

## Technical Data Sheet

### THICK FILM MATERIALS

Product Type: LTCC Materials

Product Name: 502K08



### LTCC Powder for Tape Casting

#### Description

502K08 is a premixed lead free blue LTCC powder designed for tape application which allows the production of high performance components and multilayer circuits.

502K08 is compatible with binder systems typically used in tape fabrication. In tape form this material is also compatible with Heraeus silver and gold conductor systems

#### Key Benefits

- REACH<sup>1</sup> and ROHS<sup>2</sup> compliant
- Relatively low dielectric loss
- Plating bath resistance, hence, particularly suitable for high performance component manufacture
- In tape form this material is also compatible with Heraeus silver and gold conductor systems
- Free of lead, cadmium, nickel and phthalate

#### Typical Properties (Powder)

Powder Density	3.20 – 3.60 g/cm <sup>3</sup> (Pycnometer in Helium)
Average Particle Size (d <sub>50</sub> )	1.4 – 2.2 µm (Equipment: Helos BA)
Specific Surface Area (BET)	5.5 – 8.0 m <sup>2</sup> /g (Equipment: Gemini)
Pb Element Content <sup>3</sup>	< 40 ppm (ICP analysis method) <sup>4</sup>
Shelf Life	12 months from date of shipment with correct storage (in a dry, cool (5 – 25 °C) and dark place with container tightly shut)

#### Typical Properties (Fired)

Colour <sup>5</sup>	Light Blue
Rel. Diel. Constant K (ε <sub>r</sub> ) <sup>6</sup>	7.7 – 8.7 (1.5 VAC, 1 MHz, 25 °C)
Dissipation Factor (tan δ) <sup>6</sup>	< 0.001 (1.5 VAC, 1 MHz, 25 °C)
Coeff. Of Thermal Expansion <sup>5</sup> (CTE)	c. 5.1 ppm/K (20 – 300 °C)

Compatible Pastes			
Co-fireable	Silver System	Gold System	Mixed Metal
Inner Layer	TC7305*/TC7306A*	TC7102/TC7103	TC7305/TC7306A
Via Fill (inner Via)	TC301A(LPA410-003)/ TC7304A (LPA410-008)	TC7101	TC7301A(LPA410-003)/ TC7304A(LPA410-008)
Via Fill (top Via)	TC301A*/ TC7304A (LPA410-008)*	TC7101	TC7406*
Top Conductor	TC7305/TC7306A	TC7102	TC7102
Ground Plane	TC7305/ TC7303 (LPA410-053)	TC7103	TC7305/ TC7303 (LPA410-053)
Postfireable Solder Mask	GPA2007-26/ GPA2005-68A	GPA2007-26/ GPA2005-68A	GPA2007-26/ GPA2005-68A

\* also suitable for constrained sintering

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Legend:

1) REACH compliant according to the latest \*\* Annex XIV to Regulation (EC) of the European Parliament and of the council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (“REACH”) by European Chemicals Agency and its subsequent amendments; the material does not contain any substance listed in Annex XIV.

2) RoHS compliant according to the latest \*\* Directives (European Union) of Restriction of Hazardous Substances (“RoHS”) and its subsequent amendments (including the exceptions related to Pb)

3) Recipe of raw materials applied entirely lead free

4) Inductively Coupled Plasma

5) Measured on fired tape

6) Measured on discs manufactured according to Test Procedure “TP LTCC 1”

\* See the data sheet issue date (DD/MM/YY) as reference of validity of latest edition which is available on request

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