DUPONT PE510

COPPER CONDUCTOR

PRODUCT DESCRIPTION

DuPont PE510 Copper Conductor is used as an alternative to pure silver conductor inks to produce low-voltage circuitry on a wide range of substrates for Printed Electronic and RFID/Antenna applications. PE510 is designed to be processed using photonic-curing equipment and optimized curing profiles available from a number of manufacturers.

PRODUCT BENEFITS

- High conductivity
- High-speed curing process
- Additive process RFID/antennas vs etched Cu
- Long lamp life for photonic systems

PROCESSING

Screen Printing Equipment

- Automatic reel-to-reel
- Semi-automatic flat-bed
- Rotary screen/ cylinder screen

Substrates

- Low-loss epoxy-type; FR4
- Polyimide; PVC for smart cards
- Glass; polyester film

Screens

- 400-325 wire/inch stainless steel mesh
- 156-130 thread/cm polyester mesh

Curing

Dry at 80°C oven for 2-10 minutes in a well-ventilated oven. Apply sufficient photonic energy under desired pulse profile to obtain best balance of resistivity and physical performance.

Table 1-Typical Physical Properties

Test	Properties
Conductor Resistivity (mOhms/sq/mil) @ 9µm w/ Substrate /Typical Photonic Curing Profiles FR4 Epoxy	<35
Abrasion Resistance (ASTM D3363 Pencil Hardness)	1H
Adhesion (Tape Cross Hatch) (ASTM D3359 w/3M Scotch Tape 600)	Slight Haze 4B
Clean-up Solvent	Ethylene Diacetate
Encapsulant	DuPont 5036

Table 2-Typical Composition Properties

Test	Properties
Solids (%) @ 150°C	76-79
Viscosity (PaS) Brookfield RVT, #14 spindle, 10rpm, 25°C	16-22
Density (g/cc)	3.2
Coverage (cm2/g @ 6um) Coverage (cm2/g @ 10um	250 180
Dried Print Thickness (microns)	6-10
Thinner	DuPont 3610

This table shows anticipated typical physical properties for DuPont PE510 based on specific controlled experiments in our labs and are not intended to represent the product specifications, details of which are available upon request.

PHOTONIC PROCESSING AND SUBSTRATES

PE510 has good electrical and physical performance on several types of substrates, using the latest photonic curing equipment. The performance of PE510 will vary according to substrate type and thickness, and the customized lamp energy output and pulse profiles as recommended by equipment manufacturers.

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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 with DuPont 3610 may be desired in some cases depending on printing requirements.

SAFETY AND HANDLING

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

FOR MORE INFORMATION ON DUPONT PE510 OR OTHER DUPONT MICROCIRCUIT MATERIALS PRODUCTS, PLEASE CONTACT YOUR LOCAL REPRESENTATIVE:

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CAUTION: Do not use in medical applications involving permanent implantation in the human body. For other medical applications, see "DuPont Medical Caution Statement," H-50102-5.

K-28474 11/14