

Metalon® Conductive Inks for Printed Electronics

www.novacentrix.com

Metalon® PFI-500 Conductive Silver Flexographic Ink

Product Description

PFI-500 is a water-based, silver nanoparticle flexographic ink which is designed for handheld proofers and other flexographic proofing tools. However, it may also be printed on other types of flexographic tools which include flexographic presses. This fast-curing ink produces cured features with good electrical conductivity, low surface roughness, and good adhesion on a wide range of plastics and papers. PFI-500 may be used in antenna, RFID, and flexible solar cell applications.

Key Benefits

- Easily used with flexographic proofing tools
- Fast curing at low temperatures enables roll-to-roll processing
- Good electrical conductivity at thin cured film thicknesses for materials cost savings
- Excellent adhesion on treated polyester, polyimide, polycarbonate, and polyurethane
- Good flexibility and crease resistance
- Good water and alcohol resistance
- Minimal volatile organic compounds (VOCs)
- Easy clean-up with a solution of particle-free detergent and water

Typical Ink Properties

Silver content (wt. %)	50 (± 2)
Density (wet)	1.8 - 2.0 g / mL
Viscosity @ 10 s ⁻¹	300 - 800 cP
Viscosity @ 1000 s ⁻¹	200 - 400 cP
pH	5.88 to 5.94
Volume resistivity ¹	5.5 to 6.5 μΩcm
Sheet resistance at 1 mil ¹	2.2 to 2.6 mΩ / square
Printed sheet resistance	100 to 500 mΩ / square (anilox-dependent)
Wet ink coverage per kg	100 to 1100 m ² (for 13.5 to 1.2 BCM)
Shelf life with refrigeration	> 8 months (unopened container)

¹The theoretical wet ink thickness for all prints was 51 μm. All prints were cured in a convection oven at 140°C (except on polycarbonate).

Some recommended Flexographic Print Plates / Cliches for different applications

- Miraclon's Kodak Flexcel NXH
- Dupont™ Cyrel® Dfq
- Dupont™ Cyrel® DPR
- Dupont™ Cyrel® Esko Pixel+
- Asahi Kasei's AFP™-TOP



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Some recommended On-press Curing Tools

- PulseForge® tools (<https://pulseforge.com/>)
- Near-IR (infrared) heaters
- Forced-air drying ovens

General On-press Requirements to achieve consistent printing and Clean-up Solution Composition

- On-press ink pH adjustment
- Applied “spot” humidification between anilox and print plate cylinder
- Clean-up solution is 1 part per volume of a particle-free detergent and 19 to 20 parts per volume of deionized water

For more information about this ink, please contact us at info@novacentrix.com