The Influence of Mechanical Activation on Sintering Process of BaCO₃-SrCO₃-TiO₂ System

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Abstract

In this article the influence of mechanical activation on sintering process of barium-strontium-titanate ceramics has been investigated. Both non-activated and mixtures treated in planetary ball mill for 5, 10, 20, 40, 80 and 120 minutes were sintered at 1100-1400 °C for 2 hours in air atmosphere. The influence of mechanical activation on phase composition and crystal structure has been analyzed by XRD, while the effect of activation and sintering process on microstructure was investigated by scanning electron microscopy.

Conclusion

It has been established that temperature of 1100 °C was too low to induce final sintering stage for the system. XRD patterns indicated that almost pure barium-strontium-titanate phase was obtained after sintering process. The most dense samples are obtained after sintering at 1400 °C for 2h, according to SEM.