

## Conductors

### C 4727 (H)



#### Silver / Platinum (99:1) Conductor

#### Description

C 4727 (H) is a lead, nickel and cadmium free 99:1 silver – platinum conductor, designed for low cost applications. C4727 (H) is a new member of Heraeus' line of lead free conductors.

#### Key Benefits

- Excellent solderability and leach resistance
- Solderable on alumina and HERAEUS dielectrics
- Compatible with HERAEUS resistors
- Excellent initial and aged adhesion, even after multiple firings
- Inner layer for multilayer applications
- Very good conductivity
- Excellent fired film density
- Aluminum and gold wire bondable
- Via-fill "silver"
- Free of lead, cadmium and nickel
- REACH<sup>3</sup> and RoHS<sup>4</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 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 - 12 minutes, and with a total firing cycle time of c. 36 – 60 minutes.

#### Typical Properties (Pastes)

Form:	Thixotropic paste
Viscosity:	20 – 40 Pas (25°C, D = 100 s <sup>-1</sup> )
Solids:	82.5 % ± 1.5 %
Printing Speed:	up to 20 cm / s
Coverage:	c. 80 cm <sup>2</sup> / g (FFT: 12 µm)
Shelf Life:	6 months from date of shipment with correct storage (in a dry, cool (5 to 25°C) and dark place with container tightly shut)

#### Typical Properties (Fired)<sup>1</sup>

Fired Film Thickness <sup>2</sup> : (FFT)	10 – 15 µm
Resistivity <sup>2</sup> :	≤ 3.5 mΩ / □ (FFT: 12 µm)
Solderability: (62Sn / 36Pb / 2Ag)	Good ≥ 95% (235°C, 5s dip) (assessment acc. DIN 41850-2 E)
Aged <sup>2</sup> Adhesion: (62Sn / 36Pb / 2Ag)	≥ 18 N (48 hrs, 150°C)
Leach Resistance: 62Sn / 36Pb / 2Ag:	≥ 4 dips (235 °C, 10s each)
96Sn / 3.5Ag / 0.5Cu:	≥ 5 dips (245 °C, 5s each)

#### Compatibility

Dielectrics:	IP 9117 Series IP 9227
Resistors:	R 8900 / D Series R 400 L Series

Thinner

HVS 100

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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 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.
- 4 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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