

Technical Information

4496 Solderable Gold Conductor

The gold paste composition 4496 is designed to provide good solderability, very high leach resistance, and excellent aged adhesion on both alumina and multilayer dielectrics. Its fired film properties are rather insensitive to furnace profile. It does not contain cadmium, lead, nickel, or highly toxic organic solvents. Key features include:

- Good Solder Acceptance and Leach Resistance, Sn/Pb 63/37 and Sn/Pb/Ag 62/36/2
- Good Line Resolution
- High Adhesion
- Compatibility with Dielectrics and Resistors.

TYPICAL FIRED FILM CHARACTERISTICS⁽¹⁾

Fired Thickness	14-16 μm
Line Resolution	175/125 μm line/space using 150/150 μm pattern and 325 mesh screen
Resistivity	65-100 milliohms / square at 15 μm fired thickness
Solder Acceptance⁽²⁾ 36/62/2 Sn/Pb/Ag, on 96% alumina 63/37 Sn/Pb, on 96% alumina	>95%
Solder Leach Resistance⁽³⁾	>30 cycles
Adhesion⁽⁴⁾	
Initial	20 - 30 N
48 Hours @ 150° C	18 - 26 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 for Sn/Pb/Ag or 240 +/-5°C for Sn/Pb 63/37 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: 220 ± 30 Kcps, when measured with Brookfield HBT, Spindle #14, utility cup, 10 RPM, 25°C

Specific Gravity: 5.0 – 5.6 g/cm³

Recommended Thinner: KOARTAN A-1039

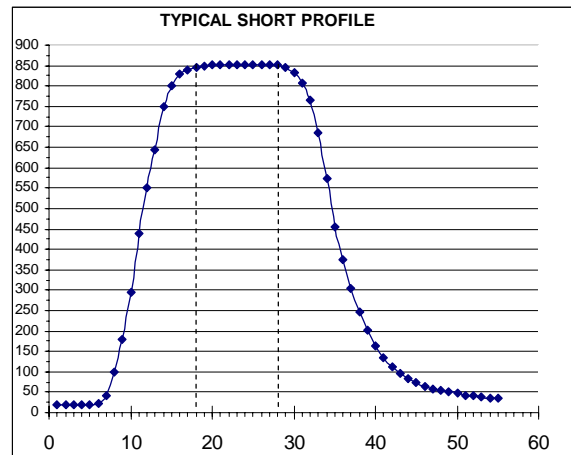
RECOMMENDED PROCESSING PROCEDURE

Printing: Printing with 280 mesh stainless steel screen using 10-15 μm emulsion and 45 degree angle is recommended. Other mesh counts, 200-325, and emulsion thicknesses, 5-25 μm , may be used for special applications. Squeegee speeds of up to 10 inches/sec may be utilized.

Coverage is approximately 60-70 cm², when utilizing 280 mesh screen and a wet print thickness of about 38 μm .

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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