

# DuPont 4597

SOLDERABLE GOLD CONDUCTOR

## Technical Data Sheet

### Product Description

DuPont 4597 is a cadmium-free\* solderable gold conductor for high density single and multilayer hybrids. It has excellent tin/lead solderability and exhibits high leach resistance on both alumina and dielectric.

### Product Benefits

When used on alumina or with DuPont multilayer dielectrics, DuPont 4597 offers the following benefits:

- Excellent solder acceptance
- High circuit density
- High reliability

\*Cadmium "free" as used herein means that cadmium and lead are not an intentional ingredients in and are not intentionally added to the referenced product. Trace amounts however may be present.

### Processing

#### Substrates

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

#### Screen Printing Equipment

A 200-mesh stainless steel screen with a 12 $\mu$ m (0.5 mil) emulsion thickness is recommended. Printing speeds up to 30 cm/s (12 in/s) can be used.

#### Drying

Allow the prints to level for 10-15 minutes at room temperature. Dry 10 minutes at 150°C.

#### Firing

Dried prints should be fired in a belt furnace. Use a 60-minutes cycle with a peak temperature of 850°C.

**Table 1**  
**Typical Physical Properties**

Test	Properties
Line Resolution ( $\mu$ m) lines/space	150 / 100
Fired Thickness ( $\mu$ m)	13-17
Resistivity (m $\Omega$ /sq @ 15 $\mu$ m)	30 - 100
Initial Adhesion <sup>1</sup>	$\geq 20$
Aged <sup>2</sup> Adhesion(N)	$\geq 15$
Solder Acceptance (%)	$\geq 97\%$ (n 5704) $\geq 95\%$ on alumina
Resistance to Solder Leaching <sup>3</sup>	$\geq 15$
<sup>1</sup> (3x850C fires/5sec dip/63Sn/37/Pb @240C) <sup>2</sup> At 150°C for 48 hrs <sup>3</sup> 10 sec dips @ 240°C 63Sn37Pb solder	

These tables show anticipated typical physical properties for DuPont 4597 based on specific controlled experiments in our labs and are not intended to represent the product specifications, details of which are available upon request.

### 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 2**  
**Composition Properties**

Test	Properties
Viscosity (Pa.S) [HBT SC4-14/6R @ 10 rpm]	180 - 280
Solids (1050°C) [%]	80.1 - 81.4
Coverage (cm <sup>2</sup> /g)	60 - 70
Thinner	DuPont 9180

### Safety and Handling

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

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