

Product Description

DM-INS-1505 is part of the Dycotec Materials product portfolio developed specifically for In-Mold Electronics (IME) applications. It is a solvent based screen printable insulator used to produce highly robust cross-over structures used in multilayer circuit designs. The paste is compatible with thermoforming processes and over-molding temperatures.

Product Benefits

- High solids content enabling excellent insulation properties with 2-3 printed layers
- Excellent printability with low pin-hole formation
- High breakdown voltage > 30 kV/mm
- High stretchability with no cracking observed after thermoforming
- In-Mold Electronics (IME) use

Paste Preparation

DM-INS-1505 is a single part paste system. The paste should be gently stirred before use avoiding incorporation of air bubbles. Once the paste has been removed from the container for printing, this may introduce contamination. Please do not replace the paste in the container.

Properties of the Uncured Paste

Test	Properties
Viscosity after mixing (Pa.s) (cone and plate 50s ⁻¹ , 20°C)	7-12 - for small adjustments in viscosity use thinner, DM-INS-2505-DT
Colour	White
Density	2.0 g/cm ³
Solids Content	73-78%
Surface Area Coverage (cm ² /g)	252 cm ² /g at 10 µm thickness (325 stainless steel mesh)
Screen Residence Time	>1 hour

Paste Processing Conditions

Parameter	Typical Properties
Deposition Method	Flat bed screen printing: manual & automatic
Substrate	Polycarbonate
Squeegee	80A
Print Speed (mm/s)	70
Screen	P120/31 polyester, 21 µm EOM or 325SS, 23 µm EOM
Print Method	Print and flood, minimum of 2 prints
Curing temperature	80°C
Curing time	10 - 30 mins

Drying method using either a convection oven or IR drier. Drying times should be optimised depending on equipment type. A typical print thickness after cure will be 7-10 µm (P120/31 mesh). A minimum of 2 prints should be used when used to produce cross-over structures (print thickness > 20µm).

Properties of the Cured Paste

Test	Properties
Adhesion (ASTM D3359-02)	5B
Stretch	>50%
Dielectric Constant @1 KHz (ASTM D150)	5.9 (measured at 3 print layer thickness)
Breakdown Voltage (ASTM D150)	>6 kV/mm
Volume Insulation Resistance	>9 x 10 ¹¹ Ω.cm
Surface Insulation Resistance	>1.8 x 10 ¹⁴ Ω.cm
Damp Heat Test (85°C/85%RH) for 1000 hrs	No loss in adhesion or visual changes

Clean-up

Equipment should be cleaned using benzyl alcohol and then wiped dry with IPA.

Storage and Shelf-life

Store at room temperature (10-25°C) with lids tightly sealed. The paste shelf-life for an unopened container is 3 months from date of shipment.

Containers should be stored as specified with lids tightly sealed. We cannot assume responsibility for an ink that has not been stored in appropriate conditions or where the ink has been contaminated following use.

Safety and Handling

For safe use of this product, please review relevant material safety and datasheet (MSDS).

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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