



## PRELIMINARY TECHNICAL DATA SHEET

### ***Z-996 Z-AXIS ELECTRICALLY CONDUCTIVE INK***

#### **DESCRIPTION**

**Z-996 conducts electricity on the Z-axis direction through the thickness, and not along width or length of the printed ink**

- Z-axis, anisotropic electrically conductive ink
- Ideal for printing or coating as a film layer over conductive ink tail pins on membrane switches to provide protection for the silver ink when ZIF or crimp type metal connectors are attached, while still maintaining electrical conductivity between the metal connector and the silver ink pin.
- Solvent based, screen printable ink that when printed or coated as a film layer will conduct electricity in the Z-axis direction (through its thickness) but not in the X or Y-Axis (along its width or length).
- Exhibits outstanding adhesion to print treated polyester and other plastic films, conductive inks and most metal foils used in flexible circuits and membrane switches.
- Excellent strength, toughness, outstanding flexibility, inherent moisture resistance, and low odor.
- Withstands extreme thermal shock cycling, from +150°C to well below -50°C, and maintains its electrical integrity over a wide temperature and frequency range.
- Compatible with our silver filled conductive inks, carbon resistive screen printable inks and silver conductive epoxies.

#### ***TYPICAL PROPERTIES***

Appearance	Thixotropic clear liquid
Viscosity SC4-14 spindle @ shear 2, 25°C	6,000 cps +/-10%
Resistivity through Z-axis	.23 $\Omega$ /inch <sup>2</sup>
Total % NV Solids	32% +/- 2%
Shelf Life @ 25°C	6 months in sealed container

## Z-996 Z-AXIS ELECTRICALLY CONDUCTIVE 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

Z-996 can be applied by screen printing using stainless steel or monofilament polyester screens from 190-200 mesh, with emulsion thickness from .001" to .004". A polyurethane squeegee with a Shore 'A' durometer between 60 and 70 is recommended.

It is recommended that Z-996 be applied as a single layer, with a dry film thickness of 40 microns or less. The conductive particles in Z-996 are 40 to 45 microns thick, so it is essential that the polymer binder on the printed and dry layer not be taller than the height of the conductive particles contained in the polymer binder. If you cannot feel a coarse texture finish on the surface of a cured film, indicating that the metal particles are protruding above the film surface, the film is printed too thick and it will not be able to conduct in the Z-Axis direction.

### Thinning & Cleanup

For thinning and for cleaning, use Solvent 20. 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 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 applied over the ink.

### 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.