Norcote Technical Bulletin

Dyno-Cote Series

UV Curable Ink System

Suggested Uses:

The Dyno-Cote Series is a UV curable ink system specially formulated to achieve adhesion to flat sheet high density polyethylene and polypropylene materials. This series is formulated with a resin system that allows for excellent durability and flexibility. Developed for end use on polyolefin materials, the Dyno-Cote Series provides excellent adhesion on many additional rigid substrates; including but not limited to: polystyrene, coated and uncoated card stock, rigid vinyl, PVC (* Note pg. 4) and some coated metals.

Product Features

- **Versatile adhesion properties**
- **More opaque blacks and whites**
- **Outstanding flexibility**
- **Excellent weathering**
- **High gloss finish**
- **Excellent viscosity for high speed printing**

Printing Recommendations:

All inks should be thoroughly mixed prior to use. The Dyno-Cote Series is supplied in a print ready condition. For reduction of ink viscosity, the use of the UVO Universal Thinner , up to 10%, is recommended.

Mesh:

Mesh counts of 355 threads per inch or higher are recommended for opaque colors where a single (1) lamp system is used. Mesh counts of 305 threads per inch or higher are recommended for opaque colors, where two (2) lamp systems are used. Mesh counts should be selected based upon the end user's ability to cure the ink deposit.

Stencil:

Direct or capillary emulsions that are UV compatible, with a dry micron thicknesses between 7-10µ is recommended. Thicker stencils can be used based upon the ability to cure the increased ink deposit.

Squeegee:

Sharp 70-90 durometer polyurethane blade or multi-durometer blades can be used. For optimal ink lay down, a sharp 80 durometer blade is recommended.

Cure & Adhesion:

Dyno-Cote Series inks will cure with one 200 watt per inch lamp at belt speeds between 50-90 feet per minute using 355-420 monofilament polyester mesh. A minimum of 125 mj is required for complete cure. Adhesion should be a minimum of 95% from curing unit with final adhesion occurring within one hour of initial polymerization. Coarser fabrics can be utilized; however, cure parameters may need to be adjusted for the increased ink film. If a loss of gloss or adhesion due to insufficient cure is noticed, the use of 5-10% of Dyno-Cote Series Mixing Clear will increase light penetration and improve cure.

Screen Cleaning:

Use NSW-824 Screen Wash, or other UV compatible screen washes.

Coverage:

3,200-3,600 square feet per gallon, based on a film deposit of .40 to.60 mil.

Precautions:

Gloves and / or barrier cream is recommended when handling UV inks. Safety glasses are suggested, particularly for areas where ink may be splashed. If skin contact occurs, wash affected area with soap and water (do not use solvent or thinners).

Outdoor Use:

Extensive QUV accelerated weathering tests have been conducted with the Dyno-Cote Series. This ink Series withstood 1,000 hours of exposure in a QUV chamber, with 4 hour cycle times of UV light and condensation, with minimal color changes and marginal shrinkage. Accelerated machine weathering are reference standards and can not precisely reproduce actual outdoor performance.

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Metallics:

The DC-011 Metallic Mixing Clear is supplied to use for mixing metallic powders and pastes, such as silver and gold. The increased viscosity of the Metallic Mixing Clear helps to ensure a good powder suspension. Recommended mixing ratios are: 8% by weight of Silver, 20% by weight of Gold. For optimum coverage and opacity, 260-305 meshes are recommended. Use Dyno-Cote Series Overprint Clear for extended weatherability and non-tarnishing properties.

Recommended Substrates:

Linear high density polyethylene, linear high density polypropylene, fluted polyethylene/polypropylene, polyethylene/ polypropylene banner materials, polystyrene, coated and uncoated card stock, rigid vinyl, expanded PVC, pressure sensitive vinyl, ABS, polyester PSA films and some coated metals.

Packaging:

Available in one (1) gallon and five (5) gallon containers.

Color Range:

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

Standard Opaque Colors:

DC 123 Medium Yellow
DC 131 Brilliant Orange
DC 151 Scarlet Red
DC 155 Rubine Red
DC 160 Rhodamine Red
DC 190 Process Blue
DC 200 Peacock Blue
DC 205 Reflex Blue
DC 210 Ultra Blue
DC 220 Emerald Green
DC 485 Warm Red

Color Matching Guide:

DC 101 Primrose Yellow
DC 111 Lemon Yellow
DC 114 CMG Orange
DC 121 CMG Red (YS)
DC 127 CMG Violet
DC 141 Fire Red
DC 165 CMG Magenta
DC 230 CMG Blue
DC 325 CMG Green

Whites, Blacks and Clears:

*DC 010 Mixing Clear
DC 012 Overprint Clear
DC015 Satin Clear
DC 026 Barrier White
DC 027 Super Opaque White
DC 030 Shading Black
*DC 031 Tinting White
*DC 301 Opaque Black
DC 305 Jet Black
DC 311 Opaque White

*Used in the Color Matching Guide

Standard Process Colors:

Dyno-Cote Standard process colors exceed SWOP® standards. Variation of densities may be achieved with the use of the Dyno-Cote Series 450 Halftone Base. For best results, a plain weave mesh and smooth, thin stencil coating is recommended for four color process printing.

Product Identification	Density
DC 410 HT Yellow	1.10
DC 420 HT Magenta	1.75
DC 430 HT Cyan	1.80
DC 440 HT Black	2.00
DC 450 HT Base	N/A

Fluorescent Colors:

Eight shades of fluorescent colors are available upon request. Fluorescent pigments are not light fast beyond 60-90 days even with the use of an overprint clear. For maximum brightness and color stability, 260-305 mesh count is recommended. Fluorescent colors are not recommended for outdoor use or in direct sunlight.

Chartreuse
Orange/Yellow
Orange
Orange/Red
Rocket Red
Pink
Green
Blue

Metallics:

Introducing metallic materials into an ink will reduce the shelf life of the ink. Actual shelf life is dependent upon individual users conditions. As a general rule, it is recommended that only enough metallic ink is mixed for one days use (approximately 8 hours). Paste should be stored between 65° F-95° F to avoid solidification. If this occurs, reliquify the product by placing in an area with temperatures of 25° C-35° C.

040 Gold Paste
042 Silver Paste
044 Red Gold Paste
046 Copper Paste
240 Rich Gold Ink
242 Silver Ink

Storage & Available Warranties

All UV Dyno-Cote 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 Dyno-Cote 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. 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.

Revision: 12/28/2010
Supersedes: 04/05/2010

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