

Product Description

DM-SIJ-3206 is a nanosilver inkjet printable ink that is used for printed electronics applications such as industrial, consumer, automotive and smart packaging applications. The ink offers excellent electrical conductivity on plastic, glass, TCO-coated, plastic and paper substrates.

Product Benefits

- Excellent electrical conductivity 3 - 7 mΩ/□/25μm (depending on sintering process temperature)
- Low temperature sintering (110°C-200°C)
- Excellent adhesion (ASTM D3350, no material removed)

Ink Preparation

Ultrasound treatment for 30-45 min (eg 70 W, 40 kHz) is recommended before filling the printhead. It is recommended to use a dedicated flushing solution, DM-CLN-3000 before filling and for cleaning the printhead.

Properties of Uncured Ink

Test	Properties
Viscosity after mixing (Malvern Kinexus Ultra+, Cone and plate 1000s ⁻¹ , 25°C)	15 - 19 cP
Mean Particle size	~100 nm
Density	1.2-1.4 g/cm ³
Surface Tension	35 - 40 mN/m
Solids Content	18 - 20 %

Ink Processing Conditions

Parameter	Typical Properties
Substrate	Soda lime glass, ITO-glass, ITO-PET, PET, PI, PEEK, PEN
Deposition Method	Inkjet
Printhead Compatibility	KM1024i SHE/MHE/LHE, Q-class Sapphire, Dimatix DMC, Dimatix SE-128AA
Printhead Temperature	25 - 40°C
Substrate Temperature	25 - 60°C
Flushing Solution - Filling Printhead	Rinse the system with flushing solution, DM-CLN-3000 Fill the system with inkjet ink
Flushing Solution - Printhead Clean	Purge all ink from system (tank, tubes and printhead) Rinse the system with flushing solution DM-CLN-3000

The ink can be sintered immediately after printing in a temperature range from 110-200°C. Higher temperatures and/or longer times will result in lower sheet resistance. To optimise film formation, it is advisable to remove solvent from the layer by drying at 80°C for 10-15 mins before increasing temperature for sintering in a convection or IR oven.

The above drying and curing conditions are guidelines. Time and temperature conditions may vary based on the customer's experience and application requirements as well as the customer's drying equipment, oven loading and actual oven temperatures.

Properties of Cured Ink

Test	Typical Properties
Sheet Resistance	3 m Ω /□/25 μ m (200°C), 7 m Ω /□/25 μ m (150°C)
Volume Resistivity	8 $\mu\Omega$.cm (200°C), 18 $\mu\Omega$.cm (150°C)
Adhesion (ASTM D3350)	5B
Print Resolution (Track and Gap)	150 μ m
Typical Dry Film Thickness	1-2 μ m depending on print deposition setup

Clean-Up

Equipment can be conditioned or cleaned using DM-CLN-3000.

Storage and Shelf-life

Containers should be stored in a fridge at a storage temperature between 4 -7°C with lids tightly sealed. The ink shelf-life for an unopened container is 12 months from manufacturing date. Dycotec Materials cannot assume responsibility for an ink that has not been stored in appropriate conditions or where the ink 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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