

Properties of SrTiO₃ ceramics synthesis by Hybrid method

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The SrTiO₃ ceramics were fabricated by sol-gel and solid-state reaction hybrid method. The powders synthesized at the SG:SR molar ratio of 0.1:1 calcined at 950°C for 2 hours were used to prepare the ceramics which were after sintered at 1050, 1150, 1250, and 1350°C. The crystal structures, morphologies and dielectric properties of the ceramics were subsequently characterized. The pure cubic perovskite phase of SrTiO₃ corresponding to JCPDS number 35-0734, was revealed by X-ray diffraction (XRD) in every studied sintering condition. Scanning electron microscope showed the increase in average grain sizes when raising sintering temperatures. The grains were approximately spherical with the sizes ranging from 0.20 to 1.07 μm. The highest dielectric constant, found in the ceramic sintered at 1350°C for 2 hours was 441 (at 1 kHz).

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