

## Product Description

DM-INS-14100 is an RoHS compliant insulating dielectric specifically designed for use on Ferritic 430 Stainless Steel grades. 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

- Pb, Cd and Ni free
- Compatible with 430 Stainless Steel substrates
- TCE closely matched to 430 Stainless Steel
- As well as an insulating dielectric DM-INS-14100 may also be used as overglaze

## 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-14100-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	73-77%
Thinner	For slight adjustments in viscosity use DM-INS-14100-DT
Coverage	>120 cm <sup>2</sup> /g at 25 µm

## Paste Printing Conditions

Parameter	Typical Properties
Substrate for calibration	75mm x 75mm x 1.2 mm thick 430-S17 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

## Properties of Fired Paste

Test	Typical Properties
Fired print thickness of 3 layers	≥80 μm
Insulation Resistance (67 mm diameter dielectric, 50 mm diameter of DM-SIP-14001S overprint, 500V DC, 25°C)	>10 <sup>9</sup> Ω
Breakdown Voltage (67 mm diameter dielectric, 80 μm thickness, 50 mm diameter of DM-SIP-14001S overprint, 25°C)	>1800 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 pastes have been contaminated following use.

## 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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