

Conductors

C 4303 GSD

Silver / Palladium Conductor Paste

Description:

C 4303 GSD is a screen printable 2.1:1 Ag/Pd conductor paste which exhibits a high density, high reliability and good fine line resolution.

It fires to a smooth surface and is mechanically durable and chemically resistant. Hence it is a frequently preferred material for e.g. fuel sensors.

Key Benefits

- Excellent conductivity, leach resistance and resistance to silver migration
- Free of cadmium and nickel
- REACH⁴ and RoHS⁵ compliant

Processing

1. Spatulate well prior to processing. When stored in a fridge: The paste should have acquired room temperature before being opened, to avoid condensation.
2. Print through a 200 – 325 mesh stainless steel screen. Total thickness: 50 – 110 µm
3. Level at room temperature for 5 – 10 minutes.
4. Dry at 150°C for 10 – 20 minutes.
5. Fire at 850°C (peak) for 10 minutes, and with a total firing cycle time of c. 30 – 60 minutes.

Thinner

HVS 100
RV 372 (Terpineol)

Typical Properties (Pastes)

Form:	Thixotropic paste
Viscosity:	33 – 43 Pas (25°C, D = 100 s ⁻¹)
Printing Speed:	Up to 20 cm / s
Solids:	81.0 % ± 1.5 %
Coverage:	c. 80 cm ² / g (FFT: 12 µm)
Shelf Life:	12 months from date of shipment with correct storage (in a dry, cool (2 to 23°C) and dark place with container tightly shut)

Typical Properties (Fired)¹

Fired Film Thickness ^{2,3} : (FFT)	9.0 – 13.0 µm
Line Definition:	≥ 125 µm
Resistivity ² :	≤ 45 mΩ / □ (FFT: 12 µm)
Solderability: (62Sn / 36Pb / 2Ag)	Good = ≥ 95% (235°C, 5s dip) (assessment acc. DIN 41850-2 E)
Aged Adhesion: (62Sn / 36Pb / 2Ag)	≥ 20 N (16 hrs, 25°C)
Leach Resistance: (62Sn / 36Pb / 2Ag)	≥ 4 dips (235°C, 10s each)

Compatibility

Overglazes:	IP 9025 Series
Resistors:	R 8900 Series

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- 1 Typical property based on laboratory test methods. For optimum results all materials should be fired in a profiled furnace supplied with dried, hydrocarbon and other contaminant free air (PP-1).
- 2 Measured after printing with a 325 mesh steel screen; thickness of screen and emulsion combined was c. 75 μm , and the resultant printed track was 500 μm wide.
- 3 For application with increased chemical and mechanical wear a fired film thickness of > 10 μm is recommended.
- 4 REACH compliant according to the Commission Regulation (EU) No 143/2011 of 17 February 2011 amending Annex XIV to Regulation (EC) No 1907/2006 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; we define a material as REACH compliant, as long as substances used are not recorded in the Annex XIV.
- 5 RoHS compliant according to the Directives (European Union) No 2011/65/EC of Restriction of Hazardous Substances ("RoHS") and its subsequent amendments (including the exceptions No. 7.c. I of the EU Directive e.g. related to Pb)

The descriptions and engineering data shown here have been compiled by Heraeus using commonly-accepted procedures, in conjunction with modern testing equipment, and have been compiled as according to the latest factual knowledge in our possession. The information was up-to date on the date this document was printed (latest versions can always be supplied upon request). Although the data is considered accurate, we cannot guarantee accuracy, the results obtained from its use, or any patent infringement resulting from its use (unless this is contractually and explicitly agreed in writing, in advance). The data is supplied on the condition that the user shall conduct tests to determine materials suitability for a particular application.

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