

The Influence of V_2O_5 Content on Sintering and Dielectric Characteristics

of $Sr_{0.6}Ba_{0.4}Bi_2Ta_2O_9$ Ceramics

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Ferroelectric $Sr_{0.6}Ba_{0.4}Bi_2Ta_{2-x}V_xO_9$ ceramics were combined by solid-state reaction method. Variations of microstructure have been confirmed by scanning electron microscope and X-ray diffraction patterns. The dielectric properties of $Sr_{0.6}Ba_{0.4}Bi_2Ta_{2-x}V_xO_9$ ($x=0, 0.1, \text{ and } 0.2$) also have been investigated particularly. As the sintering temperatures increase, the maximum dielectric constants (revealed at Curie temperatures) will increase at first. After reaching a saturation value at 1100°C , the maximum dielectric constants decrease slightly. The results show that sintering temperatures and V_2O_5 content have great influence on the crystal intensities of $(0,0,l)$ planes, the maximum dielectric constants, and the Curie temperatures of $Sr_{0.6}Ba_{0.4}Bi_2Ta_{2-x}V_xO_9$ ceramics.

Keywords: $Sr_{0.6}Ba_{0.4}Bi_2Ta_{2-x}V_xO_9$, X-ray methods, dielectric properties