



Applied Nanotech, Inc.

a PEN Inc company

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Cu-PS70

Nanocopper Paste

ANI's Cu-PS70 is a copper paste that can be used to create high conductivity patterns for applications in the printed electronics industry. Cu-PS70 is printed and thermally sintered to form conductive patterns on substrates such as Kapton and ceramics. The small particle size enables the option of using a photosintering processes to cure the paste using a high intensity arc-discharge light source.

Typical properties

Part number	Cu-PS70
Particle Size	40-100 nm
Resistivity	7-60 $\mu\Omega$-cm
Solid Content	60 wt%
Viscosity	30,000-40,000 cP*
Solvent	Organic

- Measured at 12 rpm and 25C with Brookfield LV-I+ viscometer



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Application Notes: Cu-PS70 Nanocopper Paste

Description

ANI's Cu-PS70 is a copper nanoparticle paste suitable for patterning highly conductive lines for applications in the printable electronics and PCB industry. Cu-PS70 provides excellent electrical properties on silicon, and polyimide substrates. Cu-PS70 is an excellent replacement for silver based conductors.

Storage and Shelf Life

Cu-PS70 paste should be stored in a tightly sealed, leak-proof container at 3-10°C. Storage in freezers is not recommended. Cu-PS70 may be stored for up to 6 months.

Safety and Handling

When working with Cu-PS70 paste, use adequate ventilation and wear appropriate protective gear. Cu-PS70 can cause eye and skin irritation. The following precautions should be taken when handling Cu-PS70 paste:

- 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 paste container closed when not in use to prevent drying and spilling

Processing Procedures

Pre-processing

- Equilibrate to room temperature.
- A mixing process is recommended to obtain homogeneous paste before use.

Printing

- Printing has been demonstrated using screen print, flexographic, and gravure techniques. Conditions will vary based on substrate and technique.

Drying

- Printed paste on substrate can be dried at 100°C for 30 minutes in ambient atmosphere.

Sintering

- Cu-PS70 paste can be thermal sintered at temperatures >425°C in a reducing atmosphere (H₂ = 4% in N₂) for 45 minutes.
- Cu-PS70 paste <5µm thickness on polyimide can be photosintered using a xenon arc-discharge lamp system.

Clean-up

- Follow appropriate cleaning procedures for equipment used to dispense Cu-PS70 paste. Excess ink can be removed with acetone or IPA.

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