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SYNTHESIS AND CHARACTERIZATION OF STRONTIUM DOPED ZINC MANGANESE TITANATE CERAMICS

M. MADDAIAH, A. GURUSAMPATH KUMAR, L. OBULAPATHI & T. SUBBA RAO

Department of Physics, Sri Krishnadevaraya University, Anantapuramu, Andhra Pradesh, India

ABSTRACT

In the present Study, the Strontium doped Zinc Manganese Titanate ($Sr_xZn_{1-x}MnTiO_5$, x=0.1, 0.3, 0.5, 0.7 & 0.9) Ceramics were prepared by conventional solid state reaction route. The raw powders were mixed according to molar ratio and the mixed powders were grained with Ball Mill for 12h. The grained samples were calcined at 1150^oC and sintered at temperature 1250^oC. These samples were characterized by XRD, SEM, and HIOKI 3532-50 LCR Hitester for structural, Micro structural and Dielectric studies respectively. From the XRD studies the structure of the compound were found as Cubic. The SEM with EDAX results shows that the compound well stoichiometric and high porous. The activation energies were increased from 0.78eV-1.25eV with addition of Sr composition. The dielectric constant was increased with temperature and decreased with frequency.

KEYWORDS: Solid State Reaction Route, XRD, SEM, Dielectric Constant, Activation Energy