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Innovative Chemistry For High-Tech Applications

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AG-594

SILVER FILLED ELECTRICALLY CONDUCTIVE FLEXO PRINTABLE INK

AG-594 is a unique, electrically conductive silver filled ink designed for high speed gravure or flexo printing processes for flex circuit, RFID and cell phone antenna, EEG/EKG/Blood Glucose disposable sensors and other additive circuit applications. AG-594 is formulated to provide fast drying for increased line speeds. The unique morphology of the silver filler used in AG-594 allows for extremely thin print patterns with excellent edge definition, with optimized point to point conductivity on printed traces. AG-594 is tough, scuff resistant and has excellent adhesion to most metal surfaces as well as polyester, polyimide and polycarbonate films. Crease resistance of AG-594 is outstanding when used on these substrates. AG-594 can be thinned with solvent for spraying or dipping for EMI/RFI shielding applications. AG-594 can also be printed as thin base layers for plating processes.

AG-594 is compatible with our UV curable dielectrics, silver chloride inks, conductive epoxy adhesives, UV curable component encapsulants and conformal coatings.

TYPICAL PROPERTIES

Appearance	Thick Silver Colored Paste
Viscosity	
Brookfield #5 spindle, 20 rpm	5,000 cps
Thixotropic Ratio	1.8
Drying Time	15 to 60 Seconds @ 130°C (Depending Upon Air Flow and Print Thickness)
Total % NV Solids	65% +/- 2%
Hegman Gage	<15.0 μ
Volume Resistivity (ref. ASTM D-257)	$8.0 \times 10^{-4} \Omega\text{-cm}$
Surface Resistivity (.001" Film)	< .050 Ω/Square When Fully Dried
Theoretical Coverage (Dried Film)	41m ² /gallon/25μ (440 ft ² /gallon/mil)

MORE INFORMATION ON REVERSE SIDE OF SHEET

Although the above properties are accurate to the best of our knowledge, Conductive Compounds, Inc. makes no guarantees for customer specifications established in applications where this product is used. Customer assumes responsibility for determining fitness of use in their particular application.

AG-594
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FLEXO PRINTABLE INK

APPLICATION GUIDELINES

AG-594 will thicken and settle when it is stored in sealed containers over a period of time. It is essential to mix the material thoroughly before use to re-disperse any settled silver particles and to return the ink to a more desirable viscosity.

AG-594 can be applied using rotogravure or flexographic printing methods. As a starting point for printing, typical anilox rolls are 120 line 14 bcm quad ruled, 140 lined 12 bcm trihelic or up to 200 line 15 bcm rolls. Typical wet film thicknesses of 8 to 14 microns are possible with one pass. Dry film thicknesses as thin as 5 to 6 microns are possible. If thicker wet film and dry film transfers are required, try using textured or half toned flexographic transfer plates.

For thinning and cleanup, use 1-methoxy-2-propanol acetate (PM acetate) or carbitol acetate solvents. If faster drying time is required, contact Conductive Compounds, Inc. for solvent recommendations. If solvent based inks are left exposed in wells or open containers for long periods of time, the ink will gradually thicken as solvent evaporates. If ink is to be left on an inactive press for any length of time, solvent evaporation can be minimized by assuring that the material is not left exposed. Printing cylinders and other surfaces should be cleaned immediately to prevent drying in. Always check the viscosity of ink that has been recovered from a production run and add small amounts of solvent while mixing thoroughly to restore viscosity. Solvent can be added to reclaim thickened ink as long as the ink has not dried and hardened completely.

It is essential that all residual solvent be removed from this ink once it is applied. Incomplete drying will cause the ink to appear dry on the surface while trapping solvent underneath the surface. Over time, this trapped solvent will migrate out of the ink, and can cause adhesion problems with any material (such as dielectrics or film laminates) applied over the ink.

To check completeness of drying, evaluate the point-to-point resistance along one of the screened conductive paths after one pass through the drying oven or one cycle in a batch-drying oven. Run the substrate through another drying cycle. Measure the point-to-point resistance again along the same path and compare it to the original reading. If the resistance decreases by less than 10%, then the ink is essentially dry after the first drying cycle or pass through the oven. If the resistance decreases by more than 10%, then more drying time is required to completely remove the solvent.

The above guidelines are intended to provide a starting point for evaluation. Conductive Compounds, Inc. recognizes that each customer's manufacturing process is unique, and we are available to provide technical assistance to resolve your processing issues. Call us to discuss your application in more detail.

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