

Product Description

Dycotec Materials DM-SIP-2005 is a cost effective screen printable silver paste that is used in stretchable applications such as wearable devices, sensors and medical devices. The paste can be applied to elastomeric and textile substrates and has good washability when used with Dycotec's encapsulant pastes. It offers excellent electrical conductivity at low silver loading with maximum elongation of 60%.

Product Benefits

- Low temperature curing temperature (100-140°C)
- Stretchable ~60% and compatible with a wide variety of substrates
- Electrical conductivity (<10 mΩ/□/25μm, 120-140°C)
- Low silver content with high surface coverage (157 cm²/g at 10 μm) ensuring cost effective paste system
- Compatible with Dycotec Materials stretchable encapsulation pastes

Paste Preparation

DM-SIP-2005 is a thermoplastic silver paste system, it is supplied as a single part ready to use ink. Once the paste has been removed from the container for printing, this may introduce contamination. Please do not replace the paste in the container. The paste should be gently stirred before use avoiding incorporation of air bubbles.

Properties of the Uncured Paste

Test	Properties
Viscosity after mixing (Pa.s) (Cone and plate 50s ⁻¹ , 20°C)	5 - 10
Thinner	For slight adjustments in viscosity, use DM-SIP-2005-DT
Coverage	157 cm ² /g at 10 μm
Density	2.0 g/cm
Solids Content	60-65 %

Paste Processing Conditions

Parameter	Typical Properties
Substrate	Textiles, PET, transfer film (for TPU use DM-SIP-2005-PU)
Screen	325 thread per inch stainless steel, 13 μm emulsion
Print speed	70 mm/s
Squeegee type	80A Shore

Typical curing parameters used are 100-140°C for 10 mins. Drying and curing times may be reduced to achieve the optimum resistivity depending on manufacturing process set-up. Line/space resolution of 250 μm can be achieved depending on print set-up.

Properties of the Cured Paste

Test	Properties
Sheet Resistance	<10 mΩ/□/25μm (dry at 120-140°C)
Volume Resistivity	<25 μΩ.cm (dry at 120-140°C)
Adhesion	5B (depending on substrate)
Typical Print Thickness	5-6 μm
Stretchability	up to 60%
Resistivity change after 2 Kg crease test	No increase in resistance (ASTM D3363)

Encapsulation Layers

Please contact Dycotec Materials regarding suitable stretchable encapsulating layers for your application.

Clean-Up

Equipment can be cleaned using benzyl alcohol then wipe dry with isopropanol.

Storage and Shelf-life

For optimum results, the containers should be stored in a fridge (4-7°C) with lids tightly sealed. The paste shelf-life for an unopened container is 6 months from date of shipment. Please ensure the material has time to reach room temperature before use. 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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