

## Technical Information

# 5650H Low Temperature Buffer Overglaze

Ordinary vitreous low temperature overglazes produce hermetic, but brittle and weak films. They are particularly susceptible to chipping and cracking if the underlying structure has higher thermal expansion. The 5650H incorporates a small amount of filler and was designed to provide a strong and somewhat low expansion buffer layer between the circuit components and fully hermetic overglazes, such as KOARTAN 5650. The 5650H is nearly hermetic by itself;

but for most demanding applications a second printing a fully vitreous glaze is recommended. The 5650H composition does not contain cadmium or highly toxic organic solvents. Key features include:

- Fast Laser Trimming
- Strong Encapsulation
- Compatibility with most resistor systems.

## TYPICAL FIRED FILM CHARACTERISTICS

<b>Color</b>	Green
<b>Firing Temperature</b>	500°C - 525°C
<b>Surface Finish</b>	Semi-Shinny

## COMPOSITION PROPERTIES

<b>Viscosity:</b>	130 ± 30 Kcps, when measured with Brookfield HBT, Spindle #14, utility cup, 10 rpm, 25° .
<b>Specific Gravity:</b>	1.8 - 2.4 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 38  $\mu\text{m}$ .

**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 500°C-510°C or 3 minutes at a peak temperature of 525°C-530°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:** Where the use of 5650H is contemplated, it is recommended that the fired film of this product be overprinted with a thin layer of 5650 and fired again. If the 5650H is selected as the sole protection later, it should be fired at a

sufficiently high temperature and soak time to provide a shiny green appearance.

**Storage and Shelf Life:** Store in tightly capped containers at room temperature. Shelf life is 12 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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