X-ray diffraction characterization of $Ba_{(x)}Sr_{(1-x)}Co_{(y)}Fe_{(1-y)}O_3$ compound obtained by EDTA-Citrate Method.

E. Bonturim[1,2], R. A. Vargas[1,2], M. Andreoli[1], N. B. de Lima[1,2], E. S. M. Seo[1,2]
[1] *Instituto de Pesquisas Energéticas e Nucleares – IPEN/CNEN, S. Paulo, SP, Brasil*
[2] *Universidade de S. Paulo, S. Paulo, SP, Brasil*

The properties of composite ceramic-based ($Ba_{(x)}Sr_{(1-x)}Co_{(y)}Fe_{(1-y)}O_3$ - BSCF) allow its use as a cathode material for applications in Intermediate Temperature Solid Oxide Fuel Cells (ITSOFC). It is a material with crystalline structure of the pseudo-perovskite (ABX_3), studied, mainly for its properties of thermal expansion, chemical compatibility, reduction activity of the element O_2 and electronic and ionic conduction. The aim of this paper is to present the crystal structure of BSCF characterized by the technique of X-ray diffraction with the Rietveld refinement. The BSCF was synthesized by the EDTA-Citrates method and calcined at 1173 K for 5 h. By this method, it was found the formation of the well-crystalline perovskite structure without the presence of undesirable secondary phases.

Keywords: BSCF, cathode material, ITSOFC, pseudo-perovskite, Rietveld Method.

References:

[1]W. Zhou, R. Ran, Z. Shao, J. Power Sources. Rev. Lett. **192**, 231-246 (2009).
[2]M. Arnold, T. M. Gesing, J. Martynczuk, A. Feldhoff, Chem. Mater. **20**, 5851-5858 (2008).

ebonturim@ipen.br / ebonturim@usp.br
Av. Prof. Lineu Prestes, 2242, Cid. Universitária, S. Paulo, 05508-000, SP, Brazil.
Centro de Ciência e Tecnologia de Materiais - CCTM