

## Product Description

DM-SIP-3450S is a screen printable silver : silver chloride (60:40) paste for use as an electrode material in applications such as medical, Agriculture, wearables, pH and Ion Selective Electrode (ISE) systems. The paste is compatible with low temperature substrates such as PET due to its low curing temperature (140°C).

## Product Benefits

- Compatible with Dycotec's product biosensor portfolio including; silver, carbon and reference electrode pastes
- Low temperature processing with fast drying
- Excellent adhesion
- High solids content enabling thick layer printing for electrodes to enable extended lifetime

## Paste Preparation

DM-SIP-3450S is a single part paste system. Gently stir before use, avoiding introduction of air bubbles. Once the paste has been removed from the container for printing, this may introduce contamination. Please do not replace the paste in the container.

## Properties of Uncured Paste

Test	Properties
Viscosity after mixing (Pa.s) (Cone & plate, 50s <sup>-1</sup> , 20°C)	4 - 15
Thinner	For slight adjustments in viscosity use DM-SIP-3450-DT
Solids Content	78 - 82 %
Colour	Silver
Silver : Silver Chloride ratio	6 : 4

## Paste Processing Conditions

Parameter	Typical Properties
Substrate	PET, Paper
Screen	54 threads/cm, PET, 5µm emulsion, 70µm thread diameter
Print Method	Print - Flood
Print process	Flood (30 mm/s) - Print (30 mm/s)
Squeegee type	80A Shore
Screen Residence Time	>1 hour
Squeegee type	80A
Squeegee Pressure	8 Kg (over 22cm length) with 1.5 mm print gap

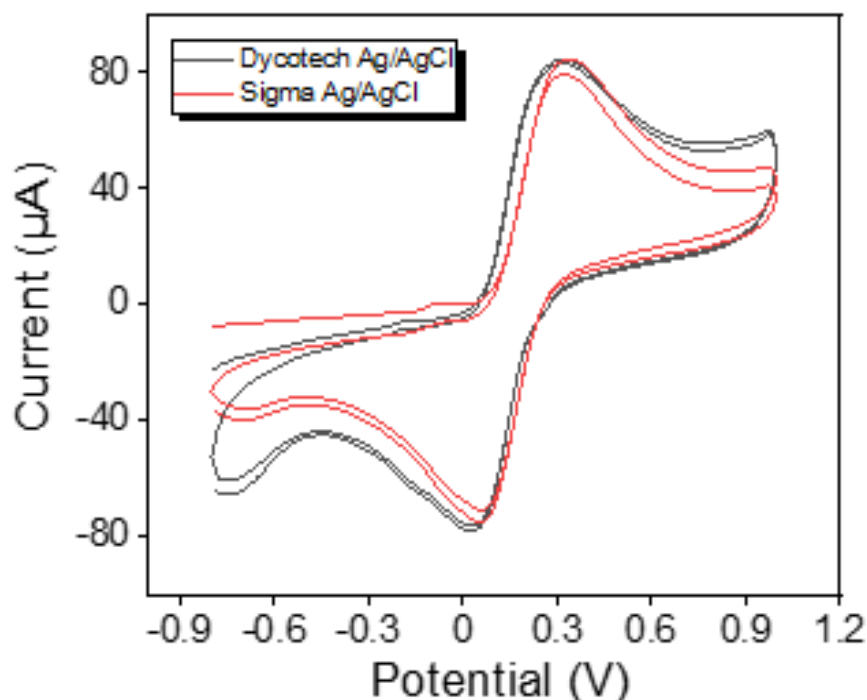
The paste can be dried using a convection oven. Processing should be under red light to avoid silver chloride decomposition. Typical drying parameters are 140°C for 15-30 mins. Drying times may be reduced to achieve the optimum performance depending on manufacturing process set-up.

## Properties of Cured Paste

Test	Typical Properties
Volume Resistivity	370 µΩ.cm (140°C cure temperature, 30 mins)
Adhesion	5B
Resolution (L/S)	250 µm

## Cyclic Voltammogram

Equipment Initial (9V) = -0.8V, Final = -0.8V, High E=1 V, scan rate = 0.1 V/s, Sample Interval rate = 0.1 V



## Clean-Up

Equipment can be cleaned using propylene glycol methyl ether acetate.

## Storage and shelf-life

Containers should be stored in a fridge (4-7°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 and safety 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. More detailed information can be obtained via [info@dycotecmaterials.com](mailto:info@dycotecmaterials.com). 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 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 Materials' 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 licence under any Dycotec Materials' 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 or more UK or foreign patents or patent applications.

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