

Product Description

DM-INS-14500 is an insulating dielectric specifically designed for use on austenitic 304 stainless steel. It is screen printed onto the substrate and should be fired in a conveyor furnace in an air oxidizing atmosphere. When fired, the dielectric gives a dense layer and consequently provides excellent breakdown voltage. It is typically used to form an insulating layer in heater applications.

Product Benefits

- Compatible with 304SS substrates
- TCE closely matched to 304 Stainless Steel
- Compatible with overglaze DM-INS-14100

Paste Preparation

Bring paste up to Clean room temperature (20-25°C) by storing in the print area at least 2 hours prior to printing. Before use, the paste should be thoroughly but gently stirred with a non-metal spatula avoiding incorporation of air bubbles. Thinning of the paste is not recommended but for slight adjustments in viscosity, DM-INS-14500-DT may be carefully used.

Properties of Paste

Test	Properties
Viscosity after mixing (Brookfield, Spindle RV-7, 10 rpm, 25.5°C)	100-140 Pa.s
Solids Content	74-78%
Thinner	For slight adjustments in viscosity use DM-INS-14500-DT
Coverage	>120 cm ² /g at 25 µm

Paste Printing Conditions

Parameter	Typical Properties
Substrate for calibration	75mm x 75mm x 1.2 mm thick 304 unoxidized SS
Screen	165 SS with 0 µm emulsion
Flood/Print speed	70 - 150 mm/s
Squeegee type	60 - 80A shore

Paste Processing Conditions

Parameter	Typical Properties
Levelling Time	Allow to level for 5-10 mins
Drying Temperature	140°C
Drying Time	10-15 min
Firing Temperature	850°C peak temperature
Dwell Time at Peak Temperature	Dwell time 10 mins (850°C)
Firing Cycle Time	40-60 mins
Heat Ramp Rate	>50°C/min
Heat Cool Rate	>50°C/min

It is of paramount importance that the air supply to the furnace is clean and dry and free of any contaminants such as oil.

Properties of Fired Paste

Test	Typical Properties
Fired print thickness of 3 layers	$\geq 80 \mu\text{m}$
Insulation Resistance (67 mm diameter dielectric, 50 mm diameter of DM-SIP-14001S overprint, 500V DC, 25°C)	$> 10^9 \Omega$
Breakdown Voltage (67 mm diameter dielectric, 80 μm thickness, 50 mm diameter of DM-SIP-14001S overprint, 25°C)	$> 1500 \text{ V AC}$
Colour	Blue

Storage and shelf-life

The paste shelf-life for an unopened container is 6 months from date of shipment. Avoid introduction of water into the paste. Dycotec Materials cannot assume responsibility for a paste that has not been stored in appropriate conditions or where the

Other Dycotec Compatible Paste Systems

Silver cermet paste DM-SIP-14001 for use as terminations.

Safety and Handling

For safe use of this product, please review relevant safety datasheet (SDS).

For more information, please contact:

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All information reported in the datasheet is for experimental work undertaken in our laboratories and illustrates typical values only. Processing conditions may vary depending on customers' experience and their application requirements and manufacturing process equipment set-up.

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