



MICROELECTRONIC INTERCONNECT MATERIALS

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## Preliminary Technical Information

# 6296 SILPALL FLASH

## Cd-FREE, Pb-FREE SOLDER PROMOTING PASTE

The 6296 SILPALL FLASH is a low solids content paste, consisting of nano particles of silver and palladium, in addition to adhesion promoters. When printed on silver-bearing conductors and fired to 600°C, it provides a thin layer with a dense metallic surface which significantly improves the solder

wetting of hard to solder thick film conductors. Key features include:

- ? RoHS Compliant; Cd-Free, Pb-Free
- ? Adheres to most metallic surfaces
- ? High coverage per unit weight
- ? Standard screen printing application method.

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

<b>Paste Color</b>	Gray
<b>Fired Film Color</b>	Light Gray
<b>Fired Thickness</b>	1-2 µm
<b>Line Resolution</b>	175/125 µm line/space using 150/150 µm pattern and 325 mesh screen

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

### COMPOSITION PROPERTIES

<b>Viscosity:</b>	140 ± 30 Kcps, when measured with Brookfield HBT, Spindle #14, utility cup, 10 RPM, 25°C
<b>Specific Gravity:</b>	1.4-1.8 g/cm <sup>3</sup>
<b>Recommended Thinner:</b>	KOARTAN A-1039

## RECOMMENDED PROCESSING PROCEDURE

**Printing:** Printing with 280 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 150  $\text{cm}^2$ , when utilizing 280 mesh screen and a wet print thickness of about 35  $\mu\text{m}$ .

**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 22-40 minute profile, with 10 minutes at a peak temperature of 580°C-620°C, is recommended. Firing lower than 580°C may result in insufficient sintering of the SILPALL film. Firing above 620°C may result in diffusion SILPALL into the underlying conductor film, rendering it ineffective. 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.

**Application Notes:** The 6296 is particularly useful when conductors printed on AlN, BeO, and other substrates exhibit low solder acceptance characteristics. It should be noted, however, that high thermal conductivity substrates must be heated during soldering operation, even when 6296 is utilized. This is because substrates like AlN and BeO quickly transfer heat away from point sources such as soldering irons. Reflow soldering or dipping in a molten solder bath is needed to completely wet the surface of conductors covered by 6296 with solder.

**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.