

Preliminary Technical Information

4906 Gold Conductor for AlN, 600°C

The thick film gold composition 4906 is a cadmium-free paste developed specifically for firing on aluminum nitride. Its low firing temperature of 600°C results in robust performance regardless of the source of the aluminum nitride or its processing history. The 4906 is also suitable for gold wire bonding. Key features of the product include:

- Cadmium Free
- Good Adhesion to AlN
- High Film Density
- Good Electrical Conductivity
- Gold Wire Bondable
- Good Line Resolution
- Fires at 600°C

TYPICAL FIRED FILM CHARACTERISTICS⁽¹⁾

Fired Thickness	9 -12 microns
Line Resolution	175/150 micron line/space using 325 mesh screen
Resistivity² Milliohms / sq at 12 micron fired thickness	≤ 7
Wire Bond Strength⁽³⁾ 1 mil gold wire	> 7 grams

(1) Typical properties are based on testing of several batches under various processing conditions. They are not intended as specification limits.

(2) Measured on a 20 mil wide track, 254 squares.

(3) Thermosonic gold wire bonding performed on plasma cleaned substrates. All wire breaks, at second bond.

COMPOSITION PROPERTIES

Viscosity: 190 ± 40 Kcps, when measured with Brookfield HBT, Spindle #14, utility cup, 10 RPM, 25°C.

Specific Gravity: 4.5 – 5.0 g/cm³

Recommended Thinner: KOARTAN B-1194

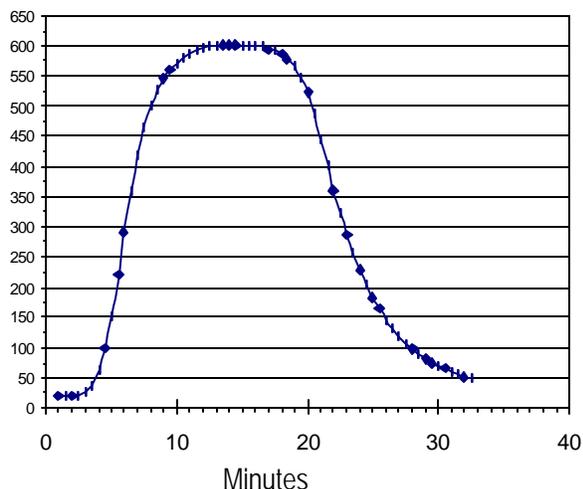
RECOMMENDED PROCESSING PROCEDURE

Printing: Printing with 325 mesh stainless steel screen using 10-15 micron emulsion and 45 degree angle is recommended. Other mesh counts, 230-250, and emulsion thicknesses, 5-25 micron, may be used for special applications. Squeegee speeds of up to 6 inches/sec may be utilized.

Coverage is approximately 60 cm², when utilizing 325 mesh screen and a wet print thickness of about 38 micron.

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 22-40 minute profile, with 10 minutes at a peak temperature of 600°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 B-1194 thinner.

The information presented herein is based on data believed to be dependable and is accurate and reliable to the best of our knowledge and belief, but not guaranteed to be so. Koartan Company assumes no liability arising from the use of this product or the information provided herein. It is the responsibility of the user to verify the information and to establish the suitability of the product(s) for any particular application. Nothing herein is to be construed as recommending any practice or any product in violation of any patent or in violation of any law or regulation.