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ANALYSIS OF ISOTHERMAL SINTERING OF ZINC-TITANATE DOPED WITH MgO

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The aim of this work was analysis of isothermal sintering of zinc titanate ceramics doped with MgO obtained by mechanical activation. Mixtures of ZnO, TiO₂ and MgO (0, 1.25 and 2.5%) were mechanically activated 15 minutes in a planetary ball mill. The powders obtained were pressed under different pressures and the results were fitted with a phenomenological compacting equation. Isothermal sintering was performed in air for 120 minutes at four different temperatures. Structural characterization of ZnO-TiO₂-MgO system after milling and sintering was performed at room temperature using XRPD measurements. DTA measurements showed different activation energies for pure and doped ZnO-TiO₂ systems. The main conclusions are that doped zinc titanate samples achieve higher densities after sintering and that addition of MgO stabilizes the crystal structure of zinc titanate.