

Synthesis of Mesoporous Stishovite

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Scientific Achievement

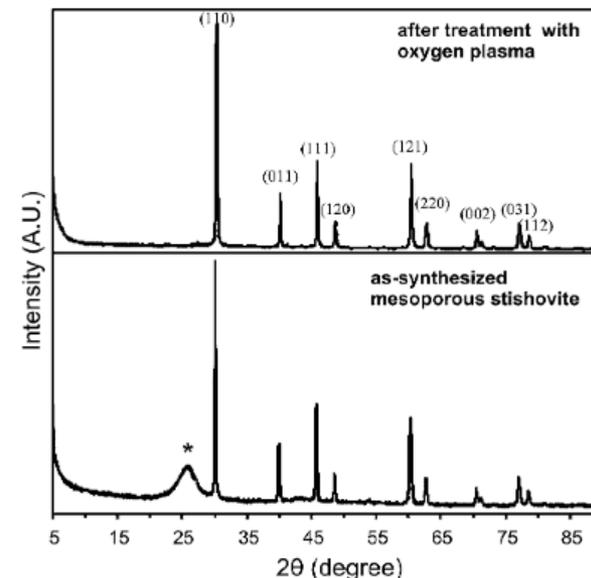
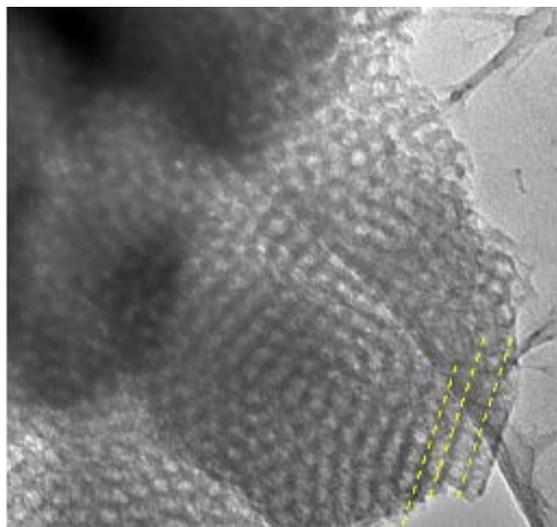
Mesoporous stishovite has been synthesized using a nanocasting methodology with a cubic large-pore mesoporous silica composite as a precursor.

Significance and Impact

Synthesis of mesoporous stishovite offers the opportunity to investigate thermochemical properties for the interaction between stishovite and water or other complex aqueous fluids to model fluid sequestration under relevant conditions.

Research Details

- Synthesis carried out at 9 GPa and 500 °C in a multianvil apparatus and characterized by TEM, electron microscopy and gas adsorption.
- Material has accessible mesopores with a wide pore size distribution, $\sim 45 \text{ m}^2/\text{g}$, and pore volume $\sim 0.15 \text{ cm}^3/\text{g}$



Facilities: Carnegie Institution, Lehigh University

Stagno, V., et al. High-pressure synthesis of mesoporous stishovite, *Phys. Chem. Minerals* 10.1007/s00269-015-0739-8 (2015).



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