

Synthesis of Nickel Oxide Nanoparticles in Presence of Sodium Dodecyl Sulphate

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Abstract : Nickel nanoparticles have attracted much attention because of applications in catalysis, medical diagnostics and magnetic applications. In this work, we reported a simple and low-cost procedure to synthesize nickel oxide nanoparticles (NiO-NPs) by using sodium dodecyl sulphate (SDS) and gelatin as stabilizer. The synthesized NiO-NPs were characterized by a variety of means such as transmission electron microscope (TEM), powder X-ray diffraction (XRD), scanning electron microscope (SEM) and UV-vis spectroscopy. The results show that the NiO nanoparticles with high crystalline can be obtained using this simple method. The grain size measured by TEM was 16 in presence of SDS, which agrees well with the XRD data. SDS plays an important role in the formation of the NiO nanoparticles. Moreover, the NiO nanoparticles have been used as a solid phase catalyst for the decomposition of hydrazine hydrate at room temperatures. The decomposition process has been monitored by UV-vis analysis. The present study showed that nanoparticles are not poisoned after their repeated use in decomposition of hydrazine.

Keywords : nickel oxide nanoparticles, sodium dodecyl sulphate, synthesis, stabilizer

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