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Luxprint® 8153 Electroluminescent Dielectric Insulator

Polymer Thick Film Composition

All values reported here are results of experiments in our laboratories intended to illustrate product performance potential with a given experimental design. They are not intended to represent the product's specifications, details of which are available upon demand.

Product Description

Dielectric 8153 is designed for use with the DuPont Electroluminescent (EL) system for manufacturing screen-printed EL lamps. Barium titanate-filled 8153 provides reliable electrical isolation and high dielectric constant to isolate EL Phosphors from the rear electrode. Its low affinity for moisture facilitates high light output

Key Features

- **Reliable electrical insulation**
- **Compatible with the DuPont Luxprint® EL System**
- **Low affinity for moisture**
- **High dielectric constant for high light output**

Processing

- **Screen Printing Equipment**
  Semi-automatic and manual
- **Substrates**
  Mylar Polyester Film, ITO-Polyester, DuPont EL Conductors and Phosphors, Glass
- **Residence time on screen**
  2 hours
- **Screen Types**
  62T - 77T Polyester :
  20-25µm emulsion
- **Typical Cure Conditions**
  Box oven:130°C / 10 minutes
- **Clean-up Solvent**
  Ethylene Diacetate

Composition Properties	
% Solids @ 150°C	65 - 69
Viscosity (Pa.s) Brookfield ½ RVT Utility cup & spindle(SC4-14/6R)@10rpm, 25°C	10 - 20
Thinner	8210

Table 2
Exemplary Physical Properties
On 125µm Polyester Film

Dry Layer Thickness(µm)	18 - 20
Breakdown Voltage(V/25µm)	> 500
Dielectric Constant (approx)	8
Coverage (cm^2/g/ 2 layers)*	>120

*A minimum of 2 prints is recommended

General

Yield and performance will depend to a large degree on care exercised during processing, particularly in screen printing. Scrupulous care should be taken to keep the composition, printing screens and other tools free of metal contamination. Dust, lint and other particulate matter may also contribute to poor yields.

Printing

Lay-down of the dielectric layer is critical to the integrity and quality of the EL lamps. The process should aim for total dry film thickness of at least 12µm over the thickest phosphor particle, and at least two printing passes should be employed. Optimization of this process step will provide best reliability and light output.

Printing should be performed in a clean and well ventilated area. Additional information on requirements for printing areas is contained in DuPont Technical Guide EUT 7.3 "Processing - Screen Printing Rooms", available on request.

Note: optimum printing characteristics are generally achieved in the room temperature range of 20°C-23°C. It is therefore important that the composition, in its container, is at this temperature prior to commencement of printing.

Thinner

This composition is optimized for printing, thinning is not normally required. Use the DuPont recommended thinner for slight adjustments to viscosity or to replace evaporation losses. The use of too much thinner or the use of a non recommended thinner may affect the rheological behaviour of the material and its printing characteristics. Refer to table - "Composition Properties"

Compatibility

Electroluminescent Dielectric 8153 is fully compatible with other members of the DuPont Luxprint® System and should be employed together with the recommended phosphors and conductors and dielectrics.

Whilst DuPont has tested this composition with the specified materials and under the recommended processing conditions, it is impossible or impractical to cover every combination of materials, customer processing conditions and circuit layouts.

It is therefore essential that customers thoroughly evaluate the material in their specific situations in order to completely satisfy themselves with the overall quality and suitability of the composition for its intended application(s).

Storage

8153 Electroluminescent dielectric should be stored in a clean, stable environment at room temperature <25°C, with the container lids tightly sealed. Storage in freezers (temperature <0°C) is NOT recommended as this could cause irreversible changes in the composition. For guidance regarding storage of the composition, please consult DuPont Technical Note EUT 7.2 "Shelf Life Policy".

Shelf life

This composition has a shelf life of 6 months from date of shipment for factory-sealed (unopened) containers, stored under room-temperature conditions.

Health/Safety considerations

DuPont's polymer compositions are intended for use in an industrial environment by trained personnel. All appropriate health / safety regulations regarding storage, handling and processing of such materials should be complied with. For information on health / safety regulations please refer to the specific product MSDS and to the DuPont Safety Guide EUT 7.1 "Practical Safe Handling of Thick Film Compositions".