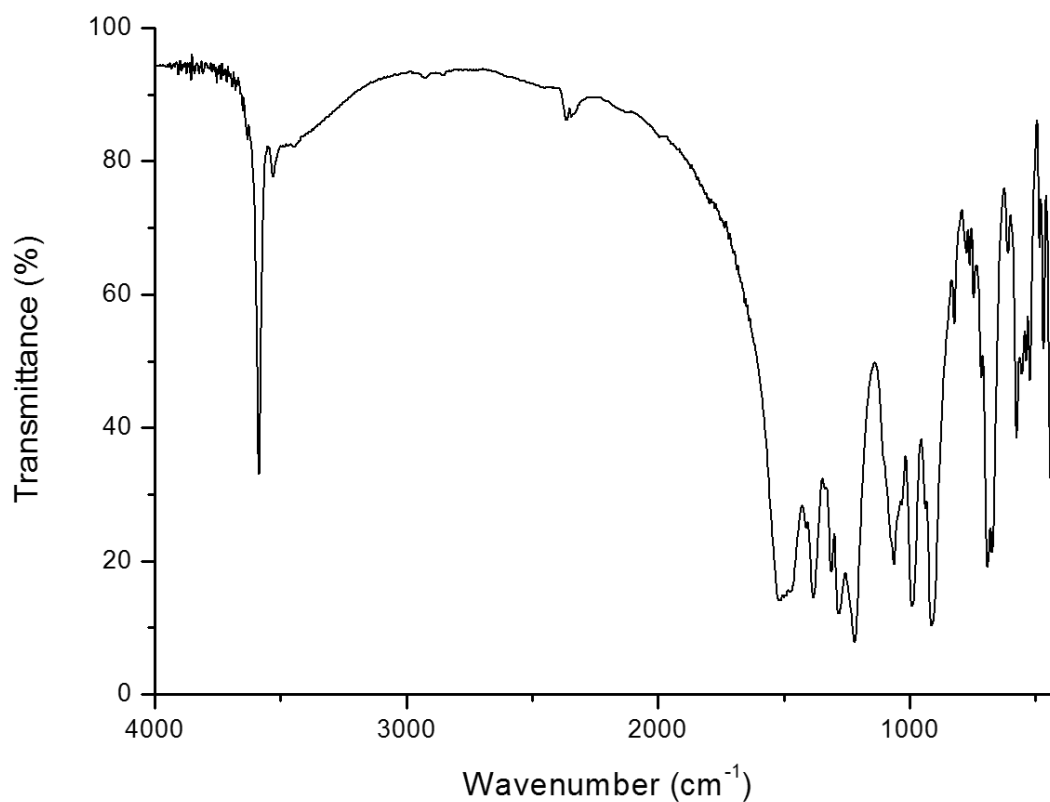


Figure S2. The infrared spectrum of Ba[AlB₄O₈(OH)] (KBr pellet method). The peak at 3580 cm⁻¹ is due to the O-H stretching vibration. The bands from 1508 to 1218 cm⁻¹ correspond to antisymmetric stretching vibrations of the BO₃ groups. The bands from 1062 to 950 cm⁻¹ correspond to antisymmetric stretching vibrations of BO₄ and AlO₄ groups. The bands from 800 to 500 cm⁻¹ are bending vibrations.

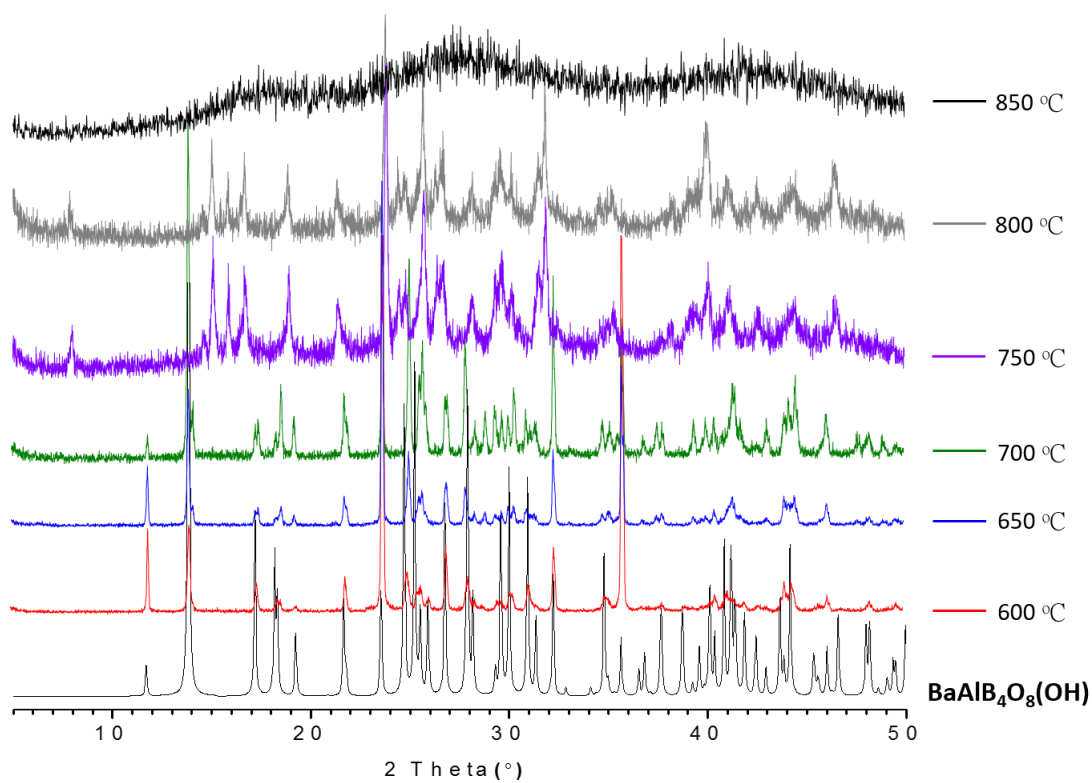


Figure S3. X-ray powder patterns of a sample of $\text{Ba}[\text{AlB}_4\text{O}_8(\text{OH})]$ which were taken after being heated in a Pt crucible in air at 600, 650, 700, 750, 800, and 850 °C for 2 h and cooled to room temperature.

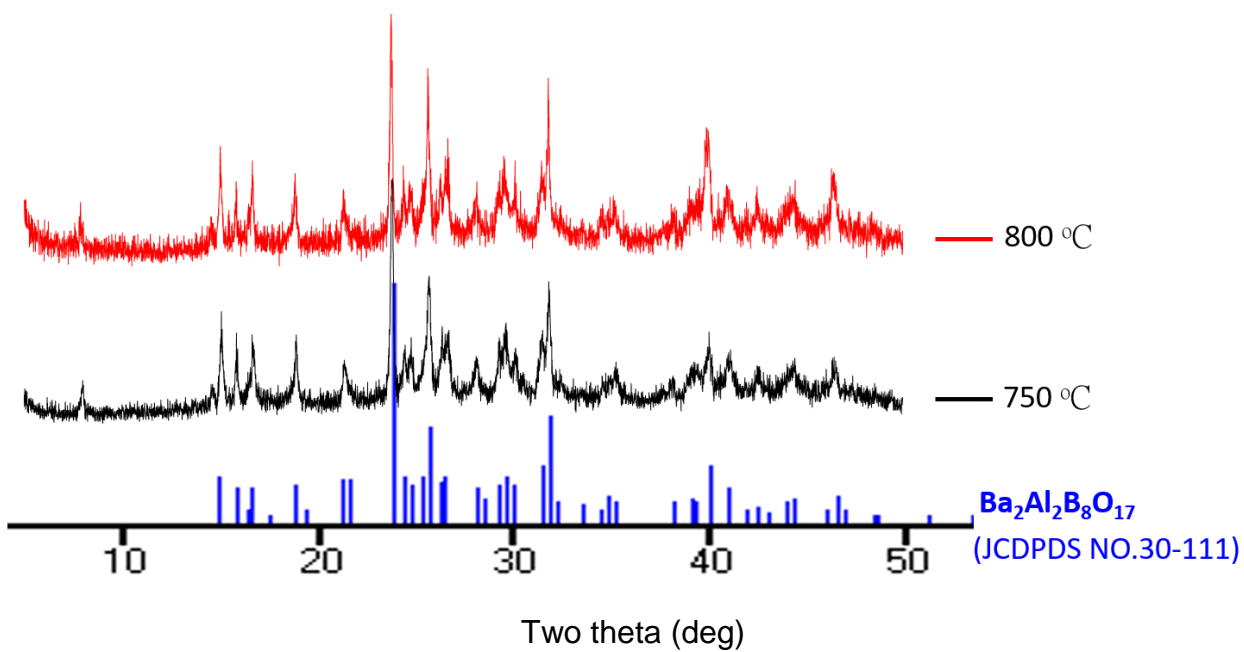


Figure S4. X-ray powder patterns of a sample of Ba[AlB₄O₈(OH)] which were heated at 750 and 800 °C are compared with that of Ba₂Al₂B₈O₁₇.