

Product Description

Dycotec DM-CAP-4511S is a thermoplastic carbon paste for flat-bed screen printing. The paste allows fast drying at low temperature (120°C for 10 mins) with a sheet resistance of 15 $\Omega/\square/25\mu\text{m}$ capable of printing 100 μm line widths.

Product Benefits

- Print resolution to 100 μm line widths
- Good flexibility
- Low temperature drying
- Compatibility with low temperature substrates such as PET

Paste Preparation

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 replace the paste in the original container and keep the lids tightly sealed with the inner cap after paste transfer to minimise solvent evaporation.

Properties of the Uncured Paste

| Test | Typical Properties |
|--|---|
| Viscosity (Pa.S) (Kinexus Ultra+, Cone & plate, 50s ⁻¹ , 25°C) | 9 - 20 Pa.s |
| Thinner | This should normally not be required. If necessary, use DM-CAP-4500-DT for slight adjustments in viscosity. |
| Coverage | 150 cm ² /g at 9-12 μm dried print thickness |
| Density | 1.2 - 1.3 g/mL |
| Solids Loading | 37.5 - 39.5% (130°C, 30 mins) |

Paste Processing Conditions

| Parameter | Typical Properties |
|-----------------------|---|
| Substrate | PET, glass, printed conductive circuits |
| Deposition Method | Flat-bed screen printing |
| Screen | 180 SS, 13 μm emulsion |
| Flood Speed | 50 mm/s |
| Print Speed | 45 mm/s |
| Squeegee hardness | 70 Durometer Shore A |
| Squeegee angle | 60° |
| Squeegee pressure | 5 Kg at a squeegee length of 22.2 cm |
| Print gap | 0.75 mm |
| Number of strokes | 1 |
| Screen Residence Time | >20 mins |
| Print Resolution | 100 μm |

Print structures should be processed at 120°C in a convection oven for 10 mins

Properties of the Cured Paste

| Test | Properties |
|------------------------------------|---|
| HALT Durability Tests | No resistance change after 1000 hrs tests at 85°C/85% RH |
| Sheet Resistance | <15 $\Omega/\square/25\mu\text{m}$ (120°C) |
| Adhesion | 5B |
| Pencil hardness scale | 2B |
| Flexibility (ASTM F1683, 5 cycles) | No resistance change (40mm diam. tube) >250 μm width |

Clean-Up

Equipment can be cleaned using alcohols such as iso-propanol (IPA).

Storage and Shelf-life

Containers should be stored in a fridge at a temperature between 4-7°C with lids tightly sealed. 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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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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