Applied Ink Solutions
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TECHNICAL DATA SHEET

HTC-300 High Temperature Carbon Ink

HTC-300 is designed for **screen printing** in **flex circuit and printed electronic applications** where **stable resistance values at elevated temperatures** are required.

DESCRIPTION

- Utilizes a high Tg (glass transition temperature) thermoplastic copolymer binder for a heat stable carbon filled ink for screen printing
- Excellent adhesion to print treated polyester, polyimide and copper substrates, with outstanding crease resistance when used on these Substrates. HTC-300 is not recommended for use on indium tin oxide (ITO) sputtered surfaces.
- Exceptional for printing fine line/fine pitch applications
- Designed to give a good balance between long open time in screen printing operations and short drying time.
- Can be blended with our silver filled inks for specific resistance values, and is compatible with our UV curable dielectrics, encapsulants and conformal coatings
- 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 DVIII SC4-14 @ 25°C spindle @ Shear 20	12,000-16,000 cps 15,350 cps (typical)
Drying Schedule	< 5 minutes at 130°C (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 Gauge (Ref. ASTM D-1210)	<25 µ
Surface Resistivity	<100 Ω/square/mil 75.22 Ω/square/mil (typical)

HTC-300 High Temperature Carbon Ink

Guidelines are intended to provide a starting point for evaluation. Applied Ink Solutions 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.

The properties are accurate to the best of our knowledge and Applied Ink Solutions 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.

Application Guidelines

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.

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

Thinning & Cleanup

Solvent 10 or Solvent 20 are recommended to thin, if needed. If faster drying time is required, contact Applied Ink Solutions 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 or hardened completely.

Drying

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.

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.

Health & Safety

Products manufactured by Applied Ink Solutions are intended for use in an industrial environment by trained personnel. Please follow proper health/safety processes regarding storage, handling and processing of the products.