

5739 Au/Pt Cofireable Solderable Conductor

DuPont™ 951 Green Tape™ System

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.

Product Description

5739 is an external solderable Au/Pt conductor compatible with 951 Green Tape™. 5739 is ideally suited to formation of solder attachment pads.

Product Benefits

When used with 951 Green Tape™ and compatible via fill pastes, 5739 offers the following benefits:

- High reliability
- Superior solder acceptance
- Cofire processing

Processing

Design

For detailed recommendations on use of 951 Green Tape™ and conductors such as 5739, see the 951 Green Tape™ Design Guide and 951 Green Tape™ Product Data Sheet. For compatible thick film compositions and their recommended use see the 951 Product Selector Guide.

Thinning

Thinning thick film compositions is not recommended as material is supplied formulated for optimal performance. Improper thinning may affect printing characteristics. Thinner may be added to replenish solvent lost during normal usage but care should be taken to not over-thin.

Printing

The composition should be thoroughly mixed before use. This is best achieved by slow, gentle, hand stirring with a clean burr-free spatula (flexible plastic or stainless steel) for 1-2 minutes. Care must be taken to avoid air entrapment.

Composition Properties

Clean-Up Solvent	1-Propoxy-2-Propanol
Thinner	8250
Coverage ¹ , cm ² /g	80-90
Viscosity (Pa.s) (Brookfield HBT, utility cup & spindle, 10 rpm, 25°C)	175-300
Typical Properties	
Dried Line Resolution	125/125 µm lines/spaces
Dried Thickness	19-25 µm
Fired Thickness	10-15 µm
Fired Resistivity ²	<35 mΩ/sq
Solder Acceptance	>99%
Adhesion Strength ³	>25 N initial >20 N aged

¹Calculated at a wet thickness of 25 µm

²At 12 µm fired film thickness

³Aging consists of 240 hours at 150°C

Printing should be performed in a clean and well-ventilated area. Optimum printing characteristics are generally achieved in the room temperature range of 20-23°C. Viscosity, and therefore printability, of thick film compositions can be affected by ambient temperatures.

Print 5739 directly onto unfired 951 Green Tape™ using thick film printing methods and a vacuum stone or other support structure that uniformly distributes vacuum. A 325 mesh stainless steel screen with 12 µm emulsion is standard.

Drying

Dry in air in a well-ventilated oven or conveyor dryer for 5 minutes at 120°C. Do not over-dry. See Safety & Handling section for additional information.

Lamination and Firing

Laminate multiple sheets of 951 Green Tape™ onto which 5739 has been printed according to processing parameters detailed in the 951 Green Tape™ Design Guide and on the 951 Green Tape™ Product Data Sheet. Consult these documents as well for details of the recommended 951 firing profile for belt or box air furnaces.

5739 performs well with up to two refires under optimal conditions. It is important to ensure adequate air-flow to the part during both firing and refiring. 5739 is not recommended for use buried or in completely enclosed cavities.

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.

Safety and Handling

DuPont thick film and Green Tape™ 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 be 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.

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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

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