

## BaTiO<sub>3</sub> - (Bi<sub>0.5</sub>K<sub>0.5</sub>)TiO<sub>3</sub>계 세라믹의 PTC효과와 미세구조

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### Microstructure and PTCR Behavior of Semiconducting

### (1-x)BaTiO<sub>3</sub> - x(Bi<sub>1/2</sub>K<sub>1/2</sub>)TiO<sub>3</sub> Ceramics

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**Abstract :** A positive temperature coefficient of electrical resistivity (PTCR) was investigated in a ferroelectric lead-free perovskite-type compound (Bi<sub>0.5</sub>K<sub>0.5</sub>)TiO<sub>3</sub> within BaTiO<sub>3</sub>-based solid solution ceramics. The electrical properties and the microstructure of (1-x) BaTiO<sub>3</sub> - x (Bi<sub>0.5</sub>K<sub>0.5</sub>)TiO<sub>3</sub> (BBKT) ceramics made using a conventional mixed and have been synthesized by an ordinary sintering technique. The Curie temperature was obviously increased with increasing of (Bi<sub>0.5</sub>K<sub>0.5</sub>)TiO<sub>3</sub> content. The BKT ceramics (x=0.05) sintered at 1400°C for 4h display low resistivity values of 10<sup>1</sup>-10<sup>2</sup> ohm·cm at room temperature, PTCR effect(jump) of 1.05\*10<sup>3</sup>, and the Curie temperature of T<sub>c</sub>=141°C.

**Key Words :** PTC, Thermistor, Lead-free, BKT, Curie temperature