

Dielectric properties of strontium titanate in the 1 MHz to 1.5 GHz frequency regions

Abstract

Strontium Titanate, SrTiO₃ samples were prepared using the conventional solid state reaction method. SrTiO₃ samples were sintered at 1100°C, 1200°C, and 1300°C. XRD was used to determine the crystalline structure of the samples. The AFM showed the grain size was significantly increased with an increase in sintering temperatures. The dielectric properties of the sample were measured using Agilent 4291B Impedance/material Analyzer in the sub-microwave region in the frequency range 1 MHz to 1.5 GHz at room temperature. The dielectric constant and the average grain size were found to be the highest for the SrTiO₃ sample sintered at 1200°C. Hence, greatest dielectric polarization occurred in the sample with the largest grain size.

Keyword: Strontium titanate; Dielectric properties; Polarization