DM-SIP-2006-PU

DYCOTEC MATERIALS

Product Description

DM-SIP-2006-PU is a cost effective screen printable silver paste that is used in stretchable applications such as wearable devices, sensors and medical devices. It offers exceptional stretchability with maximum elongation of 170% and is cost effective with a low silver content. The paste can be applied to elastomeric and textile substrates and has good washability when used with Dycotec's encapsulant pastes.

Product Benefits

- Low temperature curing temperature (120-140˚C)
- Stretchable 170% and compatible with a wide variety of substrates (>300% when laminated)
- Electrical conductivity (<22 mΩ/□/25µm, 130ºC)
- Low silver content with high surface coverage (205 cm^2/g at 10 µm) ensuring cost effective paste system
- Compatible with Dycotec Materials stretchable encapsulation pastes

Paste Preparation

DM-SIP-2006-PU 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 $50s^{-1}$, 20ºC)	10 - 15
Thinner	For slight adjustments in viscosity, use DM-SIP-2006PU-DT
Coverage	205 cm^2/g at 10 µm
Density	1.8 g/cm
Solids Content	60 - 66 %

Paste Processing Conditions

Parameter	Typical Properties
Substrate	TPU (Platilon U073 used for calibration)
Screen	325 thread per inch stainless steel, 32 µm emulsion
Print speed	100 mm/s
Squeegee type	80A Shore

Typical curing parameters used are 130˚C for 20 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. To maximise elongation, a minimum of 2 silvers should be printed to obtain 15-20 µm dry thickness.

Properties of the Cured Paste

Test	Properties
Sheet Resistance	<22 mΩ/□/25µm (dry at 130˚C)
Volume Resistivity	<55 µΩ.cm (dry at 130˚C)
Adhesion	5B (depending on substrate)
Typical Print Thickness	10-13 µm (325SS, 32 µm emulsion)
Stretchability	up to 170% (>300% when laminated)
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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