STUDIES ON THE PHYSICO-CHEMICAL PROPERTIES OF LANTHANUM MANGANITE PREPARED BY DIFFERENT SYNTHESIS METHODS

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Abstract:

Perovskite $LaMnO_3$ and related materials are technologically important for many possible applications due to their unique physical and chemical properties. It is well known that the properties of the materials depend on their synthesis processes, as have been already shown in the literature for a large class of materials [1, 2]. In this work, lanthanum manganite perovskite type materials prepared by ultrasonically method with immersed sonotrode in the reaction medium and sol-gel method, followed by heat treatment at 600°C, 6 h are reported. The as-prepared samples were characterized by X-ray diffraction (XRD), thermal gravimetric analysis (TGA), surface area analysis (BET), scanning / transmission electron microscopy (SEM /HRTEM/EDX), and FT-IR spectroscopy. X-ray diffraction indicates that the synthesized materials are well crystallized, with perovskite structure and without any secondary phases.

Selective references:

[1]. Chen Weifan, Li Fengsheng, Liu Leili, Liu Yang, One- Step Synthesis of Nanocrystalline Perovskite $LaMnO_3$ Powders via Microwave-Induced Solution Combustion Route, Journal of Rare Earths 24 (2006) 782 – 787.

[2]. Kazuyoshi Sato, Jintawat Chaichanawong, Hiroya Abe, Makio Naito, Mechanochemical synthesis of $LaMnO_{3+\delta}$ fine powder assisted with water vapor, Materials Letters 60 (2006) 1399–1402.

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