



## TECHNICAL DATA SHEET

### BT-101 BARIUM TITANATE DIELECTRIC *a capacitive dielectric*

BT-101 is suitable for use as a capacitance layer between phosphor and back electrodes on EL lamps

#### DESCRIPTION

- Provides excellent electrical insulation while maintaining a high dielectric constant to optimize the performance of EL lamps
- Suitable for screen print applications, and is designed to provide an optimal balance between long open time on screens and fast drying in conventional ovens
- Offers outstanding moisture resistance when dried completely
- Suitable for use on polyester films and ITO substrates
- Compatible with our conductive materials for EL electrodes

#### TYPICAL PROPERTIES

Appearance	Thick white ink
% Solids	67% ± 2%
Viscosity: Brookfield DV III SC4-14 spindle @ 25°C, Shear 2	10,000 cps +/- 10%
Hegman Gauge	<10 µm
Drying Conditions	90 seconds to 6 minutes at 130°C (depending upon air flow)

#### PHYSICAL PROPERTIES AFTER CURE

Voltage Breakdown (VAC, 25µm, 25°C) Ref ASTM D149-97a	> 500 volts
Volume Resistivity Ref ASTM D-257	> 1 x 10 <sup>14</sup> Ω-cm

# BT-101 BARIUM TITANATE DIELECTRIC

## *a capacitive dielectric*

### Application Guidelines

Extreme care should be taken to eliminate contamination by metal and dust particles in the printing area. Metal or dust particles in the dielectric layer can cause spot shorting, compromising the integrity of the lamp. If leftover flood material is to be reused after a production run, it is recommended that it be collected in a separate container and added in small amounts to fresh material during the next production run.

### Screening

A monofilament polyester, 220 mesh minimum is recommended. Stainless steel mesh screens should have a minimum mesh size of 230, with an emulsion thickness between 20 and 25 $\mu$ . In most instances, minimum of two print cycles will be required. Mesh and emulsion selection should be considered for a targeted total dry film thickness of 12 to 15 $\mu$ . The integrity and efficiency of the barium titanate dielectric layer can sometimes be enhanced by using a wet-wet (double pass) print cycle before drying each layer. This helps to smooth and level the wet film, while also helping to pack the ceramic particles more efficiently before drying.

### Thinning

BT-101 is designed to be used straight from the container after mixing. If further thinning is needed, use carbitol acetate or dibasic ester solvents. For cleanup, PM acetate or other suitable solvents 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.

### Drying

When drying, care should always be taken to assure that all residual solvent is removed from each layer prior to printing the next layer. Trapped solvent will release over time and compromise the integrity of the phosphor, conductor and dielectric materials in the assembly.

### Storage

BT-101 has a shelf life of six months when stored in its original container. The material should always be mixed before use, and containers should never be left open for long periods of time. BT-101 should be stored at or slightly below room temperature only. Do not store BT-101 in a cold storage area.

### 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.

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.