

## Product Description

DM-CAP-2101S 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 >200% and has a sheet resistance of  $\sim 60 \Omega/\square/25\mu\text{m}$ .

## Product Benefits

- Low temperature curing temperature (130°C)
- Stretchable >200% and compatible with a wide variety of substrates
- Good electrical conductivity ( $60 \Omega/\square/25\mu\text{m}$ )
- Compatible with Dycotec Materials stretchable encapsulation pastes

## Paste Preparation

DM-CAP-2101S 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 <sup>-1</sup> , 20°C)	5 - 10
Thinner	For slight adjustments in viscosity, use DM-CAP-2101S-DT
Deposition	Flat-bed screen printing: manual and automatic
Solids Content	29-34 %
Density	1.1 g/cm <sup>3</sup>

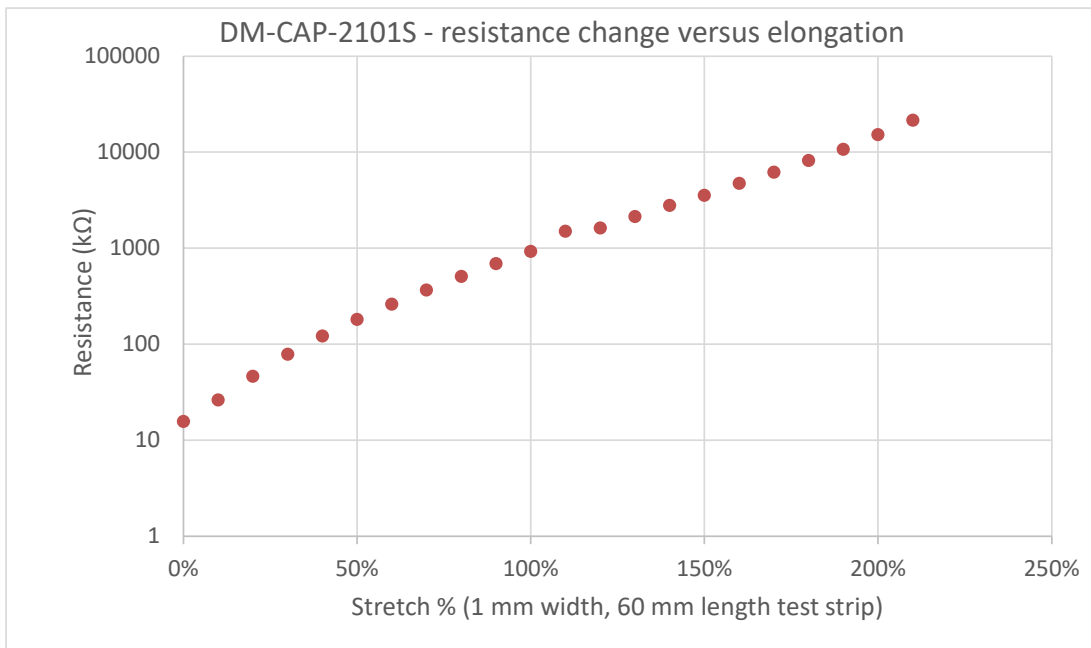
## Paste Processing Conditions

Parameter	Typical Properties
Substrate	Textiles, PET
Screen	180 thread per inch stainless steel, 13 $\mu\text{m}$ emulsion
Print speed	70 mm/s
Squeegee type	80A Shore
Area Coverage	213 cm <sup>2</sup> /g at 10 $\mu\text{m}$ 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	$60 \Omega/\square/25\mu\text{m}$ (dry at 130°C)
Adhesion	5B (depending on substrate)
Typical Print Thickness	8-9 $\mu\text{m}$
Stretchability	>200% (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 material safety and datasheet (MSDS).

For more information, please contact:

Dycotec Materials Ltd  
Unit 6, Stanier Road  
Porte Marsh Industrial Estate  
Calne, Wiltshire  
SN3 9PX UK  
Email: [info@dycotecmaterials.com](mailto:info@dycotecmaterials.com)  
Tel: +44 (0)1793 422596  
[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.

Note: The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, Dycotec Materials specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale of use of Dycotec Material's products. Dycotec Materials specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits. The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any Dycotec Material patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one of or more UK or foreign patents or patent applications.