

## Product Description

Dycotec Materials DM-SIP-2004 is a 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 excellent washability withstanding up to 50 wash cycles when used with Dycotec's encapsulant pastes.

## Product Benefits

- Low temperature curing temperature (80-200°C)
- Stretchable >20% and compatible with a wide variety of substrates
- Electrical conductivity (<10 mΩ/□/25μm)
- Compatible with Dycotec Materials stretchable encapsulation pastes (DM-INS-2510)

## Paste Preparation

DM-SIP-2004 is a thermoplastic silver paste system. 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 <sup>-1</sup> , 20°C)	5 - 10
Thinner	For slight adjustments in viscosity, use DM-SIP-2004-DT
Coverage	150 cm <sup>2</sup> /g at 10 μm
Density	2.2 g/cm
Solids Content	68-72 %

## Paste Processing Conditions

Parameter	Typical Properties
Substrate	Textiles, PET, transfer film
Screen	325 thread per inch stainless steel, 13 μm emulsion
Print speed	70 mm/s
Squeegee type	80A Shore

Typical curing parameters used are 80-150°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 140°C)
Volume Resistivity	<18 μΩ.cm (dry at 140°C)
Adhesion	5B (depending on substrate)
Typical Print Thickness	8 μm
Stretchability	up to 20%
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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