DuPont Microcircuit Materials

7105 Carbon Conductive Composition

Polymer Thick Film Composition

Product Description

Carbon 7105 is used as conductor in designs that tolerate high resistivity. Its major benefits include low cost and excellent screen life as well as excellent high-temp stability. It can be used with semi-automatic and manual printers. 7105 may be blended with DuPont silver conductor 5000 to meet specific resistance requirements.

Product Benefits

- High abrasion resistance
- High stability
- Lowest resistivity carbon
- High activity biomedical applications

Processing

Screen Printing Equipment
Semi-automatic or manual

Ink Residence Time on Screen
Longer than two hours

Screen Types
Polyester, stainless steel

Typical Cure Conditions
Box oven : 120-130°C for 5 minutes
IR oven : 130°C/2-3 minutes

Typical Circuit Line Thickness Printed with 200-mesh stainless steel screen
9-15 microns

Clean up Solvent
Ethylene diacetate or methyl propasol acetate

Table 1
Typical Physical Properties on 5-mil Polyester Film

Sheet Resistivity (Ω/sq/mil)	<30
Resistivity after Flex(Ω/sq/mil) 15 sec after test Crease (180°C, 1 cycle)	50
Abrasion Resistance, Pencil Hardness (H) (ASTM D3363-74)	3 H
Solder	Not Recommended

Table 2
Composition Properties

Viscosity (Pa.S) (Brookfield HBT, 10 rpm #14 spindle&UC, 25°C)	15-70
Solids(150°C) (%)	32.5-36.5
Coverage	16 in²/g/mil 103 cm²/g/mil
Thinner	8260

Storage and Shelf Life

DuPont thick film polymeric compositions should be stored at ambient temperatures. Shelf life of material in unopened containers is six months from date of shipment. Some settling of solids may occur, so compositions should be stirred thoroughly before use.

Safety and Handling

DuPont thick film products are intended for industrial use by trained personnel. These products contain organic and inorganic ingredients. It is important for workers to avoid overexposure to chemicals contained in these products or that might become available when processing them. Overexposure to other materials used in the operation should also be avoided, for example, cleaning solvents and degreasing fluids.

Well-designed area and personal air sampling/ analysis can show if exposures are within required and recommended limits. Properly designed engineering controls, such as local ventilation and process enclosures, are effective in limiting employee exposure and to avoid the creation of hazardous conditions (e.g. forming an explosive vapor concentration). Engineering controls and procedures must comply with all applicable federal, state and local safety, health and environmental laws and regulations.

The following additional precautions should be taken when handling these products:

- Read the Material Safety Data Sheet (MSDS) and product labels before using the products;
- Use appropriate personal protective equipment (PPE) and practice good industrial hygiene. DO NOT INGEST! DANGEROUS IF SWALLOWED!
- Keep product container closed when not in use to prevent solvent evaporation and spilling hazards;
- If contact with skin occurs, wash affected area immediately with soap and water
- Avoid prolonged breathing of vapors and dusts/ particulates. Keep exposure levels within the required or recommended limits. Always use sufficient ventilation as noted above

United States

DuPont Microcircuit Materials
14 T.W. Alexander Drive
Research Triangle Park, NC 27709
Tel.: 800-284-3382

Europe

DuPont (UK) Limited
DuPont Microcircuit Materials
Coldharbour Lane
Bristol BS16 1QD
England
Tel.: 44-117-931-3191

Japan

DuPont Kabushiki Kaisha
Sanno Park Tower, 11-1
Nagata-cho 2-chome
Chiyoda-ku, Tokyo 100-611
Japan
Tel.: 81-35-521-8650

Visit our website at: http://www.dupont.com/mcm

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