

## Technical Information

# 5600H Capacitor Overglaze

The 5600H was developed for the protection of thick film capacitors from the environment. Most capacitor dielectrics have a higher coefficient of thermal expansion than alumina and ordinary low temperature glazes. Firing of ordinary hermetic glazes on top of thick film capacitors normally results in microscopic cracks, leading to reliability issues. The 5600H glaze provides a nearly hermetic buffer between

the capacitor and fully hermetic low temperature glazes, such as KOARTAN 5600 and 5650. It does not contain cadmium or highly toxic organic solvents. Key features include:

- CTE Match to Alumina.
- Excellent Mechanical Strength.
- Compatibility with most hermetic glazes.

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

<b>Color</b>	GREEN / GREEN
<b>Firing Temperature</b>	580°C - 640°C
<b>Delta C<sup>(2)</sup></b>	≤ ± 5%

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

(2) The shift in capacitance of Koartan 5300 and 5400 series capacitor systems.

### COMPOSITION PROPERTIES

<b>Viscosity:</b>	120 ± 30 Kcps, when measured with Brookfield HBT, Spindle #14, utility cup, 10 RPM, 25°C.
<b>Specific Gravity:</b>	1.8-2.2 g/cm <sup>3</sup>
<b>Recommended Thinner:</b>	KOARTAN A-1039

## RECOMMENDED PROCESSING PROCEDURE

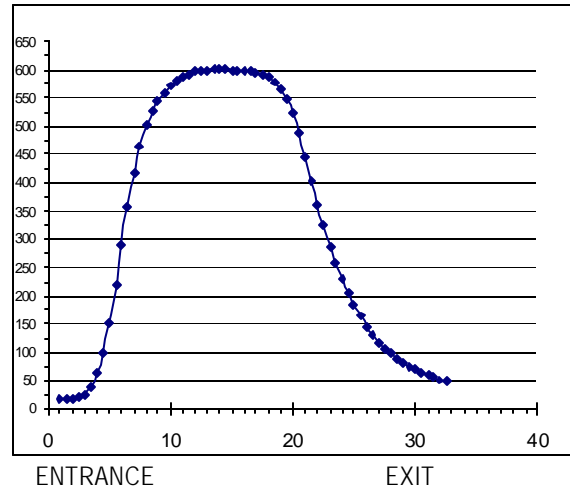
**Printing:** Printing with 250 mesh stainless steel screen using 10-15  $\mu\text{m}$  emulsion and 45 degree angle is recommended. Other mesh counts, 200-325, and emulsion thicknesses, 5-25  $\mu\text{m}$ , may be used for special applications.

Coverage is approximately 130  $\text{cm}^2$  per layer, when utilizing 250 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 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.

**Application Notes:** It is important that the 5600H overglaze completely overlaps the capacitor dielectric pads. Because this material is not fully hermetic, a second layer of passivation using a fully hermetic glaze is recommended. The hermetic glaze should overlap the 5600H completely. For applications involving electroplating or water washable fluxes, a second layer with KOARTAN's acid resistant glaze 5600 is recommended.



### Typical firing profile for 5600H

**Storage and Shelf Life:** Store in tightly capped containers at room temperature. Shelf life is 6 months for unopened jars. Thorough mixing of the paste before each use is recommended. 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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