

In-situ surface modification of cerium oxide nanocrystals using supercritical water

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Hydrothermal syntheses of cerium oxide nanocrystals were carried out under supercritical conditions using water (400 °C and 300 bar) and fatty acid derived capping agents. Decanoic acid was used for the in-situ surface modification. Transmission Electron Microscope (TEM), X-Ray Diffraction (XRD) and Fourier Transform Infrared (FT-IR) techniques were used to characterize nanocrystal shape and morphology. Surface modification was found to be successful together with stable dispersion. Individual primary particles were of cubic shape with an average size of 7 nm.