

The Study of the Structural and Morphology Features of Bi₂O₃ Nanoparticles at Low Temperatures

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Abstract—An improved, safe and viable hydrothermal method has been employed for the synthesis of Bismuth oxide (Bi₂O₃) nanoparticles at a temperature of 220⁰ C. This approach is based on a reaction of bismuth metal powder, de-ionized (DI) water and hydrogen peroxide. XRD and SEM have been employed to characterize the Bi₂O₃ nanoparticles. By the morphological investigations using SEM, it was observed that the grown Bi₂O₃ products are having dimensions in the range of 3nm to 25nm. The reported method besides being organics free is economical, fast and free of pollution, which will make it suitable for large scale production.

Keywords: Synthesis; Bismuth powder, Structural studies.

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