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\(^{\text{1}}\)
\(^2\) 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-Citrate 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:**

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