

SpectruLite[®] organics | TECHNICAL INFORMATION

RTP SERIES ORGANIC INKS

1.0 PRODUCT CHARACTERISTICS

1.1 PHYSICAL PROPERTIES

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| Appearance | Medium gloss, opaque, 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

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| Application Method | Manual or automatic screen print |
| Screen Mesh | Stainless steel or polyester, 160-325 mesh. Mesh selection will be dependent on desired appearance. |
| Wet Film Thickness | 25-35 microns average |
| Thinner | Supplied ready to use, can be thinned with Ferro recommended thinner at 1-5%, or by using low heat (90-100°F, 32-38°C) to warm the paste. |
| Printing Viscosity/Screen Set-up | Viscosity may vary based on equipment, mesh and printing room temperature. 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

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| 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*

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|---------------------------------|-------------------|
| Pencil Hardness | >4H |
| MEK/Acetone 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 RTP Series inks are supplied ready to use. The inks are liquid at room temperature and supplied in paste form. They can be thinned if required with Ferro recommended thinners, usually at additions of 1-5%, and can be printed through polyester or stainless steel screens, 160-325 mesh.

3.0 PRODUCT PREPARATION

Insure that the product has been well mixed prior to use. Some settling may occur during long storage. Product temperature should be equivalent to your room temperature prior to measuring viscosity or application of the material. Ink should be mixed thoroughly to assure uniformity.

4.0 APPLICATION NOTES

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, oleic acid are known to cause wetting problems or adhesion problems with the cured coating. It is strongly recommended that either no cold end coating (CEC), or a light application of stearate CEC is used. Oleic acid based and polyethylene cold end coatings should be avoided. For optimum caustic durability in beverage bottle decorations, a pretreatment of a Stearate/Silane CEC mixture applied as a spray onto the glass surface is recommended. A Hot end coating (HEC) of 'Tin' is optional. For single trip use, a pretreatment is not necessary, but 'Tin' HEC is recommended.

Screens may need to be set higher off the glass for printing with organic inks. Offset heights of 6mm (0.25 inch) or higher are not unusual when screen printing organics. The final setting is dependant on the screen and the ware itself. Squeegee pressures should be moderate (lower than for ceramic inks), since organic inks thin under shear and actually print better at higher speeds. Recommended squeegee durometer hardness is 50-80.

5.0 CURING NOTES

For complete curing and best performance the RTP 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 heat-up profiles that are often used for ceramic inks to ensure good medium burn-out are not needed with organics 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 too much heat can cause organic inks to decompose or yellow. This will be most evident in white or lighter colors. This can be corrected by reducing temperature, increasing the volume of glass, or speeding up the belt.

6.0 STORAGE RECOMMENDATIONS

Product must be stored in cool and dry conditions. The storage temperatures should not be below 50°F (10°C) and not exceed 95°F (35°C). Shelf life reduces with increasing temperature. Settling may occur if stored for long periods of time. Before use, products must be stirred thoroughly. 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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