

## Preparation of Nanocrystalline Mesoporous ThO<sub>2</sub> Via Surfactant Assisted Sol-gel Procedure

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**Abstract :** There has been proposed a technique for getting thorium dioxide mesoporous nanocrystalline. In this paper thorium dioxide powder was synthesized through the sol-gel method using hydrated thorium nitrate and ammonium hydroxide as starting materials and Triton X100 as surfactant. ThO<sub>2</sub> gel was characterized by thermogravimetric (TG), and prepared ThO<sub>2</sub> powder was subjected to scanning electron microscopy (SEM), X-ray diffraction (XRD), and Brunauer-Emmett-Teller (BET) analyses studies. Detailed analyses show that prepared powder consisted of phase with the space group Fm3m of thoria and its crystalline size was 27 nm. The thoria possesses 16.7 m<sup>2</sup>/g surface area and the pore volume and size calculated to be 0.0423 cc/g and 1.947 nm, respectively.

**Keywords :** mesoporous, nanocrystalline, sol-gel, thoria

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