

# DuPont 6134

PALLADIUM/SILVER CONDUCTOR COMPOSITION

## Technical Data Sheet

### Product Description

Palladium/Silver conductor compositions DuPont 6134 is designated for Hybrid applications on Alumina and DuPont 5704. This material provides a complete material system to meet the demanding requirements of palladium/silver multilayer hybrids.

### Product Benefits

- Excellent solderability
- High aged adhesion
- High conductivity

### Processing Substrates

Stated properties are based on test using 96% alumina substrates. Substrates of other compositions and from various manufacturers may result in variations in performance properties.

### Printing

The recommended thickness were obtained using a 325-mesh stainless steel screen with a 15  $\mu\text{m}$  emulsion thickness. 6134 may be printed at squeegee speeds up to 30 cm/s.

### Drying

Allow prints to level 5-10 minutes at room temperature. Then dry 10-15 minutes at 150°C.

### Firing

Fire with a 30-minute profile to a peak temperature of 850°C for 10 minutes. Properties are relatively unaffected by firing at peak temperatures of 850-900°C, by multiple refiring at 850°C or by the use of 60-minute profile. When fired over dielectric composition DuPont 5704, a peak temperature of 850°C is recommended to achieve the best system performance. See Figure 1.

### Typical Fired Conductor Properties

Test	Properties
Line Resolution ( $\mu\text{m}$ )	175 - 225
Resistivity ( $\text{m}\Omega/\text{sq}$ ) @18 $\mu\text{m}$	< 18
Fired Thickness ( $\mu\text{m}$ )	12 - 18
Solder Acceptance <sup>1</sup>	Excellent on Alumina and Good on 5704
Solder Leach Resistance <sup>2</sup> (cycle) (62Sn/36Pb/2Ag, 230°C)	4 - 6
Adhesion <sup>3</sup>	
Initial (N)	>20
Aged after 3 fires 48 hrs @ 150°C (N)	>20
Adhesion on 5704 aged after 3 fires	>17

<sup>1</sup> Excellent characterized as complete wetting with smooth film after 5 second dip on 62Sn/36Pb/2Ag solder at 220°C using mildly-activated flux.  
<sup>2</sup> Cycle consist of dip in mildly-activated flux (Alpha 611), 10 second in solder and washing off flux residue.  
<sup>3</sup> 90°C wire peel test on 2 mm x 2 mm pads soldered with 62Sn/36Pb/2Ag solder @ 220°C and mildly-activated flux (Alpha 611).

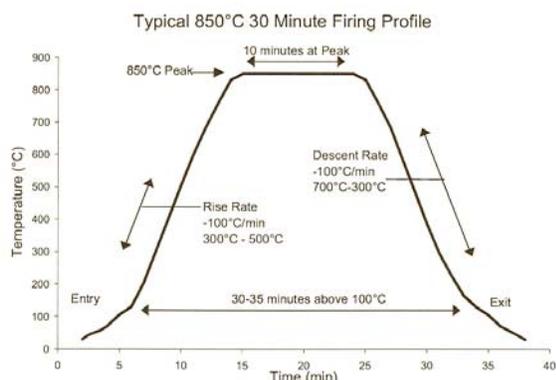
### Typical Composition Properties

Test	Properties
Viscosity (Pa.S) [Brookfield HBT, UC&SP, 10rpm, 25°C]	170 - 230
Coverage <sup>1</sup> ( $\text{cm}^2/\text{g}$ )	70 - 80
Thinner	DuPont 4553

<sup>1</sup>based on 15  $\mu\text{m}$  fired thickness

This table shows anticipated typical physical properties for DuPont 6134 based on specific controlled experiments in our labs and are not intended to represent the product specifications, details of which are available upon request.

**Figure 1 - 30 minutes profile**



## 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 (MSDS).

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