



Applied Nanotech, Inc.

a PEN Inc company

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Ni-OC70 NanoNickel Ink

Ni-OC70 is a version of our copper nanoparticle ink and is designed for Aerosol jet Printing. Ni-OC70 can be printed by aerosol jet techniques and sintered to form conductive patterns on flexible substrate materials such as polyimide, and certain coated papers. The patterned Nickel ink can be photosintered in atmosphere onto polymeric substrates to achieve highly conductive Ni traces. 60% Ni loading.

Typical properties

Part number	Cu-OC70
Particle Size	20-100 nm
Resistivity	20-50 $\mu\Omega$-cm
Solid Content	60 wt%*
Viscosity	100-200 cP**
Solvent	IPA-based

* Available from 60 wt%

** Measured at 10rpm and 25C with Brookfield LV-I+ viscometer



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Application Notes: Ni-OC70 NanoNickel Ink

Description

ANI's Ni-OC70 is a solvent-based version of our Nickel nanoparticle ink and is designed for aerosol jet printing. Ni-OC70 can be printed by aerosol jet techniques and sintered to form conductive patterns on flexible substrate materials such as polyimide, and certain coated papers. 60% Ni loading..

Storage and Shelf Life

Ni-OC70 ink should be stored in a tightly sealed, leak-proof container at 3-10°C. Do not store at 0°C or below. Ni-OC70 can be stored up to 3 months.

Safety and Handling

When working with Ni-OC70 ink, use adequate ventilation and wear appropriate protective gear. Ni-OC70 can cause eye and skin irritation. The following precautions should be taken when handling Ni-OC70 ink:

- Read the Material Safety Data Sheet (MSDS)
- Avoid prolonged breathing of vapor
- Use appropriate safety equipment such as gloves and eye protection
- Wash hands thoroughly after handling
- Keep the Ink container closed when not in use to prevent drying and spilling

Pre-processing

- Soft-settling is expected with Ni-OC70 ink. The Ni-OC70 ink requires manual agitation (mix or stir) followed by sonication for 15 minutes.

Printing

- Printing has been demonstrated using aerosolized jet, and wire rod drawdown. Conditions will vary based on technique and substrate.

Drying

- Printed ink can be dried at room temperature for <30 minutes in ambient atmosphere.

Sintering

- Ni-OC70 ink on polyimide can be photosintered using a xenon arc-discharge lamp system. Conditions will vary based on substrate.
- Ni-OC70 ink can be thermal sintered at temperatures >450°C in a reducing atmosphere ($H_2 = 4\%$ in N_2) for 20 minutes.

Clean-up

- Follow appropriate cleaning procedures for equipment used to dispense Ni-OC70 ink. Excess ink can be removed with ethanol, IPA, or acetone.

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Processing Procedures