

## Technical Information

# 6250-1, 6250-2 Silver-Palladium Conductors

The silver-palladium conductor composition 6250-1 was designed primarily for coating the inside of very small holes in the substrate, or small castellations. The 6250-2 is a high viscosity version and allows the printing of pads or fine lines. These materials are ideal for applications where limiting the chemical interaction between the conductor and adjacent materials. Both materials may also be fired as low as 600

degrees Celsius. They do not contain cadmium, lead, nickel, or highly toxic organic solvents. Key features include:

- Very Thin Fired Films
- Wide Firing Temperature Range
- Solderable
- Adhesion to Laser Drilled Holes
- Compatibility with Dielectrics and Resistors.

### TYPICAL FIRED FILM CHARACTERISTICS<sup>(1)</sup>

<b>Fired Thickness</b>	~ 5 $\mu$ m
<b>Line Resolution</b> 6250-2	175/125 $\mu$ m line/space using 150/150 $\mu$ m pattern and 325 mesh screen
<b>Resistivity</b>	40 -50 milliohm / square at 5 $\mu$ m fired thickness
<b>Solder Acceptance<sup>(2)</sup></b> 36/62/2 Sn/Pb/Ag, on 96% alumina	Excellent
<b>Solder Leach Resistance<sup>(3)</sup></b>	1-2 Cycles
<b>Adhesion<sup>(4)</sup></b> Initial	>8 N

- (1) Typical properties are based on testing of several batches under various processing conditions. They are not intended as specification limits.
- (2) Excellent refers to nearly 100% coverage of both pads and lines, after a 5-second dip in the solder bath at 225 +/- 5°C, using Alpha 611 mildly activated flux.
- (3) Cycles consist of 10-second dips in a 225 +/- 5°C solder bath. Each cycle is preceded by dipping in Alpha 611 flux.
- (4) The adhesion test consists of attaching 20 AWG tinned copper wire to .080"x.080" pads, by dipping in 225 +/- 5°C solder for 5 seconds. The wires are then bent 90 degrees and pulled at constant speed, while a force gauge records the peel strength.

## COMPOSITION PROPERTIES

**Viscosity:**

6250-1 80 - 140 Kcps, when measured with Brookfield HBT, Spindle #14, utility cup, 10 RPM, @ 25°C

6250-2 220 - 280 Kcps, when measured with Brookfield HBT, Spindle #14, utility cup, 10 RPM, @ 25°C

**Specific Gravity:** 1.6 - 2.2 g/cm<sup>3</sup>

**Recommended Thinner:** KOARTAN A-1039

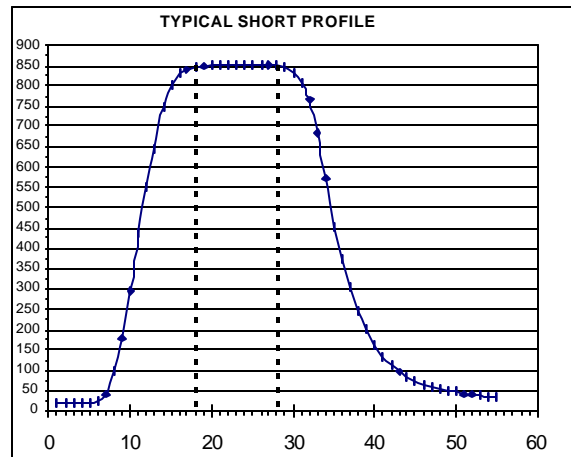
## RECOMMENDED PROCESSING PROCEDURE

**Printing:** Printing with 325 mesh stainless steel screen using 10-15  $\mu\text{m}$  emulsion and 45 degree angle is recommended. Other mesh counts, 200-325, and emulsion thicknesses, 5-25  $\mu\text{m}$ , may be used for special applications. Squeegee speeds of up to 10 inches/sec may be utilized.

Coverage is approximately 140 cm<sup>2</sup>, when utilizing 325 mesh screen and a wet print thickness of about 38  $\mu\text{m}$ .

**Drying:** Wet prints should be allowed to level for 5-10 minutes prior to drying. Dry for 10-15 minutes in a convection oven or belt dryer at 125°C-150°C.

**Firing:** Firing in air using a belt furnace and a 36-60 minute profile, with 10 minutes at a peak temperature of 850°C is recommended. Air flow rates must be optimized to ensure that the products of binder burn-off discharge properly and create a fully oxidizing atmosphere in the muffle.



**Storage and Shelf Life:** Store in tightly capped containers at room temperature. Shelf life is 6 months for unopened jars. Under ordinary conditions of storage and use the product should not require thinning. However, solvent loss during extended printing runs may be corrected by incorporating up to 0.5% of Koartan A-1039 thinner.

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