DM-CAP-2101SPU

DYCOTEC MATERIALS

Product Description

DM-CAP-2101SPU is a screen printable carbon paste that is used in stretchable applications such as wearable devices, sensors, heaters and medical devices. The paste enables stretchability >150% and has a sheet resistance of ~60 Ω/□/25µm. It is designed for use on TPU substrates. Biocompatibility tested to ISO 10993-5 standards for skin-contact applications

Product Benefits

- Low temperature curing temperature (130˚C)
- Stretchable >150% and compatible with a wide variety of substrates
- Good electrical conductivity (60 Ω/□/25µm)
- Compatible with Dycotec Materials stretchable encapsulation pastes

Paste Preparation

DM-CAP-2101SPU is a thermoplastic carbon paste system. Once the paste has been removed from the container for printing, this may introduce contamination. Please do not replace the paste in the container. The paste should be gently stirred before use avoiding incorporation of air bubbles.

Properties of the Uncured Paste

Test	Properties
Viscosity after mixing (Pa.s) (Cone and plate $50s^{-1}$, 20°C)	5 - 10
Thinner	For adjustments in viscosity, use DM-CAP-2101SPU-DT
Deposition	Flat-bed screen printing: manual and automatic
Solids Content	31-35 %
Density	1.1 g/cm^3

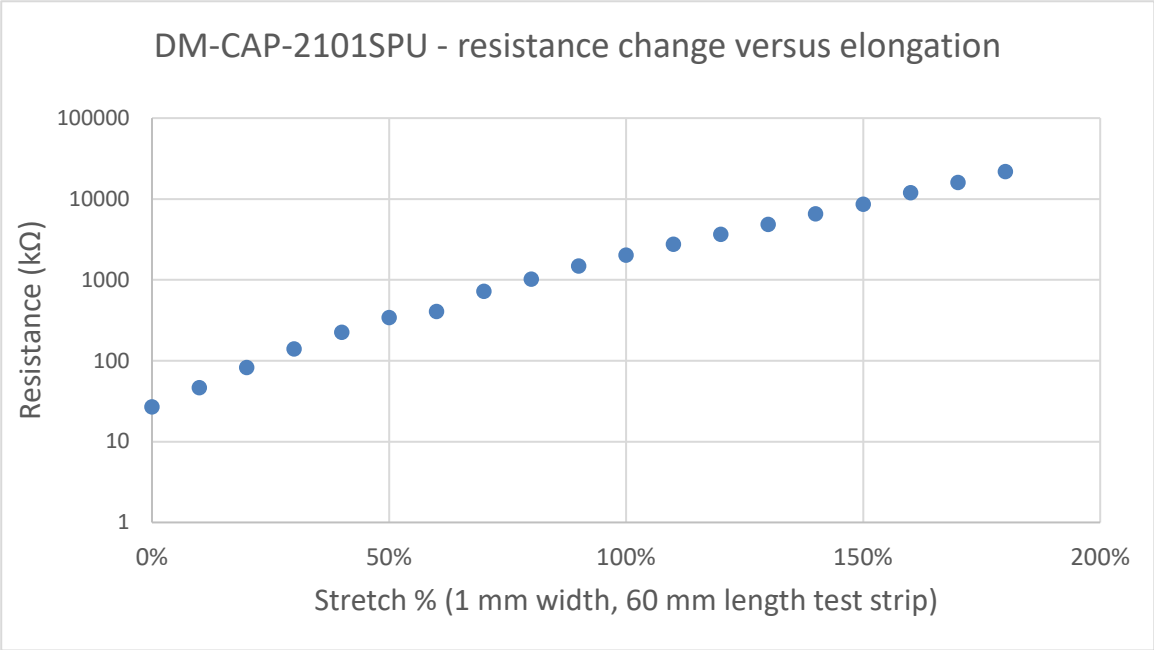
Paste Processing Conditions

Parameter	Typical Properties
Substrate	TPU
Screen	180 thread per inch stainless steel, 13 µm emulsion
Print speed	70 mm/s
Squeegee Type	80A Shore
Area Coverage	214 cm^2/g at 10 µm thickness

Pastes should be cured in an IR or convection oven. Typical curing parameters used are 130˚C for 20 mins. Curing times may be reduced depending on manufacturing process set-up.

Properties of the Cured Paste

Test	Properties
Sheet Resistance	60 Ω/□/25µm (dry at 130˚C)
Adhesion	5B (depending on substrate)
Typical Print Thickness	7-8 µm
Stretchability	>150% (design dependent)



Encapsulation Layers

Please contact Dycotec Materials regarding suitable stretchable encapsulating layers for your application.

Clean-Up

Equipment can be cleaned using benzyl alcohol then wipe dry with isopropanol.

Storage and Shelf-life

For optimum results, the containers should be stored at room temperature 10-25°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. Avoid introduction of water into the paste. 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.

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