

Technical Information

5685 Sealing Glass Paste

The 5685 is a high temperature sealing glass designed for joining small substrates together. It has good adhesion to alumina and 430 series stainless steel. When fired as recommended, it melts and flows, then devitrifies to a strong and hermetic mass. A green version, 5685G, is also available. The 5685 and 5685G compositions do not contain lead, cadmium, nickel, or highly

toxic organic solvents. Key features include:

- RoHS Compliant
- Excellent Hermeticity
- Devitrifying Composition
- Withstands Multiple Firing
- High Operating Temperatures

TYPICAL FIRED FILM CHARACTERISTICS

Paste Color	Blue
Fired Film Color	Colorless
Firing Temperature	850°C - 900°C
Surface Finish	Shinny

COMPOSITION PROPERTIES

Viscosity:	130± 30 Kcps, when measured with Brookfield HBT viscometer, spindle #14, utility cup, 10 RPM, 25°C
Specific Gravity:	1.6-2.2 g/cm ³
Recommended Thinner:	KOARTAN A-1039

RECOMMENDED PROCESSING PROCEDURE

Printing: Printing with 250 mesh stainless steel screen using 10-15 μm emulsion and 45 degree angle is recommended. Other mesh counts, 200-325, and emulsion thicknesses, 5-25 μm , may be used for special applications.

Coverage is approximately 130 cm^2/g per layer, when utilizing 250 mesh screen and a wet print thickness of about 35 μm .

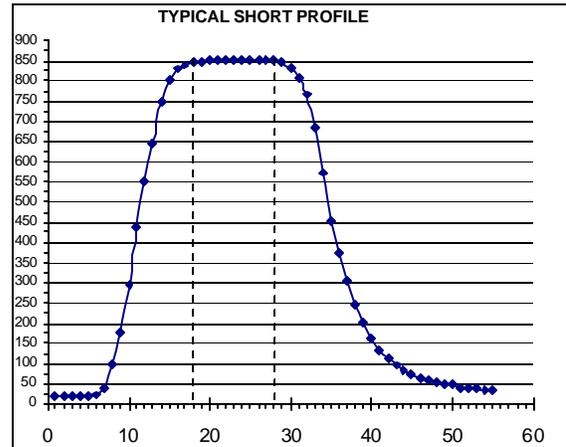
Drying: Wet prints should be allowed to level for 5-10 minutes prior to drying. Dry for 10-15 minutes in a convection oven at 125°C-150°C.

Firing: Firing in air using a belt furnace and a 36-60 minute profile, with 10 minutes at a peak temperature of 850°C-900°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 best joining technique depends on substrate geometry. For very small substrates, the mating pieces may be brought together while the ink is wet. For larger flat pieces, it may be best to print on both pieces and dry. Then, maintain pressure on the assembly during firing. This may be achieved by placing a weight, or using a clamp made of a high temperature alloy.

Due to the devitrifying nature of the sealing glass the joint is expected to operate at relatively high temperatures. However,

thermal cycling test must be performed to verify the joint integrity if the thermal operation is intermittent.



Temperature (°C) vs. Time (minutes)

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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