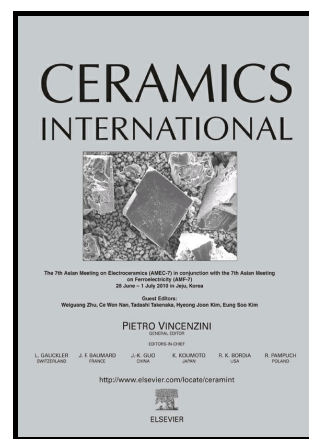


Influence of Secondary Phases on Ferroelectric Properties of $\text{Bi}_{0.5}\text{Na}_{0.5}\text{TiO}_3$ Ceramics

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Abstract

The effects of secondary phases on ferroelectric properties of $\text{Bi}_{0.5}\text{Na}_{0.5}\text{TiO}_3$ (BNT) have been studied. Ceramic powders were prepared by solid state reaction employing different sintering temperatures and characterized by X-ray diffraction (XRD), Scanning Electron Microscopy and impedance spectroscopy. The perovskite structure was detected by XRD; together with small peaks corresponding to a secondary phase assigned to the $\text{Na}_2\text{Ti}_6\text{O}_{13}$ -based phase in calcined powders. In addition, morphology and the content of the secondary phase were modified by the sintering temperatures, affecting the ferroelectric properties, and ac and dc conductivities. We believe that our results can benefit not only the understanding of BNT ceramics, but also expand the range of applications.

Keywords: piezoelectric ceramics, lead-free compositions, ferroelectric properties.

¹ **Author Contributions:** L. Ramajo and A. Prado-Espinosa contributed equally to this work.

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