

## Conductors

### C 5007

#### Gold Conductor Paste

##### Description

C 5007 is a wire bondable cadmium free gold conductor, containing a mixed bonded Au formulation.

It has been formulated to be resistant to blistering after multiple firings, also when fired together and "on top" of the Heraeus C 2000 nickel free range of Ag / Pd conductors.

##### Key Benefits

- Compatible with the recrystallizable dielectrics, IP 9117 Series
- Excellent aged wire bond adhesion and contact resistivity properties
- Free of cadmium, nickel
- REACH <sup>4</sup> and RoHS <sup>5</sup> 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 screen.
3. Level at room temperature for 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

##### Typical Properties (Paste)

Form:	Thixotropic paste
Viscosity:	30 – 90 Pas (25°C, D = 75 s <sup>-1</sup> )
Printing Speed:	Up to at least 10 cm / s
Coverage:	c. 50 cm <sup>2</sup> / g (FFT: 9 µm)
Shelf Life:	6 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) <sup>1</sup>

Fired Film Thickness <sup>2</sup> : (FFT)	6 – 12 µm
Line Definition <sup>2</sup> :	≥ 100 µm
Resistivity <sup>2</sup> :	≤ 4.5 mOhms / □ (FFT: 12 µm)
Wire Bond Adhesion <sup>3</sup> :	(30 µm Au wire on alumina and IP 9117 series)
	14 cN - Initial 13 cN - 1000hrs/150°C 13 cN - 1000hrs/85°C/85% RH

##### Compatibility

Print No.1:	C 2000 Series Ag / Pd conductors (Ni-free)
Print No.2:	C 5007

The print step No. 1 and 2 can be applied not only on alumina, but also on dielectric IP 9117 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; screen thickness and emulsion thickness combined was c. 75 µm, and the result printed track was 500 µm wide.
- 3 Au wire bonded with a Hughes TSB 460 in Heraeus' labs; other values may depend on various parameters e.g. the bonder, the bonding speed, the wire, the loop lengths, employed etc.
- 4 REACH compliant according to the Annex XIV (Feb. 17, 2011) of Commission Regulation (EU) No 143/2011 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; 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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