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A GREEN ROUTE TO SYNTHESIZE CeO₂ NANOPARTICLES

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Abstract

The paper presents the surfactant-assisted solvo-thermal route to synthesize nanoparticles of cerium oxide with different shape and morphology. The precursor was calcined at 400°C for 4 h in order to obtain CeO₂ nanoparticles. The obtained samples were characterized by means of thermal analysis and FTIR spectroscopy. The UV-Vis analysis was used to study the optical properties. The morphologies and nano-structures were characterized by scanning electron microscopy (SEM) and XRD. It was found that nature and concentration of template agents played important roles in the formation of the novel morphology. A possible formation mechanism was proposed based on the controlling reaction parameters.

Key words: CeO₂, hydrothermal process, nanostructure materials, optical properties

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