

Product Description

Dycotec DM-SIP-3101S is a nanosilver based screen printable paste that is used for thin film PV, sensors and general printed electronics applications. The paste is compatible with glass and transparent conductive coated glass substrates.

Product Benefits

- High coverage
- Low temperature sintering temperature
- Excellent adhesion
- Excellent electrical conductivity

Paste Preparation

DM-SIP-3101S is a thermoplastic nanosilver based paste system. The paste should be gently stirred before use avoiding incorporation of air bubbles. Any paste removed from its container should be used within 1 hour to ensure consistent deposition. After 1 hour, quality cannot be guaranteed. 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 Uncured Paste

Test	Properties
Viscosity after mixing (Pa.s) (Cone and plate 50s ⁻¹ , 20°C)	6-13
Thinner	For slight adjustments in viscosity, use DM-SIP-3101-DT
Density	2.1 g/cm ³
Coverage	290 cm ² /g at 5-7 μm, 570 cm ² /g at 2 μm
Solids Content	60 - 65 %

Paste Processing Conditions

Parameter	Typical Properties
Deposition Method	Flat bed screen printing: manual or automatic
Substrate	PET, TCO-coated glass, glass
Screen Residence Time	>30 mins
Screen	325 SS, 13 μm emulsion or 460 PET, 3 μm emulsion
Flood speed	30-80 mm/s
Print speed	30-80 mm/s
Squeegee type	80A Shore

The paste can be dried using either a convection oven or using IR heating. Typical drying parameters used are 120-200°C for 20 mins at lower drying temperatures. Drying times may be reduced to achieve the optimum resistivity depending on manufacturing process set-up. Typical print thickness after drying is 5-7 μm.

Properties of Cured Paste

Test	Typical Properties
Sheet Resistance	<8 mΩ/□/mil at 140°C, <5 mΩ/□/mil at 200°C
Volume Resistivity	<20 μΩ.cm at 140°C, <12.5 μΩ.cm at 200°C
Adhesion	5B
Resolution (L/S)	250 μm depending on print deposition set-up

Clean-Up

Equipment can be cleaned using alcohols such as iso-propanol or acetone.

Storage and shelf-life

Containers should be stored in a cool location at a storage temperature between 10-25°C with lids tightly sealed. 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 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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