

Bismuth Ferrite Nanoparticles Synthesis Using Fast Polymer Precursor Based Method

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Bismuth ferrite (BiFeO₃) is a multiferroic ceramic material with magnetoelectric properties, ie when the material undergoes an electrical stimulus for a magnetic response, or when magnetically stimulated for an electric response. Its properties are of great value in the production of sensors and actuators, in both Bulks and thin films. In the present work, pure and lanthanum doped nanostructured bismuth ferrite (0.1% and 0.5% wt) was synthesized by the base method in water-soluble polymeric precursors. The cations and the water-soluble polymer were dissolved in water and sectioned to obtain a porous material, followed by limestone at temperatures of 400, 450, 500 and 550°C, a heating rate of 5°C / min and a level of 120 Minutes The results obtained after a thermal decomposition were performed for X-ray diffraction, surface area by adsorption and desorption of N₂ by BET method, infrared spectroscopy (FTIR) and microstructural analysis by scanning electron microscopy. From X-ray diffraction, there is a well-crystallized particle presence and, by Scherrer's inference, a presence of nanoparticles (<50nm).

[1] R. Foster, C. Mendes, R. Kiminami, *Advanced Powder Technology*. **27**, (2016) 1056-1061