DANISH TECHNOLOGICAL INSTITUTE

DTI Cu-Ink – Technical Data Sheet (TDS)

Product description:

DTI Cu-Ink is a versatile water-soluble ink for screen printing conductive tracks and soldable areas on primarily coated PET and polycarbonate substrates. The viscosity is easy to adjust (just add propylene glycol or similar) and easy to clean from the screen.

Compliance:

- Suitable for conductive thin layer printing (screen printing).
- Environmentally optimized formulation using food-grade binder as solvent.
- Strong adhesion to substrates through either heat pressing or flash sintering.

Min. 100 g sample delivery with 2 weeks lead time.

Properties	Values
Resistivity:	10 mΩ/□/mil on coated PET (for 120T mesh).
Adhesion:	0-1 (ISO 2409, TQC Sheen Adhesion Test) / 4B-5B (ASTM D3359-22 B - 3M 610 Tape) on coated PET.
Particle size:	ca. 0.5-2 µm (SEM).
Ink Density:	3.3 g/ml
Viscosity (no thinning):	181.500 cP at 0.1 s^{-1} @ 25 °C (Kinexus, Malvern)
Sheer thinning:	50.000 cP at 1 s^{-1} @ 25 °C (Kinexus, Malvern)
Ink Composition:	Copper nano/µ-materials (70-80 wt%), food-grade binders, and polyols.

Screen Printing	Values
Preparation:	Mix paste with water (if needed) to optimize ink viscosity and print.
Screen printing:	Screen printing (Mesh 100-120), slot die coating and doctor blading is also possible.
Thinner:	Propylene glycol and similar solvents.
Average layer thickness for a single pass:	6-10 µm (120T mesh)
Curing method:	Thermal - 180 s at 80 °C. Right after printing.
Sintering:	Heat pressing (180 °C for 120 s) with non-stick layer between print and press (e.g. baking paper). Ca. 1 bar on an area of 25 x 50 cm. Within 1 day after curing.
Storage:	Container should be stored tightly sealed (-18 °C). Let it slowly heat up and stir before use. Lifetime > 6 months.
Clean-up:	Water or MEK (dried ink).

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