

Product Description

DM-SIJ-3204 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 and paper substrates.

Product Benefits

- Excellent electrical conductivity (0.05 - 0.1 Ω/\square)
- Low temperature sintering (110°C-170°C)
- Excellent adhesion (ISO 2409, no material removed)

Ink Preparation

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

Properties of Uncured Ink

Test	Properties
Viscosity after mixing (Cone and plate 1000s ⁻¹ , 25°C)	10 - 18 cP
Mean Particle size	~100 nm
Density	1.2-1.4 g/cm ³
Surface Tension	38 - 42 mN/m
Solids Content	18 - 22 %

Ink Processing Conditions

Parameter	Typical Properties
Substrate	Plastic, Paper
Deposition Method	Inkjet
Print Head Compatibility	KM1024i SHE/MHE/LHE, Q-class Sapphire, Dimatix DMC
Print Head Temperature	25 - 35°C
Substrate Temperature	25 - 60°C
Flushing Solution - filling print head	Rinse the system (tank,tubes and print head) with ethanol Rinse the system with flushing solution, DM-CLN-3000 Fill the system with inkjet ink
Flushing Solution - print head clean	Purge all ink from system (tank, tubes and print head) Rinse the system with flushing solution DM-CLN-3000 Rinse the system with ethanol

The ink can be sintered immediately after printing in a temperature range from 110-170°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.

Properties of Cured Ink

Test	Typical Properties
Substrate used for material qualification	PowderCoat HD1
Sheet Resistance	50 - 100 mΩ/□
Adhesion (ISO 2409)	0 - 1 (cross hatch test, no material removal)
Print Resolution (Track and Gap)	150 μm
Typical Dry Film Thickness	1-2 μm depending on print deposition set-up

Clean-Up

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

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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