CONDUCTIVE COMPOUNDS
www.conductivecompounds.com
Innovative Chemistry For High-Tech Applications
17 Hampshire Drive, Unit 8
Hudson, NH 03051
Phone: (603) 595-6221
Fax: (603) 595-6228

HTC-300 HEAT STABLE CARBON FILLED ELECTRICALLY CONDUCTIVE SCREEN PRINTABLE INK/COATING

HTC-300 is a unique electrically conductive carbon filled ink utilizing a high Tg (glass transisition temperature) thermoplastic copolymer binder. HTC-300 is designed for screen printing in flex and additive circuit applications where stable resistance values at elevated temperatures are required. HTC-300 is tough, scuff resistant and has excellent adhesion to both treated polyester and polyimide substrates. Crease resistance is outstanding when used on these substrates. HTC-300 is not recommended for use on indium tin oxide (ITO) sputtered surfaces. HTC-300 is exceptional for printing fine line/fine pitch applications, and has good solvent resistance. For improved solvent resistance and even higher temperature stability we recommend using the HTC-350 two part carbon filled ink.

HTC-300 is designed to give a good balance between long open time in screen printing operations and short drying time. HTC-300 can be blended with our silver filled inks for specific resistance values, and is compatible with our UV curable dielectrics, encapsulants and conformal coatings. It is suitable for screen printing traces and discreet resistance pads, and as an overprint for silver conductive traces.

TYPICAL PROPERTIES

Appearance	Thixotropic Black Colored Paste
Viscosity	
Brookfield #40 cone & plate, 1 rpm	26,000 cps
Thixotropic Ratio	Greater than 2
Drying Schedule	< 5 Minutes At 290^{o} F. (May Be Longer Or Shorter Depending Upon Heat Source And Air Flow)
Shelf Life	6 Months In Unopened Container
Total % NV Solids	36% +/- 2%
Hegman Gage (Ref. ASTM D-1210)	<5.0 μ
Glass Transition Temperature (Tg)	92^{o} C
Surface Resistivity	100 Ω/Square
Thin Using	Carbitol (DE) Acetate or PM Acetate

MORE INFORMATION ON REVERSE SIDE OF SHEET

NOTE: 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.

HTC-300 HEAT STABLE CARBON FILLED ELECTRICALLY CONDUCTIVE SCREEN PRINTABLE INK/COATING

APPLICATION GUIDELINES

For screening, a monofilament polyester (157 to 230 mesh) or a stainless steel (165 to 325 mesh) screen is recommended, with emulsion thickness between .001" and .004". A polyurethane squeegee with a Shore 'A' durometer between 60 and 70 is recommended. Always mix ink thoroughly before using, as carbon will settle to the bottom. It is also recommended that the ink be vigorously mixed in the container before applying to the screen in order to drop the viscosity.

For thinning and cleanup, use DPM acetate or carbitol acetate. If faster drying time is required, contact Conductive Compounds, Inc. for solvent recommendations.

If solvent based inks are left on screens for any length 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 pooling the ink into a small area instead of leaving it spread out over a large area. Pooling the ink reduces the surface area, thus slowing the drying process. Always check the viscosity of ink that has been recovered from a screen 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) 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.

When blending HTC-300 ink with silver ink for specific resistance ranges, be sure to mix the materials thoroughly before screening.

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 can customize the rheology of HTC-300 to conform to the process parameters. We are also available to provide on-site technical assistance to resolve your processing issues. Call us to discuss your application in more detail.

NOTE: 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.