

## Conductors

### C 4301 GSD

#### Palladium Alloy Conductor Paste

**Description:**

C 4301 GSD is a Pd alloy conductor paste which exhibits a high density, high reliability and good fine line resolution. C 4301 GSD has a high Pd content to address increased demands by low sulfur fuel applications. The surface of the fired material is very smooth. It is both mechanically and chemically very resistant and is hence frequently a preferred material for e.g. fuel sensors. Conductivity, leach resistance and resistance to silver migration are all extremely good.

**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.

**Properties (Pastes):**

Viscosity:	25 – 50 Pas (25°C, D = 100 s <sup>-1</sup> )
Printing Speed:	Up to at least 20 cm / s
Coverage:	c. 80 cm <sup>2</sup> / g (FFT: 12 µm)
Shelf life:	12 month, with correct storage (5 to 25°C, in a cool, dry, dark place, and with the container tightly shut).

**Properties (Fired) <sup>1</sup>:**

Fired Film Thickness <sup>2</sup> :	8,5 – 13.0 µm
Line Definition:	≥ 125 µm
Resistivity <sup>2</sup> :	≤ 120 mOhms / □ (FFT: 12 µm)
Adhesion: (62Sn / 36Pb / 2Ag)	
Aged: (16 hrs, 25°C)	≥ 20 N
Leach Resistance: (62Sn / 36Pb / 2Ag)	≥ 6 dips (235°C, 10s each)

1 Typical property based on laboratory test methods. For optimum results all materials should be fired in a profiled furnace supplied with dried, hydrocarbon-free and other contaminant-free air (PP-1).

2 Measured after printing with a 325 mesh steel screen; screen thickness and emulsion thickness combined was c. 75 µm, and the resultant printed track was 500 µm wide.

**Thinner:** HVS 100

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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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