

## 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  $\mu\text{m}$  line widths.

## Product Benefits

- Print resolution to 100  $\mu\text{m}$  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 <sup>-1</sup> , 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 <sup>2</sup> /g at 9-12 $\mu\text{m}$ 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
Deposition Method	Flat-bed screen printing
Screen	180 SS, 13 $\mu\text{m}$ 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 $\mu\text{m}$

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 Ω/□/25μm (120°C)
Adhesion	5B
Pencil hardness scale	2B
Flexibility (ASTM F1683, 5 cycles)	No resistance change (40mm diam. tube) >250μm width

## Clean-Up

Equipment can be cleaned using alcohols such as iso-propanol or acetone.

## Storage and Shelf-life

Containers should be stored at room temperature (10 – 25°C) with lids tightly sealed. The material should not be stirred 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 safety and datasheet (MSDS).

For more information, please contact:

Dycotec Materials Ltd  
Unit 6, Stanier Road  
Porte Marsh Industrial Estate  
Calne, Wiltshire, SN119PX, UK  
Email: [Info@dycotecmaterials.com](mailto:Info@dycotecmaterials.com)  
Tel: +44 (0)1793 422598  
[www.dycotecmaterials.com](http://www.dycotecmaterials.com)

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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