

DuPont 9750 & 9770

PLATINUM/SILVER CONDUCTOR COMPOSITIONS

Technical Data Sheet

Product Description

DuPont 9750

General purpose; for applications requiring repeated soldering or severe soldering conditions. Performance comparable to platinum/gold and palladium/gold. Solderable in a wide range of alloys; excellent resistance to leaching.

DuPont 9770

General purpose; low cost. Performance comparable to palladium/silver conductors. Solderable in 62Sn/36Pb/2Ag and 96Sn/4Ag solders; resistant to leaching. High conductivity. Excellent wire bonding.

Product Benefits

- Solderable conductors for microcircuits
- Price/performance combinations optimized for a wide range of applications
- High initial and aged adhesion
- Compatible with resistors

Processing

Printing

Print with 200-325 mesh stainless steel screens to a dried thickness of 30-40µm. Achieving minimum fired thickness as stated is essential to obtaining stated performance characteristics.

Drying

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

Firing

Fire with 60-minute cycle to a peak temperature of 850°C for 5-10 minutes. Properties are relatively unaffected by multiple refiring at 850°C and by peak temperature of 850°C-925°C for DuPont 9770 or peak temperature of 800°-975°C for DuPont 9750.

Typical Fired Conductor Properties

Test	Properties	
	9750	9770
Line/Space Resolution (µm)	175-250	175-250
Fired Thickness (µm)	15-18	15-20
Resistivity (mohms/sq)	40-50	2-3
Soldering		
Initial Acceptance ¹		
62Sn/36Pb/2Ag, 220°C	Excellent	Excellent
63Sn/37Pb, 240°C	Excellent	Excellent
10Sn/90Pb, 325°C	Excellent	Excellent
96Sn/4Ag, 260°C	Excellent	Excellent
Resistance to Leaching ²		
62Sn/36Pb/2Ag, 230°C	> 50 cycles	7-9 cycles
63Sn/37Pb, 250°C	35-40 cycles	2-3 cycles
10Sn/90Pb, 330°C	> 40 cycles	2-3 cycles
96Sn/4Ag, 270°C	9-11 cycles	3-4 cycles
Adhesion ³		
Initial (N)	≥20	27-36
Aged, 48 hrs, 150°C ⁴ (N)	≥20	18-29
Ultrasonic Aluminum Wire (25µm) Bonding ⁵		
Initial (N)	0.06-0.1	0.04-0.15
Aged, 48 hrs, 150°C	0.04-0.09	0.03-0.07
Silver Migration Resistance (s) ⁶	20	20

¹Kester 197.

²Cycle consists of dip in mildly-activated flux (Alpha 611, Kester 197) 10-second dip in solder and washing off flux residue.

³90° wire peel test on 2mm x 2mm pads soldered with 63Sn/37Pb solder at 240°C (9750) or 62Sn/36Pb/2Ag solder at 220°C (9770) and mildly-activated flux (Alpha 611, Kester 197).

⁴Adhesion after aging as long as 1000 hrs at 150°C, shows little degradation in adhesion of 9750, and 9770 does show further degradation of adhesion, but firing at 925°C and/or soldering with 96Sn/4Ag substantially improved aged adhesion values.

⁵Loop strength, K+S Model 484 Ultrasonic Bonder, 25µm aluminum wire (1% Si, 2.1% elongation), titanium carbide tool, 0.32-0.34N tool force.

⁶Time to short, distilled water drop with 5VDC across 500µm gap between parallel lines.

Composition Properties		
Test	Specification	
	9750	9770
Viscosity (Pa.s) [Brookfield HBF, Spindle #6, 10 rpm, 25°C]	150-250	150-250
Thinner	9180	9180
Coverage (cm ² /g) (Based on 50µm wet film thickness)	50-60	50-60

Table 1 & 2 show anticipated typical physical properties for DuPont 9750 & 9770 based on specific controlled experiments in our labs and are not intended to represent the product specifications, details of which are available

Soldering

DuPont 9750 may be used with a wide range of solder alloys and conditions and the stated properties achieved. DuPont 9770 is recommended for use only with 62Sn/36Pb/2Ag solder at 220°-230°C, and 96Sn/4Ag solder at 250°-260°C due to its limited resistance to leaching with other alloys and higher temperatures. In general, 62Sn/26Pb/2Ag solder affords the best resistance to leaching, while 96Sn/4Ag solder affords the highest adhesion after high-temperature storage.

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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