



### Suggested Uses:

Norcote® FLT Series is a UV Curable ink system designed for second surface decoration of Polycarbonate and Polyester which require compatibility of the ink film with pressure sensitive adhesives. This system is suitable for embossing, thermal forming and limited In-Mold applications. **It is the responsibility of the end user to pretest all substrates with Norcote® products prior to use in production.**

### Product Features

- Excellent Flexibility
- Opaque
- Fast Cure Rates
- Good Intercoat Adhesion
- Compatible With Pressure Sensitive Adhesives

### Printing Recommendations:

All inks are supplied at print-ready viscosity, but should be thoroughly mixed prior to each use. If adjustment is needed the FLT Thinner or FLT-049 Overprint Clear can be used to thin the ink.

### Mesh:

A mesh count of 355-420 threads per linear inch (140-165 threads per cm<sup>2</sup>) monofilament polyester mesh is recommended for most applications. Tension should range from 18-25 N/cm<sup>2</sup> on a rigid frame.

### Stencil:

Use of UV compatible direct and thin capillary films (15-25µ) are recommended.

### Squeegee:

A sharp 80 shore durometer polyurethane squeegee is preferred. Inks can be printed with durometers ranging from 60-90 as well as dual durometer squeegees.

### Curing Parameters:

The FLT Series performs best in non-nitrogen atmosphere curing units, inert atmosphere curing units limit the depth of cure. Curing speeds depend on several factors including ink film thickness and the energy level of the lamps. Ink should be cured immediately after printing.



### Curing Equipment:

FLT Series inks are fast curing and work well with one 300 watts/in (120 watts/cm) or two 200 watt/in (80 watts/cm) medium pressure mercury vapor lamps. The minimum requirement is 200mJ/cm.

### Screen Cleaning:

Most conventional solvent cleaners work well. Alcohol based solutions must be avoided as they break down the emulsion. Norcote recommends Press Wash 110 (flash point 113° F), 140 (flash point 140° F) or NSW-824 (flash point 150° F). These products are used for cleaning ink off screens during on press color changes or before storing the screen. They work well when removing ink from squeegees, flood bars and other equipment. Contact us for packaging options.

### Coverage:

Approximately 2,200 square feet per gallon (200 square meters per gallon) depending on printing variables affecting ink film thickness and coverage.

### Mixing:

All Norcote® FLT Series colors are intermixable. Addition of any other ink series will impair FLT Series flexibility and may impair long term adhesion.

### Adhesion:

The FLT Series is a nonvisual post-curing system. Although further cross-linking occurs up to 24 hours later, the FLT Series inks should pass a crosshatch tape test, (ASTM #D3359-97), using 3-M 600 tape after exiting the curing unit and cooling to room temperature. Pressure sensitive adhesives should be applied after a 24 hour post-cure for best results.

### Precautions:

Avoid direct contact of ink with skin and clothing. If contact occurs, wash affected area with warm soapy water and dry thoroughly. If eye contact occurs, irrigate the area with water for 15 minutes and consult a physician. For more specific information, refer to the Material Safety Data Sheet.

### Intercoat Adhesion:

FLT Series inks intercoat adhesion is exceptional. Although loss of intercoat adhesion is difficult, it should be monitored throughout the production run especially when printing 8 or more passes.

### Weatherability:

Weather resistance is subject to conditions of use. Consult the Technical Service Department prior to use for information regarding weather resistance and weatherable applications of the FLT Series inks.

### Embossing/Die-Cutting:

The FLT Series inks are very flexible, providing excellent results under most embossing or die-cutting conditions. To obtain acceptable results, the FLT inks must pass a cross-hatch tape test before embossing. Inks with special effects pigments may not emboss easily. High stress embossing of metallic ink is not recommended.

### Process Colors:

FLT Series Halftone Process inks were designed for 4-color process printing. Color density can be adjusted with the addition of process toners or 060 Halftone Base. To achieve a minimum ink deposit, thus reducing pile height and dot gain, one should use a minimum stencil thickness.

### Metallic Colors:

Most metallic pigments work well with the FLT-000 Mixing Clear. Ability to cure a suspension is related to pigment load and UV exposure. Select mesh with openings large enough to transfer the metallic pigments of choice; generally a mesh count of 305 threads per inch (120/cm) or lower is required. Metallic pigments will reduce the shelf life of FLT Series ink mixtures. RECOMMENDATION: Mix only enough metallic ink for one day.

### Color Range:

Specific colors can be matched at Norcote® against prints, wet ink or PANTONE® numbers.



### Standard Colors:

Mixing Clear	000
<b>Radiant Yellow</b>	<b>012 •</b>
Medium Yellow	017
<b>Permanent Orange</b>	<b>019 •</b>
Red	022
Rhodamine Red	023
Rose	024
Emerald Green	030
Spruce Green	031
Permanent Blue	034
Overprint Clear	049
Violet (Halogen Free)	335 *
Satin Opaque Black	1018◇
Opaque Black	1019
Satin Opaque White	1045◇
Opaque White	1046
High Form White	1146
Nameplate White	1246
Super Form White	1446◇
Opaque Yellow	2233
Lightfast Yellow	2313
Dense Black	4000

◇ .Non-stock items. Additional lead times will apply.

\* Halogen free per the International Electrotechnical Commission standard IEC 61249-2-21.

**• May not be suitable for lightfast applications and is not recommended for prolonged exposure to direct sunlight.**

### Process Colors:

FLT410 HT Yellow  
FLT420 HT Magenta  
FLT430 HT Cyan  
FLT440 HT Black  
FLT450 HT Base

### Transparent Colors:

Transparent Red 1186

**All transparent colors have limited intercoat adhesion.**

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## Key Additives

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Thoroughly mix all additives both prior to and after addition into base inks. Store additives in a tightly sealed container.

### **065-Flow and Bubble Control:**

Used to control bubbles which may occur in the wet ink film upon screening. This effect is primarily observed during screenprinting on high gloss surfaces, during high-speed printing, or on certain types of vinyl (where plasticizer conditions may exist). Use of 065 will adversely affect intercoat adhesion; monitor intercoat adhesion throughout the production run. Do not exceed additions of 1.5% by weight.

### **067 Adhesion Promoter:**

067 will enhance adhesion characteristics when printing on coated metals, raw metals and most plastics. It also enhances chemical and water resistance. A slow belt speed is critical when printing on raw and coated metals. For best results a belt speed of 10 feet per min. is recommended. Standard belt speeds are recommended when printing on plastics. For best results allow a 24 hr. post-cure before performing a cross-hatch tape test. When adding the 067 to a Norcote ink, mix only the amount needed as 067 will decrease the inks shelf life significantly. Add 0-10% by weight.

### **FLT-070 Thinner:**

Enhances transfer of ink through the screen by reducing ink viscosity. Most useful for high-speed printing applications. Excessive amounts of FLT-070 will reduce cure rates and impair surface durability. Do not exceed additions of 10% by weight.

### **073 Cure Promoter:**

Improves depth and speed of cure. Most useful for promoting rapid curing of thick ink deposits, particularly when applied to heat sensitive substrates. 073 will increase surface hardness and may increase gloss if curing conditions and production speeds remain unchanged. Mix inks with 073 fresh daily. Use of 073 may affect intercoat adhesion; monitor adhesion throughout the production run. Do not exceed additions of 3% by weight.

### **078 Polycarbonate Adhesion Modifier:**

The 078 was formulated to enhance adhesion and cure rates. 078 is most useful for accelerating production speeds, particularly when processing heat sensitive substrates that are susceptible to distortion. Do not exceed additions of 5% by weight.

### **079 Adhesion Modifier:**

Enhances the adhesion of FLT Series inks on coated card stock, some metals and other specified materials; most useful for prints requiring die-cutting to a bleed edge. The 079 will increase viscosity and reduce shelf life of the ink. Monitor intercoat adhesion throughout the production run. Mix fresh daily. Do not exceed additions of 2% by weight.

### **100 Thickening Agent:**

This powder will thicken the ink, yet will not dramatically affect the gloss. Monitor cure and adhesion of the FLT Series inks when using thickening agent. Increased ink film thickness may result when printing more viscous inks. Use of 100 powder will affect weatherability. Do not exceed additions of 2% by weight.

### **170 Anti-Stat Gel:**

Prevents static and fuzzy prints. Anti-stat gel should be added to the ink fresh daily. Intercoat adhesion should be monitored throughout the production run. Do not exceed additions of 12% by weight.

### **800 Initiator:**

Developed to provide adhesion to selected materials. Improves water resistance and surface durability. Addition of 800 to any ink containing 070 thinner may reduce cure rates and shelf life. Mix daily; stir immediately. Do not exceed additions of 1% by weight. "NOT FOR USE ON POLYCARBONATE"



## Storage & Available Warranties

All UV FLT Series inks should be stored in tightly closed, black polyethylene containers in an area with the temperature not to exceed 90° F (32.2° C). Avoid direct sunlight and indirect white light. Excess ink from print runs should be stored in separate containers to avoid contamination and is not covered under any warranty. When stored under these conditions, Norcote warrants the Products shall be free from defects in material and manufacture for a period of one (1) year from the date of sale for the FLT Series standard inks, with no additives, and for a period of one (1) month from the date of sale for any custom color containing Day Glo® JZB or T-Powder. **Norcote will not warrant any custom colors containing metallic pastes or any inks intermixed with competitor products.** Any warranties provided will be limited to the price paid for the actual products used which give rise to the warranty claim.

This Technical Bulletin is intended to be used for informational purposes only, and is in no way intended to create any warranties or other obligations on behalf of Norcote. All warranties, terms and/or conditions for a particular product will be specified on the applicable invoice and are only valid upon the creation of a legally-binding contract.

## Testing

Due to the inability of Norcote to anticipate or control the conditions under which the Products and information relating thereto will be used and/or stored, Norcote cannot guarantee the results obtained from using the Products. Any Suggested Uses are merely representative, and because the final product will depend on a number of specific factors, the end user should pretest all substrates with the Products prior to use in production.

## \*PVC Plastics:

Decoration can aggravate embrittlement properties of PVC plastics which can lead to cracking and failure of the plastic. It is strongly recommended that the end user contact the polymer manufacturer to obtain information on the suitability for decorating with a UV ink as well as recommendations for molding / processing to reduce this potential. As every situation can not be tested for in a laboratory environment, it is the responsibility of the end user to determine the suitability of the products chosen for an end application.

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