

BESPA[®] Electronic Ceramic Materials

BESPA BT is a next-generation, high-performance barium titanate newly developed by us. Barium titanate has been conventionally used as a major raw material for ceramic capacitors, but the conventional barium titanate does not allow for much smaller and higher-quality capacitors. Thus new products that meet the demands of the times have needed to be developed.

Then, according to a concept completely different from the conventional method of manufacturing barium titanate, we have developed a novel crystallization process, and are conducting the research and development of a high-performance barium titanate (BESPA BT) matching production lines of users.

BESPA BT can make one layer of laminated chip capacitors be thinner, expanding the application of ceramic capacitors.

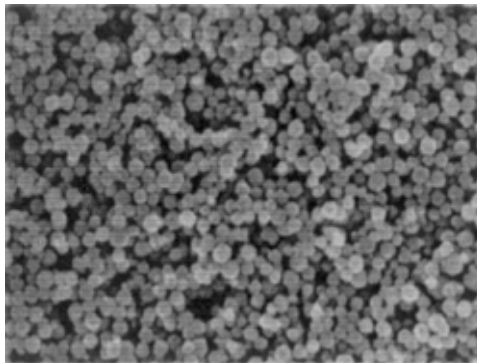


Fig.1 SEM photograph of BESPA BT.

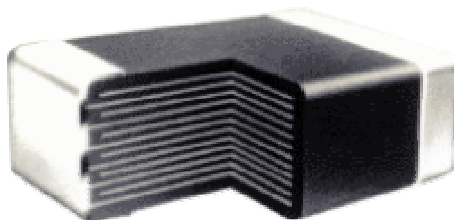


Fig.2 Schematic of a ceramic capacitor.

Important notes

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BESPA[®] BT [Oxalate method barium titanate]

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CAS No. 12047-27-7

BESPA[®] BT is barium titanate (BaTiO₃) synthesized by the oxalate method.

Barium titanate, which has a high dielectric constant, has long been used as a material in capacitors and, in particular, as a dielectric material in multi-layer ceramic capacitors (MLCCs). As MLCCs become smaller, thinner, and of higher capacity, there is a growing demand for the main raw material—barium titanate particles—to be finer, and Nippon Chemical Industrial supplies barium titanate products that meet this demand. We also supply a large particle type, with a diameter of 2.0 μm or greater.

Special characteristics of the oxalate method:

- (1) High stability of Ba/Ti mol ratio
- (2) High-purity
- (3) Narrow Particle size distribution

Table 1 BESPA[®] BT characteristics

Particle size (μm)	0.3	0.6	2
Specific surface area (m ² /g)	5	1.9	0.8
Impurities (ppm)			
Fe ₂ O ₃		20 or less	
Na ₂ O		10 or less	
MgO		10 or less	

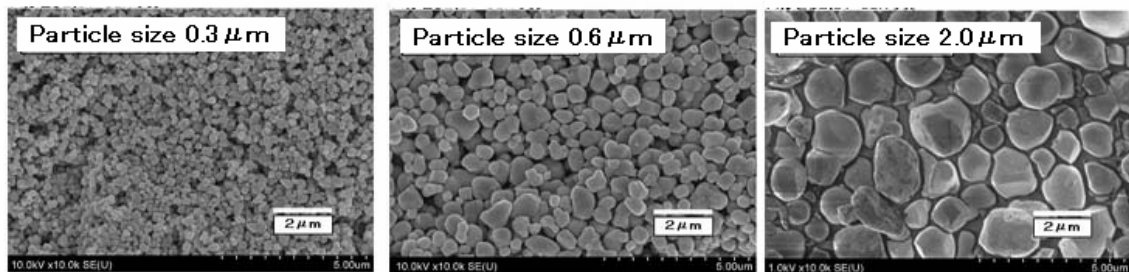


Fig.1 SEM photograph of BESPA BT.

Applications

Dielectric materials for MLCCs

Materials for capacitors

Dielectric fillers

Materials for inorganic EL insulating layers

Additives, etc.

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BESPA® AKBT
[Alkoxide method barium titanate]

BESPA® AKBT [Alkoxide method barium titanate]

CAS No. 12047-27-7

BESPA® AKBT is barium titanate (BaTiO₃) synthesized by the alkoxide method.

Using the alkoxide method, barium titanate particles with different diameters can be synthesized depending on the reaction conditions. The synthesized particles are spherical, with a very sharp particle distribution. Taking advantage of this particle morphology, BESPA® AKBT is used in a variety of applications requiring high dielectric materials.

Table 1 BESPA® AKBT characteristics

Grade	AKBT-S	AKBT-M	AKBT-L
Particle size (μm)	0.15	0.3	0.5
Specific surface area (m ² /g)	12.5	4.5	5
Impurities (ppm)			
Fe ₂ O ₃		20 or less	
Na ₂ O		10 or less	
MgO		10 or less	

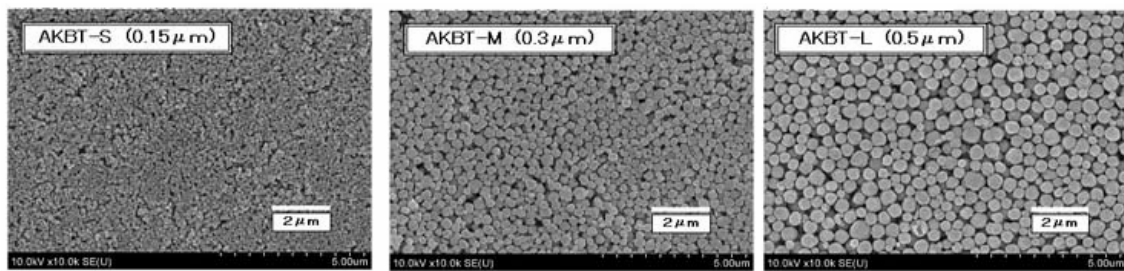


Fig.1 SEM photograph of BESPA AKBT.

Applications

Materials for capacitors

Filler materials

Additives

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