

Dielectrics

SD 2000

Cofireable Dielectric Paste for Chromium-Steel (DPIS*)

* **Development Product Information Sheet**

Description:

SD 2000 is a 850°C firing glaze for insulating Cr-steel. It displays the following advantages:

1. Cofiring of insulation, heater, termination and coverglaze in one is possible.
2. No bowing during wet stack process.
3. Excellent green strength.
4. Extremely dense, hermetic film is formed, allowing for an excellent electrical performance.
5. A continuous operation at up to 550°C is possible.
6. May be applied to the following commercial steel types:

<u>German Strd No</u>	<u>DIN-Type</u>	<u>UK / USA</u>
1.4016	X 6 Cr 17	430

7. No steel pre-treatment necessary. Simply remove the protective film, inspect surface for remaining adhesive, and commence printing.
8. Excellent adhesion of heater and termination pastes.

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 165 – 325 mesh stainless steel screen. A double-wet print mode is advised for each layer.
3. Let each print settle at room temperature for 3 -10 minutes.
4. Dry each print at 150°C for 10 minutes.
5. Repeat a.m. Steps 1. – 4. for each individual dielectric layer (a minimum of 3 layers in total is advised).
6. Cofire all layers simultaneously at 850 – 860°C (peak) for 12 – 20 minutes, and with a total firing cycle time of at least 90 minutes (the exact ramp-rate etc. will depend on substrate size).

Properties (Paste):

Form:	Thixotropic paste
Viscosity:	25 – 45 Pas (23°C, D = 33 s ⁻¹)
Coverage:	c. 100 cm ² / g (WFT: 50 µm)
Shelf Life:	12 months, with correct storage (2 to 23°C, in a cool, dry, dark place, and with the container tightly shut)

Properties (Fired):**

Breakdown Voltage ***:	>1500 V AC
Color:	Permanent Blue

** Typical properties 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).

*** 70 µm thickness & 3 layers, all cofired with 1 firing only). Measured after printing with a 165 mesh steel screen. Screen thickness was c. 100 µm.

Thinner : RV 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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