

## Technical Information

# 6101 Viafill Silver Conductor

The 6101 silver paste was developed to provide easy and efficient filling of small and large via holes in multilayer dielectrics. Its good flow characteristics make it suitable for filling of small via holes, while its low shrinkage keeps it from separating from the walls of larger holes. For filling holes in the substrate please see KOARTAN 6540. The 6101 does not contain cadmium, nickel, or

highly toxic organic solvents. Its key features include:

- High Conductivity.
- High Speed Printing.
- Low Shrinkage.
- Compatibility with Most Dielectrics.

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

<b>Fired Thickness<sup>(2)</sup></b> Using 325 mesh screen	12-16 $\mu\text{m}$
<b>Resistivity<sup>(2)</sup></b> Milliohms / sq at 12 $\mu\text{m}$ fired thickness	$\leq 2.50$

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

(2) Measured on .020" wide lines.

### COMPOSITION PROPERTIES

**Viscosity:** 120  $\pm$  30 Kcps, when measured with Brookfield HBT, Spindle #14, utility cup, 10 RPM, 25°C.

**Specific Gravity:** 4.0-4.5 g/cm<sup>3</sup>

**Recommended Thinner:** KOARTAN A-1039

## RECOMMENDED PROCESSING PROCEDURE

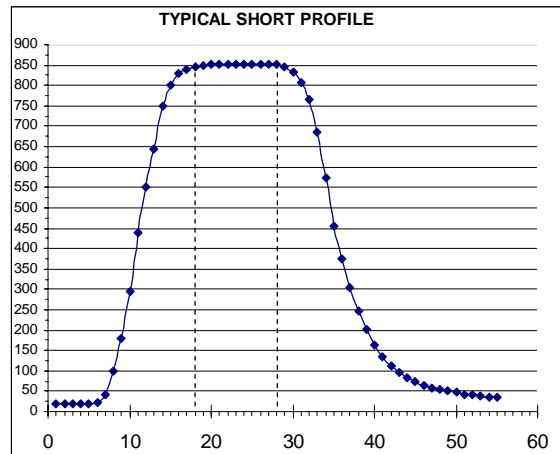
**Printing:** Printing with 280 mesh stainless steel screen using 10-15  $\mu\text{m}$  emulsion and 45 degree angle is recommended. Other mesh counts, 200-325, and emulsion thicknesses, 5-25  $\mu\text{m}$ , may be used for special applications. Squeegee speeds of up to 10 inches/sec may be utilized.

Coverage is approximately 60  $\text{cm}^2$ , when utilizing 325 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 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.

**Application Notes:** The 6101 composition was formulated to have very high solids, while maintaining good flow characteristics. It is recommended that the top of the fired viafill be slightly higher than the surface of the surrounding dielectric. This is particularly important when the viafill connects to a metal other than silver on the top layer. Raised viafill inhibits inter diffusion with dissimilar metals, resulting in more reliable structures.



**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 replaced by incorporating up to 0.5% of Koartan A-1039 thinner.

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