

Sintering behavior of PZT-based prepared by SHS method

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Abstract

In this work, the piezoelectric ceramic systems with composition close to the morphotropic phase boundary(MPB) prepared by SHS method were studied. PZT systems are synthesized corresponding to the formula $Pb(Zr_{0.52}Ti_{0.48})O_3$. SHS(Self-propagating High-temperature Synthesis) is recently developed method which was high temperature reaction to synthesize various materials that are capable of self-propagating reaction. The sintering process using in PZT system is different from other ceramics, because Pb volatilize at high temperature($\geq 800^\circ C$). The sintering method is what is called double crucible method. Lead atmosphere was employed to eliminate the evaporation of PbO during sintering by using compact of PbO and ZrO mixture. Sintering was carried out from 900 to 1250°C for 2hr.