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DuPont[™] 6118A

Plateable Silver Conductor for DuPont[™] 951 GreenTape[™] LTCC

Product Description

DuPont[™] 6118A is intended for use as a co-fired plateable (Ni/Au), external silver conductor for the DuPont[™] GreenTape[™] 951 low temperature co-fired ceramic system.

Product Benefits

- High conductivity
- Electroless Ni/Au Plateability
- Cost reduction associated with plating VS gold thick film
- Wire bondable (1 mil Au wire) after plating*
- Brazeable (Au80/Sn20) after plating*
- Lead free and cadmium free**

*Appropriate plating conditions are required. Results may vary. **Cadmium and lead "free" as used herein means that these are not intentional ingredients in and are not intentionally added to the referenced product. Trace amounts however may be present.

Processing

Compatiblity

DuPont has tested this composition with the GreenTape[™] 951 system. It is impractical to cover every combination of materials, customer processing conditions and circuit layout. It is therefore essential that customers thoroughly evaluate the material in specific situations to completely satisfy themselves with the overall quality and suitability of the composition for its intended application(s).

Printing

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

Printing should be performed in a clean, well ventilated area. Optimum printing characteristics are generally achieved in the room temperature range of 20 - 23°C. It is therefore important that the materials, in its container, is at this temperature prior to printing.

*Table 1 - Typical Composition Properties

Test	Properties
Viscosity (Pa.s) [Brookfield RVT,10rpm, #14 spindle&UC, 25°C±0.2°C]	80 - 130
Solid (%) [750°C]	84 - 86
Thinner	DuPont™ 8250
Printing	
Dried thickness (microns)	15 – 22
Plated Performance*	
1 mil Au wire bonding	
1000 hrs at 150°C [g]	>11
1000 TCA (-40/125°C) [g]	>11
Pin Brazing (80Au/20Sn)	
1000 hrs at 150°C [pounds]	>15
1000 TCA (-40/125°C) [pounds]	>10

*performance results above were obtained using laboratory test patterns after Ni/ Au plating with 40-80 inch Au. These are not intended to be product specifications. *Tables 1 shows anticipated typical physical properties for DuPont[™] 6118A based on specific controlled experiments in our labs and are not intended to represent the product specifications, details of which are available upon request.

Printing thickness must be controlled at 15-22 microns dried for optimum performance. A 325 mesh stainless steel screen with 1.1 mil wire at 45 degree mesh angle with <0.5 mil emulsion is recommended.

Thinner

This composition is optimized for screen printing, however thinning may be required periodically to replenish solvent loss due to evaporation.

Use the DuPont recommended thinner DuPont[™] 8250 for slight adjustments to viscosity. The use of too much thinner or the use of non-recommended thinner may affect the rheological behavior of the material and its printing characteristics.

It is recommended to limit solvent replacement to <0.5 weight %. Viscosity should be tested prior to making further thinner additions.

If >0.5 weight % thinner is needed to adjust viscosity to meet the recommended range, special care must be taken during subsequent processing steps. The paste solids level should also be tested to verify a minimum value of 87.0% (tentative).

Drying

Allow prints to level for 5 - 10 minutes at room temperature and then dry in a well ventilated oven or conveyor dryer. Typical drying conditions can range between 80-120° for 5 - 10 minutes.

Lamination

Laminate multiple sheets of DuPont[™] GreenTape[™] 951 printed with DuPont[™] 6118A per the recommended process described in the 951 Design and Layout Guideline and the 951 product data sheet.

Fir**ing**

Consult the GreenTape[™] 951 technical data sheet for firing details. Fire in a well ventilated conveyor or static furnace. Air flows and extraction rates should be optimized to ensure that oxidizing conditions exist within the muffle. DuPont[™] 6118A has been evaluated using a special DuPont 26 hours profile. Contact your DuPont technical representative for details.

Plating

Appropriate plating conditions are required and results may vary. Please contact DuPont technical service for more details and recommendations.

Brazing

A special profile with a peak temperature of 300°C for 5 minutes in nitrogen is recommended. Please contact DuPont technical for further details.

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

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



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For more information on DuPont[™] 6118A 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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