DuPont PE815

Silver Alloy Conductor - Technical Data Sheet

Product Description

DuPont PE815 Silver Alloy Conductor is used to fabricate Smart Cards & RFID Tags, laminated or hot roll calendered onto flexible substrates including polyester and PVC film. PE815 is a high conductivity silver-bearing conductor that possesses excellent abrasion resistance, adhesion, & print resolution. DuPont PE815 is fully compatible with DuPont 8144 (overcoat carbon) and DuPont 5018 UV dielectric.

Product Benefits

- High Conductivity Silver Alloy Conductor
- Thermal Cure 120–140°C; 2–10 minutes
- < 25 mOhms/square/mil @ 15 µm
- Laminated/Calendered Smart Card/RFIDs

Processing

Screen Printing Equipment

- Automatic Reel-to-Reel
- Semi-Automatic Flat-Bed
- Rotary Screen/Cylinder Screen

Substrates

- Polyester Film (print-treated, non-print-treated)
- PVC (for Smart Card lamination only)
- Coated Papers & Nonwovens (calendered)

Screens

- 400–280 wire/inch Stainless Steel mesh
- 156–110 thread/cm Polyester mesh

Curing

Dry at 120–140°C oven for 2–10 minutes in a well-ventilated oven or conveyor dryer, where the exhaust meets environmental regulations. Drying efficiency, print quality/thickness help insure best electrical & physical performance.

Table 1 - Typical Electrical & Physical Properties

(Printed on Melinex ST505 Polyester Film)

Test		Properties
Sheet Resistivity (mOhms/sq/25 µm) 140°C/10 min (15 µm Dried Print Thickness)	Calendered 80°C Laminated 80°C	< 80 < 25 < 15
Resistivity Δ% After Crease (ASTM F1683, 180°, 1 cycle, 2 kg)	w/5018 UV Encap No Encap	< 12% < 15%
Abrasion Resistance (ASTM D3363 Pencil Hardness)		2H
Adhesion (Tape Cross Hatch) (ASTM D3359 w/3M Scotch Tape 600)		No Transfer (after calender)
Clean-up Solvent		Ethylene Diacetate
Overprint Carbon/Dielectric		8144/5018

Table 2 - Typical Composition Properties

(Printed on Melinex ST505 Polyester Film)

Test	Properties
Solids (%) @ 150°C	86–89
Viscosity (PaS) Brookfield RVT, #14 spindle, 10 rpm, 25°C	30–60
Density (g/cc)	4.0
Coverage (cm2/g @ 15 µm) Coverage (cm2/g @ 25 µm)	140 80
Dried Print Thickness (microns)	15–25
Thinner	DuPont 8210

This table shows anticipated typical physical properties for DuPont PE815 based on specific controlled experiments in our labs and are not intended to represent the product specifications, details of which are available upon request.

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Lamination/Hot Roll Calendering

DuPont PE815 is designed for post-cure processing to maximize the high conductivity required for Smart Card and RFID read range performance. This is done using production level uniaxial lamination equipment, or continuous feed hot roll calender lamination method for RFID inlays.

Storage and Shelf Life

Containers should be stored, tightly sealed, in a clean, stable environment at room temperature (<25°C). 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. Thinning is not recommended.

Safety and Handling

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

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