DM-CAP-4402S

DYCOTEC MATERIALS

Product Description

DM-CAP-4402S is a single part screen printable carbon paste for ion selective electrode in printed biosensor manufacture. The paste is hydrophobic preventing water penetration which can otherwise cause unwanted capacitive effects resulting in sensor inaccuracy. For use with nitrate, potassium, calcium, sodium, magnesium, phosphate, ammonium and chloride ion concentration measurements when suitable ionophores are attached. Applications including; agriculture, marine farming, wearable and water purity sensors.

Product Benefits

- Excellent printability
- Hydrophobic avoiding water layer formation and providing more stable electrode performance
- Carbon/graphene hybrid paste

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 Uncured Paste

Test	Properties
Viscosity (Malvern, cone-plate $50s^{-1}$, 25°C)	50 - 80 Pa.S
Thinner	This should normally not be required. If necessary, use DM-CAP-4402S-DT for slight adjustments in viscosity.
Colour	Black

Paste Processing Conditions

Parameter	Typical Properties
Substrate	PET, Dycotec silver pastes
Screen	325 mesh count / inch SS, 30 µm wire diameter
Emulsion	5 µm
Squeegee hardness	80 Durometer Shore A
Print Mode	Flood/Print
Print/Flood Speed	30 mm/s
Squeegee pressure	8 - 11 kg over 22cm
Print gap	1.5 mm
Screen Residence Time	>3 hr
Number of print processes	1 - 2 dependent on application

Guideline curing parameters are 120˚C for 20 mins in a well ventilated convection oven. Drying times should be optimised for different oven types.

Properties of Cured Paste

Test	Typical Properties
Sheet Resistance (ASTM D257)	80-120 Ω/□/25µm(120°C cure)
Adhesion (ASTM D3359)	5B

Clean-Up

Equipment can be cleaned using alcohols such as IPA or acetone.

Storage and shelf-life

Containers should be stored at room temperature (10 – 20˚C) with lids tightly sealed. The paste shelf-life for an unopened container is 3 months from date of shipment. The material should not be stored at temperature below 0˚C or greater than 25˚C. 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 and safety datasheet (MSDS).

For more information, please contact:

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