

DuPont™ LuxPrint® 7164

ELECTROLUMINESCENT MATERIAL

Technical Data Sheet

Product Description

DuPont™ LuxPrint® 7164 electroluminescent material is a translucent conductor designed for use as the front electrode for manufacturing LuxPrint® Electroluminescent (EL) lamps. It is designed to be used as the last printed layer for lamps fabricated on PET or alternative (non-transparent) substrates which are compatible with LuxPrint® compositions.

Product Benefits

- Screen printable front electrode
- Low cost translucent conductor
- High coverage
- Neutral body color

Processing

- **Screen Printing Equipment**
Semi-automatic or manual
- **Substrates**
Print Treated Polyester film, Printed Circuit Boards
- **Ink Residence Time On Screen**
>1 hours
- **Screen Types**
Polyester: 77T-62T;
20-25µm emulsion
- **Typical Cure Conditions**
Box oven: 130°C/5 min.
- **Layer Thickness**
25 - 40 µm (dry)
- **Clean-up Solvents**
Ethylene Diacetate, Acetone
- **Coverage**
110 – 130 cm²/g

Table 1
Composition Properties

Test	Properties
Viscosity (Pa.s) [Brookfield RVT UC&SP @ 10rpm, 25°C]	3.5 - 10
Solids (130°C/2hrs)(%)	44.5
Thinner	DuPont 8261

Table 1 & 2 show anticipated typical physical properties for LuxPrint® 7164 based on specific controlled experiments in our labs and are not intended to represent the product specifications, details of which are available upon request.

Lamp Construction

Diagram 1-Build sequence (Reverse) a rear electrode is first printed onto a compatible base substrate. This is followed by 2 to 3 dielectric layers and a phosphor print. Translucent conductor LuxPrint® 7164 is then overprinted to form the front electrode of the capacitor. The use of a clear protective encapsulant is strongly recommended.

Printing

The composition must be thoroughly mixed before use. This best achieved by slow, gentle, hand stirring with a clean, preferably plastic spatula for several minutes. Care must be taken to avoid air entrapment. Printing should be performed in a clean and well ventilated area.

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

Table 2
Printed Properties on 125µm Polyester

Test	Properties
Coverage (cm ² /g)	> 350
Resistivity (kΩ/sq/25µm)	10

Design Considerations

- (a) Small lit areas - DuPont™ LuxPrint® 7164 electroluminescent material has a resistivity 100 times that of sputtered ITO film. As a consequence, lit areas need to be kept small in order to achieve good uniformity of illumination. Areas up to 10cm x 5cm have been constructed without noticeable darkening towards the centre (Powered at 115V/400Hz). Variation in processing parameters, along with applied voltage and frequency will influence the lamp's lit area and must be evaluated first.
- (b) Bus bar - Light output and uniformity can be optimized by reducing the contact resistance and minimizing the voltage drop across the translucent conductor. This is achieved by printing a silver bus bar in contact with the translucent conductor and close to the lit area around the perimeter of the lamp.
- (c) Operational frequency - Higher frequency operation may cause darkening towards the centre of the lamps. It is advisable to use at frequencies below 1200Hz.
- (d) High humidity conditions - For operation in humid environments, it is highly recommended to include a carbon print over the silver rear electrode. This combination is required for best functional performance.

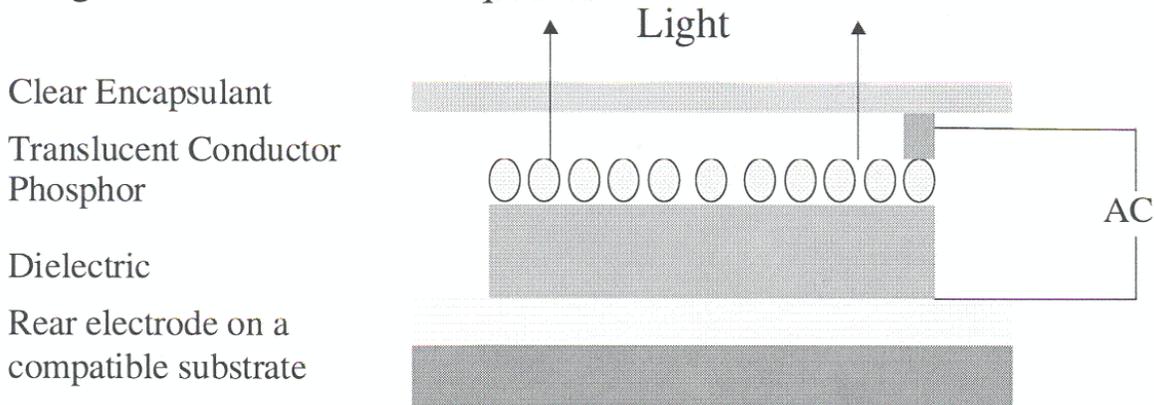
Thinner

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 behavior of the material and its printing.

Compatibility

LuxPrint® 7164 Electroluminescent Translucent Conductor is compatible with other members of the DuPont EL System, and should be used together with the recommended conductors, dielectrics, and phosphor. While 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).

Diagram Reverse Build Sequence



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Storage and Shelf Life

Containers may be stored in a clean, stable environment at room temperature (<25°C), with their lids tightly sealed. Storage in freezers (temperature <0°C) is NOT recommended as this could cause irreversible changes in the material. Shelf life of material in unopened containers is six months from date of shipment. Some settling of solids may occur and compositions should be thoroughly mixed prior to use. Phosphor particles tend to settle out during static storage. Gentle jar rolling or turning the jars may be used to minimize settling of the phosphor component.

Safety and Handling

For Safety and Handling information pertaining to this product, read the Material Safety Data Sheet (MSDS).

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