

Technical Data Sheet

THICK FILM MATERIALS

Product Type: LTCC Materials

Product Name: 51528B



LTCC Powder for Tape Casting

Description

51528 B is a premixed lead free blue LTCC powder designed for tape application which allows the production of high performance components and multilayer circuits.

51528 B 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

- REACH¹ and ROHS² 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	3.10 – 3.50 g/cm ³ (Pycnometer in Helium)
Average Particle Size (d ₅₀)	2.5 – 4.0 µm (Equipment: Helos BA)
Specific Surface Area (BET)	> 3.0 m ² /g (Equipment: Gemini)
Pb Element Content ³	< 40 ppm (ICP analysis method) ⁴
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)

Expected Properties (LTCC Taped Fired)

Colour ⁵	Dark blue
Rel. Diel. Constant K (ε) ⁶	7.5 – 8.5 (1.5 VAC, 1 MHz, 25 °C)
Dissipation Factor (tan δ) ⁶	< 0.005 (1.5 VAC, 1 MHz, 25 °C)
Coeff. Of Thermal Expansion ⁵ (CTE)	c. 5.8 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

Heraeus Electronics
Heraeus Deutschland GmbH & Co. KG
Heraeusstraße 12 – 14
63450 Hanau, Germany
www.heraeus-electronics.com

Americas
Phone +1 610 825 6050
electronics.americas@heraeus.com

China
Phone +86 21 3357 5457
electronics.china@heraeus.com

Asia Pacific
Phone +65 6571 7677
electronics.apac@heraeus.com

Europe, Middle East and Africa
Phone +49 6181 35 3069, +49 6181 35 3627
electronics.emea@heraeus.com