

Synthesis and characterization of magnesium oxide nanoparticles by the solution method

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Nanoparticles have attracted a great attention in recent years because of their unique physical and chemical properties such as high strength with good thermal conductivity, higher damping property and mechanical stability. The high surface reactivity, high chemical and thermal stability of MgO makes it a promising material for the application in sensors, catalysis, paint and additives etc. Magnesium oxide nanoparticles and micro particles are largely used as a reinforcing reagent, as well as a component in super conductors. Due to the high surface reactivity, highly chemical and high thermal stability with the catalytic properties, the magnesium oxide nanoparticles have particular interest. The vast applications of magnesium oxide nanomaterials inclined to work on this material. In this regard we synthesized Cubic shaped Magnesium oxide nanoparticles by the sol-gel method using magnesium nitrate and sodium hydroxide at room temperature. Hydrated Magnesium oxide nanoparticles were annealed in air at 300 and 500°C. X-ray diffraction patterns indicate that the obtain nanoparticles are in good crystallinity, pure magnesium oxide periclase phase with (200) orientation.