

Product Description

DM-SIP-3069 is a single part silver epoxy conductive screen printed paste for biosensor and electrochemical sensor manufacture. The paste can be used on flexible low temperature substrates such as paper and PET. The paste offers excellent robustness and is well suited for use with electrical connectors eg Zero-Insertion-Force (ZIF) sockets. It offers excellent durability and be used for sensors operating in hostile environments eg agriculture and marine farming.

Product Benefits

- Low temperature curing temperature (130-150°C)
- Screen printable high durability thermoset paste
- Good electrical conductivity (<80 mΩ/□/25µm)
- Flexible paste system for use on substrates such as PET and paper

Paste Preparation

The paste is a single part system. Gently stir before use. Avoid rapid stirring to prevent air entrapment during the stirring process. Once the paste has been removed from the container for printing, this may introduce contamination. Please do not put used paste back into the original container.

Properties of the Uncured Paste

Test	Properties
Viscosity after mixing (Pa.s) (Cone and plate 50s ⁻¹ , 20°C)	10 - 20
Thinner (for pot packaging)	For adjustments in viscosity, use DM-SIP-3069-DT
Density	3.82 g/mL
Solids Content	78-82%
Coverage	90 cm ² /g at 19 µm cured thickness
Conductive Filler Type	Silver
Colour	Silver-grey

Paste Processing Conditions

Parameter	Typical Properties
Substrate	PET, Paper
Deposition Method	Flat-bed screen printing
Screen	325 mesh/inch, SS, 30 µm wire diameter, 50 µm aperture
Emulsion Thickness	5 µm
Squeegee Hardness	Shore A 80
Squeegee pressure	6Kg (over 22 cm length with 0.5 mm print gap)
Print Speed	60 - 70 mm/s
Screen Residence Time	>4 hours
Cure Temperature/Time	135°C for 60 mins in a convection oven

Curing times may be reduced to achieve the optimum performance depending on manufacturing process set-up.

Properties of the Cured Paste

Test	Properties
Sheet Resistance	<80 m Ω /□/25 μ m
Volume Resistivity	< 0.0002 Ω -cm
Adhesion (ASTM D3359)	5B
Water Absorption (ASTM D570-98)	<0.7% (24 hour immersion at room temperature)
Flexibility - bend test	No resistance change (40 mm diameter mandrel, 50 cycles)
Weight loss	0.36% (200°C), 0.62% (250°C), 1.96% (300°C)

Clean-Up

Equipment can be cleaned using isopropanol (IPA).

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 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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