DM-SCP-3470S

DYCOTEC MATERIALS

Product Description

DM-SCP-3470S is a screen printable silver:silver chloride (70:30) paste for use as a reference electrode. Applications include electrochemical biosensors such as ion selective membrane (ISM), enzymatic/DNA sensors, pH and immunosensors. For markets such as AgriTech, medical, wearables and environmental sensors. The paste is compatible with low temperature substrates such as PET due to its low processing temperature.

Product Benefits

- Compatible with Dycotec's product biosensor portfolio including; silver, carbon and solid state electrolyte pastes
- Excellent printability with good screen residence times
- Low temperature processing with rapid drying/curing times
- Excellent adhesion to polyester substrates

Paste Preparation

DM-SCP-3470S is a single part paste system. The paste should be gently stirred, avoiding incorporation of air bubbles, with a plastic or coated spatula before use.

Properties of the Uncured Paste

Test	Properties
Viscosity after mixing (Pa·s) (cone and plate $50s^{-1}$, 25˚C)	1 - 10 Pa·s
Colour	Silver
Density	2.5 g /cm^3
Solids Content	70 - 75 %
Silver:Silver Chloride Ratio	70:30
Coverage	150 cm^2/g

Paste Processing Conditions

Parameter	Typical Properties
Substrate	PET: Dupont Melinex, CT, WT PET systems
Deposition Method	Screen Print
Screen	54 mesh/cm, PET, 5µm emulsion, 70µm thread diameter
Squeegee Type	80A Shore
Squeegee Pressure	7kg (220 mm) with 0.75mm print gap
Print Method	Print and flood
Print Process	Flood (70 mm/s) - Print (70 mm/s)
Screen Residence Time	3 hours
Cure Temperature	120-140°C
Cure Time	10 mins
Print Thickness	16 -18 µm (Line Thickness)

The paste can be dried using a convection oven. Processing should be under red light to avoid silver chloride decomposition. We cannot control variation of the use of thermal cure oven at different process / application.

Properties of the Cured Paste

Test	Properties
Sheet Resistance	<60 mΩ/ □/25µm (140°C)
Adhesion (ASTM D3359)	5B
Flexibility (10mm mandrel, 20 cycles)	No open circuits
Crease Test (2Kg, 1 cycle, 10s hold)	No open circuits
Solvent Compatibility	Methanol

Clean-up

Equipment should be cleaned using IPA.

Storage and Shelf-life

Containers should be stored in a fridge (4-8˚C) with lids tightly sealed. The paste shelf-life for an unopened container is 6 months from date of shipment. Containers should be stored as specified with lids tightly sealed. Keep and use in light protected environment. Dark room red lighting will be necessary. We cannot assume responsibility for an ink that has not been stored in appropriate conditions or where the ink has been contaminated following use.

Safety and Handling

For safe use of this product, please review relevant safety and datasheet (SDS).

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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