

(10-030) - Study of microwave sintering as an alternative to conventional sintering in obtaining of strontium-bismuth tantalate samples

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The strontium-bismuth tantalate is a lead-free Aurivillius-type ferroelectric ceramic which can be obtained by the mixture of oxides. A critical factor is that the use of high temperatures of sintering can significantly change its chemical composition by promoting thermal decomposition due to volatilization of the bismuth. Prior to evaluating its ferroelectric properties is fundamental a control of the relative density, which should be around 95%. This value is only achieved by conventional sintering methods at temperatures around 1250°C. Thus, the microwave sintering method was used to optimize the sintering curve and reduce the effects of stoichiometric loss. The formation of new phases was investigated by the techniques of scanning electron microscopy and X-ray diffraction. Results show a smaller stoichiometric loss in the formation of strontium-bismuth tantalate samples sintered in microwave above 1150°C.
