DM-CAP-4255S

DYCOTEC MATERIALS

Product Description

DM-CAP-4255S is a single part screen printable thermoset carbon paste that is resistant to solvents such as MEK (Methyl Ethyl Ketone). It offers exceptional levels of hardness(7H) and electrical conductivity(1000Ω/□ ±10% at 15-18µm at 200ºC cure). Typical applications include; polymer thick film circuitry, potentiometers and printed resistors in PCB production.

Product Benefits

- Excellent hardness (7H)
- Excellent resistance to solvents including MEK (Methyl Ethyl Ketone)
- Excellent conductivity (1000Ω/□ ±10% at 15-18µm at 200ºC cure)
- Single part system with excellent printability

Paste Preparation

This single-part paste system should be gently stirred before use, taking care to avoid air entrapment. Do not return dispensed paste to the original container, as this may introduce contamination.

Properties of Uncured Paste

Test	Properties
Viscosity (Malvern, cone-plate $50s^{-1}$, 25ºC)	10-20 Pa·s
Thinner	This should normally not be required. If necessary, use DM-DIL-0200 for slight adjustments in viscosity.
Solids Content	50 - 55 %
Coverage	~460 cm^2/g (17 µm print thickness)
Colour	Black

Paste Processing Conditions

Parameter	Typical Properties
Substrate	FR4
Print Method	Flat bed screen printing
Screen	325 mesh count / inch SS, 15 µm emulsion
Squeegee hardness	80 Durometer Shore A
Print Mode	Flood/Print
Flood Speed	100 mm/s
Print Speed	100 mm/s
Squeegee pressure	6 kg over 22cm
Print gap	2 mm

Pastes should be cured for 200˚C for 2 hours in a well ventilated convection oven. Pastes should be cured to avoid residual solvent entrapment which later outgasses causing adhesion failure or processing errors. Depending on application, extended curing times up to 4 hours may be used which results in reduced TCR.

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Properties of Cured Paste

Test	Typical Properties
Typical Print Thickness (µm)	15 - 18 µm
Sheet Resistance	1000Ω/□ ±10% at 15-18µm at 200ºC cure, 120 Mins
Adhesion (ASTM D3359)	5B
Pencil hardness (ASTM D3363)	7H (FR4)
Temperature Coefficient of Resistance	<500 ppm/ºC (200ºC cure, 120 Mins)

Clean-Up

Equipment can be cleaned using IPA or benzyl alcohol

Storage and shelf-life

Containers should be stored in the fridge (4 – 8˚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. The material should not be stored at temperature below 0˚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 safety 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. More detailed information can be obtained via info@dycotecmaterials.com.

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