

Supporting Information

Ca₁₀Na₁₀[Te₉O₄₂](H₂O): A Hydrothermally Synthesized Quaternary Tellurium(VI) Oxide Containing Edge-Sharing Octahedral Trimers

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Fig S1. Pawley fit of the powder diffraction data to the structure of Ca₁₀Na₁₀[Te₉O₄₂](H₂O).

Fig. S2. The measured X-ray powder patterns of the products from high-T, high-P hydrothermal reactions of Ca(NO₃)₂·4H₂O, NaOH(aq), and TeO₂ in the molar ratio of Ca/Na/Te equal to (a) 0.5/5/1.5, (b) 0.8/5/1.5, and (c) 2/5/1.5, respectively. The product from reaction (a) is a single phase of Ca₁₀Na₁₀[Te₉O₄₂](H₂O).

Fig. S3. The measured X-ray powder pattern of the product from a hydrothermal reaction at 210 °C (in black). Calculated powder pattern of α-CaTeO₃ (in red). Asterisks denote unidentified material.

Fig. S4. The infrared spectrum of Ca₁₀Na₁₀[Te₉O₄₂](H₂O) (KBr method).

Fig. S5. Energy dispersive X-ray spectrum of Ca₁₀Na₁₀[Te₉O₄₂](H₂O). The peak at 2.1 keV is due to thin platinum coating on the crystal.

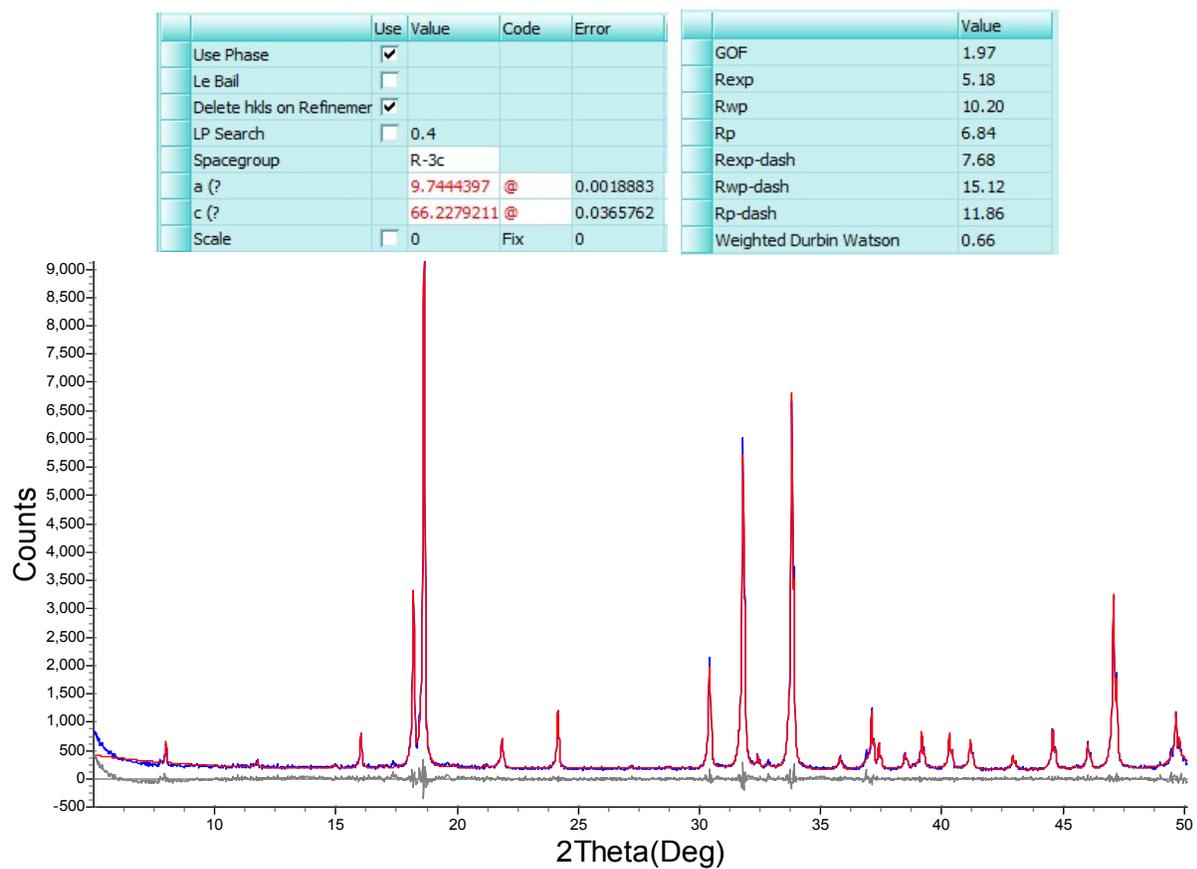


Fig. S1. Pawley fit of the powder diffraction data to the structure of $\text{Ca}_{10}\text{Na}_{10}[\text{Te}_9\text{O}_{42}](\text{H}_2\text{O})$.

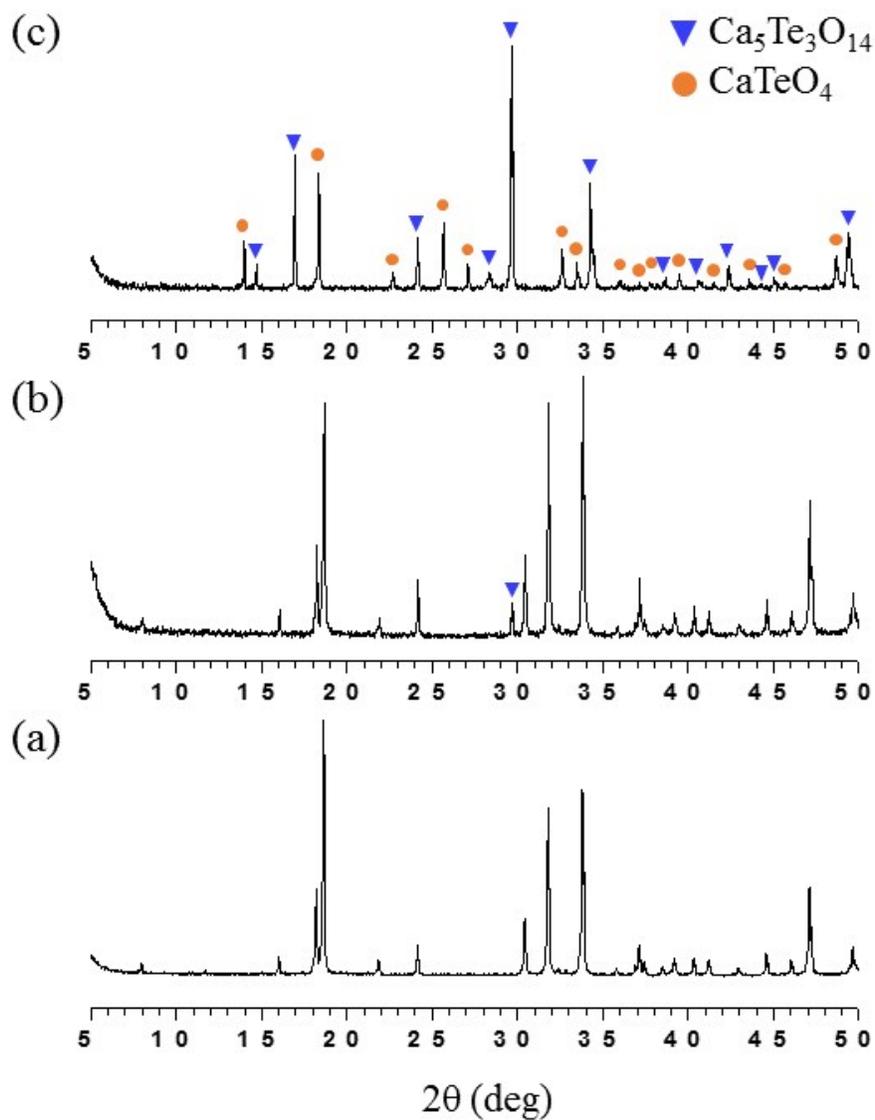


Fig. S2. The measured X-ray powder patterns of the products from high-T, high-P hydrothermal reactions of $\text{Ca}(\text{NO}_3)_2 \cdot 4\text{H}_2\text{O}$, $\text{NaOH}(\text{aq})$, and TeO_2 in the molar ratio of Ca/Na/Te equal to (a) 0.5/5/1.5, (b) 0.8/5/1.5, and (c) 2/5/1.5, respectively. The product from reaction (a) is a single phase of $\text{Ca}_{10}\text{Na}_{10}[\text{Te}_9\text{O}_{42}](\text{H}_2\text{O})$.

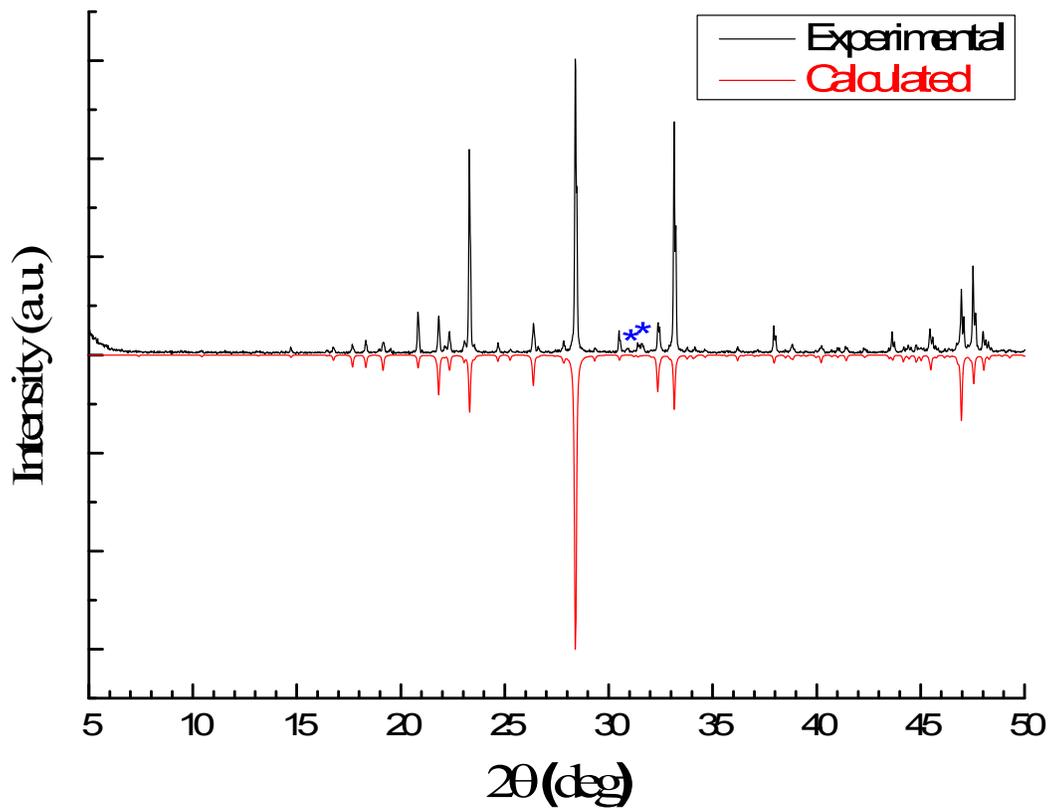


Fig. S3. The measured X-ray powder pattern of the product from a hydrothermal reaction at 210 °C (in black). Calculated powder pattern of α -CaTeO₃ (in red). Asterisks denote unidentified material.

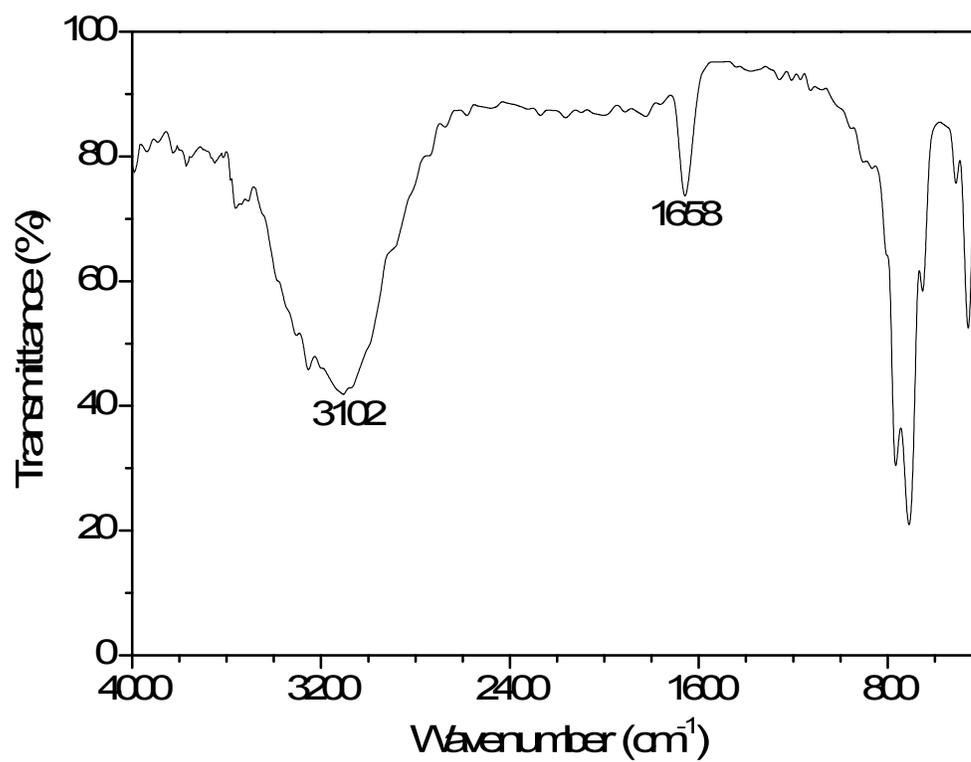


Fig. S4. The infrared spectrum of $\text{Ca}_{10}\text{Na}_{10}[\text{Te}_9\text{O}_{42}](\text{H}_2\text{O})$ (KBr method).

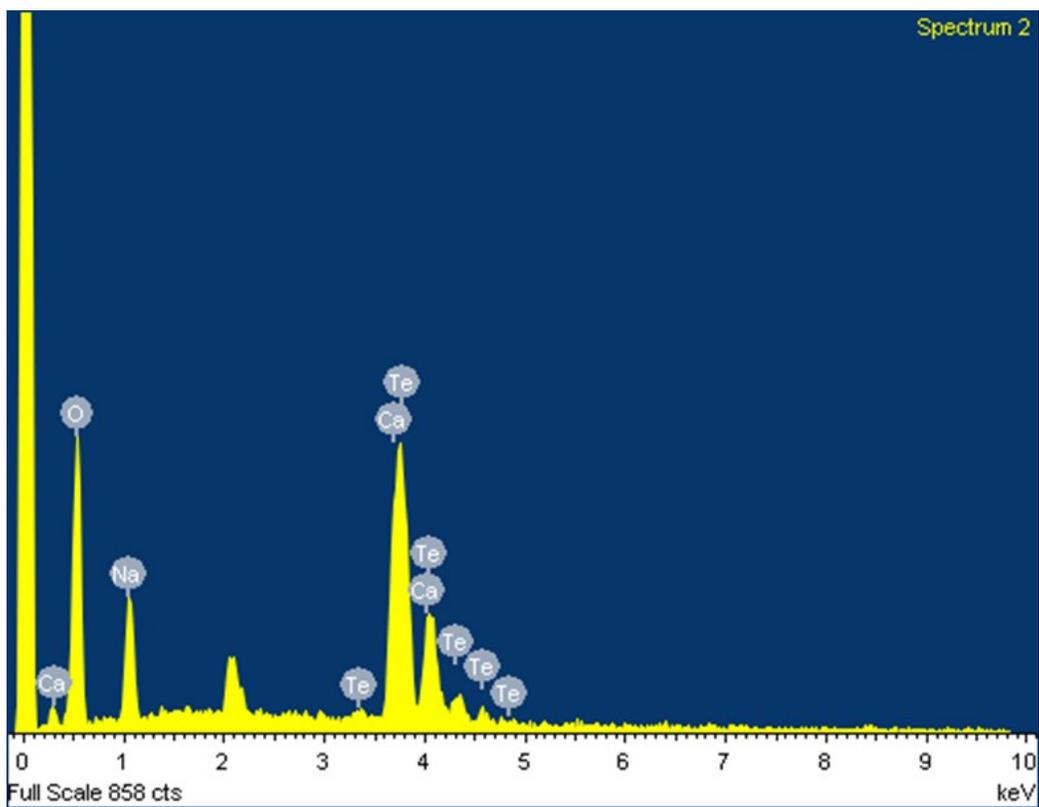


Fig. S5. Energy dispersive X-ray spectrum of $\text{Ca}_{10}\text{Na}_{10}[\text{Te}_9\text{O}_{42}](\text{H}_2\text{O})$. The peak at 2.1 keV is due to thin platinum coating on the crystal.