

6143

Pd/Ag Post-fire Conductor Green Tape™ System

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

6143 is a post-fire top layer Pd/Ag conductor composition which is applied by screen printing. It has been developed to be compatible with DuPont 951 Low-Temperature Co-fired Dielectric Tape.

Product Benefits

- Post-fire processing
- Excellent solder acceptance
- High reliability
- High yield

Processing

Thinner

This composition is optimised for screen 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 behaviour of the material and its printing characteristics.

Printing

The composition should be thoroughly mixed before use. This is best achieved by slow, gently, 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. 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. Class 10,000 printing area is recommended for building complex hybrids and multilayer circuits, otherwise severe yield losses could occur.

Drying

Allow prints to level at room temperature, then dry in a well ventilated oven or conveyor dryer.

Firing

Fire in a well ventilated belt, conveyor furnace, or static furnace. Air flows and extractions rates should be optimised to ensure that oxidizing, conditions exist within the muffle, and that no exhaust gases enter the room.

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.

Table 1. Composition Properties	
Test	Specifications
Viscosity (Pa.S) Brookfield HAT, Utility cup & spindle (SC4-14/6R), 10 rpm, 25°C	180 - 250
Coverage (cm²/g) (Based on fired film thickness of 14µm)	85 - 95
Thinner	7502

Processing Conditions

Printing 325 mesh stainless steel screen (28µm Ø wire; 12µm emulsion build up)

Drying Allow prints to level for 5-10 minutes at room temperature, then dry for 5 minutes at 120°C

Firing 850°C peak held for 5 minutes on 30 minute cycle in an air atmosphere

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

Table 2. Typical Fired Properties	
Test	Specifications
Print Resolution (µm)	250
Fired Thickness (µm)	13 - 16
Resistivity (mΩ/sq/15µm)	< 20
Adhesion (N) (aged @ 150°C for 48 hr)	> 16
Solder Acceptance (%) (10s dip, 220°C)	> 96

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.

For more information on 6143 or other DuPont MCM products, please contact your local representative or your local office:

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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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