

SpecTruLite[®] organics | TECHNICAL INFORMATION

KRISTAL HTP+ ORGANIC INKS

1.0 PRODUCT CHARACTERISTICS

1.1 PHYSICAL PROPERTIES

Appearance	High gloss transparent scuff resistant coating
Density	10.0 to 12.0 lbs/gallon (1.20 to 1.44 gms/ cm ³)
Flash point	>200°F, 93°C

1.2 RECOMMENDED APPLICATION PARAMETERS

Application Method	Manual or automatic screen print
Screen Mesh	Stainless steel heated screens, 160-325 mesh
Wet Film Thickness	25-35 microns average
Viscosity/Thinner	Screen ready as supplied. Viscosity may vary based on equipment, mesh and printing room temperature.
Screen Set-up	Screen offset: 0.125 to 0.250 inches (3.2 to 6.4mms) Squeegee Durometer: 50 – 80 Squeegee pressure: moderate to low
Suggested Cleaning Solvents	Ethanol, isopropanol, acetone or MEK. Commercial screen wash blends containing ketones and acetates. Paint thinners, mineral spirits or turpentine are not recommended.

1.3 CURING/DRYING OF PRODUCT

Curing Method	Radiant heat, convection oven or lehr.
Curing Parameters	Temperature: 392°F, 200°C glass temperature. Time: 20 minutes

1.4 GENERAL PERFORMANCE CHARACTERISTICS*

Pencil Hardness	>4H
Ethanol Double Rubs	>50
Boiling Water, 30 minutes	Pass
Dishwasher Resistance/Autoclave	Passes 150 Cycles

***Note:** Performance characteristics based on testing conducted in Ferro development laboratories. Data is given for general comparison only; it is not a guarantee of performance in a particular application. It is always recommended that the customer evaluate the coating for suitability in the intended application. We strongly recommend that all safety precautions be followed as per the relevant Ferro MSDS.

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2.0 PRODUCT NOTES

The Kristal HTP+ Series is a new generation of transparent inks, supplied at screen-ready viscosity. They must be melted prior to use – off-line melting is recommended - and applied through a heated stainless steel screen. We recommend only melting sufficient ink for each shift or decoration job.

3.0 PRODUCT PREPARATION

The Kristal HTP+ Series inks must be completely melted and mixed thoroughly to assure uniformity. Insure that the product has been well heated and has reached 185-205°F (88-95°C) across the surface of the screen prior to use. Ink that has been heated and melted repeatedly may thicken and become difficult to print. Product temperature should be accurately maintained during the entire printing operation to ensure consistent results. Higher temperatures must be avoided, as partial ink curing can occur on the screen.

4.0 APPLICATION NOTES

Best results are obtained when the substrate is warmed slightly to about 100-120°F (37-49°C) before printing. Printing on colder substrates increases the likelihood of pick-off, partial prints and failure to clear the screen.

Cleanliness of the substrate is extremely important. Dirt, dust, fingerprints, or contamination on the ware or in the workplace environment can cause surface defects or performance problems. Cold end coatings based on polyethylenes, soaps, and oleic acid are known to cause wetting problems or adhesion issues. It is strongly recommended that either no cold end coating, or a light application of stearate cold end coating is used.

For optimum caustic durability in beverage bottle decorations, a pretreatment of a Stearate/Silane CEC (Cold end coating) mixture applied through a spray onto the glass surface is recommended. A HEC (Hot end coating) of Tin is optional. For single trip use, a pretreatment is not necessary, but Tin HEC (Hot end coating) is recommended.

Printing may require screen off contact heights of 0.25 inch (6mm) or higher for organic inks. The final setting is dependant on the screen and ware. Squeegee pressures should be moderate (lower than for ceramic inks), organic inks thin under shear and print better at higher speeds. A heated squeegee should also be used to keep the ink fluid and to optimize the printing behaviour. The screens should be made with good tension, so that the screen 'snaps back' quickly when pressed and released. Soft or limp screens will result in smearing or pick-off of prints during multi-color printing. This condition can be aggravated by slow line speeds (<45 bottles per minute).

5.0 CURING NOTES

For complete curing and best performance, the Kristal HTP+ Series ink and the substrate must reach a temperature of about 392°F (200°C). In forced air ovens and Lehrs, a recommended starting point cure cycle is 20 minutes at 392°F (200°C). The actual time necessary to cure the coating is dependent on the heat transfer rate of the oven or Lehr and the size, shape, and thickness of the glass. Best results are obtained when the heat is applied as quickly as possible.

When using a traditional glass lehr to cure organics, a typical set up may have heat only in the first few zones; the latter zones may not be needed. Slow temperature heat-up profiles used for ceramic inks are not necessary with organics ink because there is nothing to burn out. Slow profiles may give poorer results by delaying full cure and allowing the prints to flow too much.

The application of excessive heat can cause ink yellowing or decomposition. This will be most evident in light colors. This can be corrected by reducing temperature, increasing the volume of glass, or speeding up the belt.

6.0 STORAGE RECOMMENDATIONS

Storage temperature should not exceed 72°F (22°C). Storing in refrigerated conditions is recommended and will increase shelf life. Recommended storage is in a refrigerator or freezer, with storage temperature not to drop below 20°F (-7°C). Product must be stored in cool and dry conditions. Partly used containers must be tightly sealed after use. If stored as recommended, a minimum shelf life of six months after the production date is guaranteed.

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