

The effect of additives on the dielectric properties of barium titanate powder prepared by Self-propagating High-temperature Synthesis

Seong Jae Lim*, Ki Seok Yun, H.H. Nersisyan, Hong Han Lee¹ and Chang Whan Won

Engineering Research Center for Rapidly Solidified Materials

Chungnam National University, Daejeon 305-764

¹JC COM CO., LTD.

Barium titanate(BaTiO_3) is one of the most important materials in the electronics industry, particularly because of its high dielectric constant and ferroelectric properties. Barium titanate as a dielectric material for X7R-type (a low dissipation factor of 1.5% or less, temperature coefficient of capacitance less than $\pm 15\%$ deviation over the temperature range of -55 to 125°C) capacitive components find extensive use in electric equipment for data processing, military applications, automotive applications, telecommunications and other applications in which the materials are subjected to substantial changes in temperature, frequency and voltages.

In this study, high purity fine BaTiO_3 powders prepared by SHS (Self-propagating High-temperature Synthesis) were used to manufacture X7R-type ceramics.

We would examine the study of dielectric properties and temperature characteristics with various additives (binder, sintering agent, ion exchanger)