

s6.m20.p5 **Hydrothermal synthesis of BaTiO₃ and BaTi_{0.8}Zr_{0.2}O₃ (pure and doped) fine powders.** A. Thalal, A. Outzourhit, MY A. El Idrissi, My L Hafid, F. Bensamka, *Laboratoire des sciences de matériaux, Faculty of Sciences of Marrakech - Semlalia - Morocco; E-mail: thalal@ucam.ac.ma*

Keywords: Hydrothermal; Perovskites; Ferroelectrics

The classic preparation way of the electronic ceramics is the solid reaction. This method begins to yield the place to chemical preparation techniques that give powders of high purity and an uniform granulation. Barium Titanate ceramics are interesting to study because of their simple structures and the modulation of their properties when we dope them by transition elements. In fact, the substitution of the ion Ti⁴⁺ by Zr⁴⁺ modifies appreciably the dielectric and structural properties of BaTiO₃. In this work, we present a new process of the preparation of BaTiO₃ (BTO) and BaTi_{0.8}Zr_{0.2}O₃ (BZT) (pure and doped with Cu and Sb) by the hydrothermal way. This process permits us to obtain ferroelectric ceramics from cheaper precursory at relatively low temperatures. The analysis of the samples by scanning electron microscopy shows that the obtained powders are spherical grains form perfectly homogeneous (the size of the grains is about 0.2µm). The cell parameters have been determined from X-rays spectrum. The evolution of these parameters related to the synthesis conditions and the thermal processing will be discussed.

s6.m20.p6 **Cyclodextrin inclusion complexes of the local anaesthetics butamben, procaine and disoprofol: PXRD, single crystal X-ray diffraction and thermal analysis.** Sibulelo Vilakazi, Mino R Caira and Susan A Bourne. *Department of Chemistry, University of Cape Town, Rondebosch 7701, South Africa, E-mail: svilakaz@science.uct.ac.za*

Keywords: X-ray structures; Cyclodextrins; Anaesthetics

Powder X-ray diffraction techniques were used to characterize inclusion complexes formed between the local anaesthetics butamben (4-aminobenzoic acid butyl ester), procaine [4-aminobenzoic acid-2-(diethylamino)-ethyl ester], disoprofol (2,6-diisopropylphenol) and the native cyclodextrins (CDs) β-CD and γ-CD. Single crystals of a 1:1 inclusion complex between butamben and permethylated β-CD (TRIMEB) were isolated and the structure determined. X-ray analysis revealed that the guest is included with the ester moiety fully encapsulated in the TRIMEB cavity. However, a major part of the phenylamine residue protrudes from the host primary side, entering the secondary side of a translated TRIMEB molecule to which it hydrogen bonds, both directly [-NH_A...O(host)] and indirectly [-NH_B...O(water)...O(host)]. This unusual mode of guest inclusion is associated with a novel channel-like complex packing arrangement in the monoclinic space group P2₁. The included guest molecule adopts a different conformation from that found in the crystal of the uncomplexed drug.