

Relationships between Sintering Conditions, Microstructure and Dielectric Properties of Lead Zirconate Titanate Ceramics

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Abstract

Lead zirconate titanate, $(\text{Pb}(\text{Zr}_{0.52}\text{Ti}_{0.48})\text{O}_3)$; PZT) ceramics have been produced by sintering PZT powders synthesized from lead oxide (PbO) and zirconium titanate (ZrTiO_4) precursors. As these PZT powders could be prepared in a reproducible manner, attention has been focused on relationships between sintering conditions, phase formation, density, microstructural development and dielectric properties. The optimum sintering conditions have been identified as 1225°C for 4 h with heating/cooling rates of 10°C/min.