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DuPont[™] 6141R

Ag Cofirable Via Fill Conductor Composition

Product Description

DuPont[™] 6141R is a cofirable silver via fill compatible with DuPont[™] GreenTape[™] 951 low temperature co-fired ceramic system. DuPont 6141R is ideally suited to provide reliable interconnection between Ag conductor layers.

Product Benefits

- Co-fire processing
- High circuit density
- Phthalate, Cadmium, Nickel oxide free*

*Phthalate, Cadmium and Nickel oxide 'free' as used herein means that cadmium, phthalate and nickel oxide are not intentional ingredients in and are not intentionally added to the referenced product. Trace amounts however may be present.

Processing

Design

For detailed recommendations on use of GreenTape[™] 951 and conductors such as DuPont[™] 6141R, see the GreenTape[™] 951 Product Data Sheet. For compatible thick film compositions and their recommended use consult your DuPont representative

Screen Type

25-50 μm thick etched ot punched metal stencil, with a squeegee speed al low as 10 mm/.

Drying

Allow prints to level for over 5-10 minutes at room temperature, then dry for 5 minutes at 120°C Do not overdry.

Firing

Consult 951 technical data sheet

Table 1 - Typical Physical Properties

Test	Properties
Viscosity (Pa.s) [Brookfield HBT,1rpm, SC4-14/6R utility cup and spindle,25°C±0.2°C	1500 - 2800
Thinner	DuPont™ 9450
Shelf Life (months)	3

Table 2 - Typical Fired Properties

Test	Properties	
Via Diameter Resolution (µm)	100	
Via Pitch Minimum (µm)	200	
Fired Resistivity (mΩ/sq)	3	
(fired dimension: 220 μm diameter, 100μm thick tape)		

Tables 1 and 2 show anticipated typical physical properties for DuPont™ 6141R based on specific controlled experiments in our labs and are not intended to represent the product specifications, details of which are available upon request.

Compatibility

Whilst DuPont has tested this composition with the materials specified above and the recommended processing conditions, it is impossible or impractical to cover every combination of materials, customer processing conditions and circuit layouts. It is therefore essential that customers thoroughly evaluate the material in their specific situations in order to completely satisfy themselves with the overall quality and suitability of the composition for its intended application (s).

Thinner

6141R composition is optimized for screen printing and 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. Please refer to table 1.Typical Physical Properties.

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 about 1-2 minutes. Care must be taken to avoid air entrapment. Printing should be performed in a 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 the 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. Refer to 'Processing Summary'.

Form vias in unfired DuPont[™] GreenTape[™] 951 low temperature co-fired ceramic system. The preferred method for via filling is use of stencil masks and screen printing methods. A vacuum stone or other support structure that uniformly distributes vacuum to the GreenTape[™] 951 green sheet is recommended.

Drying

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

Lamination and Firing

Laminate multiple sheets of GreenTape[™] 951 onto which DuPont 6141R has been printed according to processing parameters detailed in the GreenTape[™] 951 Design Guide and on the GreenTape[™] 951 Product Data Sheet. Consult these documents as well for details of the recommended GreenTape[™] 951 firing profile for belt or box air furnaces.

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

General

Performance will depend to a large degree on care exercised in screen printing. Scrupulous care should be taken to keep the composition, printing screens and other tools free of metal contamination. Dust, lint and other particulate matter may also contribute to poor yields.

Storage and Shelf Life

Containers should be stored, tightly sealed, in a clean, stable environment at room temperature (<25°C). Shelf life of materia in unopened containers is three months from date of shipment. Some settling of solids may occur and compositions should be thoroughly mixed prior to use.

Safety and Handling

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

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For more information on DuPont[™] 6141R or other DuPont products, please visit our website.

The information provided in this data sheet corresponds to our knowledge on the subject at the date of its publication. It may be subject to revision as new knowledge and experience becomes available. This information is not intended to substitute for any testing you may need to conduct to determine for yourself the suitability of our products for your particular purposes. Since we cannot anticipate all variations in end-use and disposal conditions, DuPont makes no warranties and assumes no liability in connection with any use of this information. It is intended for use by persons having technical skill, at their own discretion and risk. Nothing in this publication is to be considered as a license to operate under or a recommendation to infringe any patent right.

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 and "DuPont Policy Regarding Medical Applications" H-50103-5...

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