

UV Curable Ink System

Suggested Uses:

The CDG Series is recommended for compact and optical disc applications.



Curing Equipment:

CDG Series inks are fast curing and work well with one focused 300 watt/in (120 watts/cm) or two 200 watt/in (80 watts/cm) medium pressure mercury vapor lamps. The CDG Series inks will cure up to 90 discs per minute with most focused UV curing units.

Screen Cleaning:

Most conventional solvent cleaners work well. Norcote's® NSW-824 Screen Wash is an environmentally friendly cleaner proven effective with UV and other inks. It is available in 1 and 5 gallon containers or 55 gallon drums. Refer to the NSW-824 technical data sheet for additional information. Alcohol based solutions must be avoided as they break down the emulsion.

Coverage:

Ink coverage is approximately 20,000-25,000 discs per U.S. gallon using a 390 tpi (150/cm.) plain weave mesh with a 34 micron thread diameter.

Mixing:

All Norcote® CDG colors are intermixable. They may also be mixed with the CD Series. The addition of any other ink series will alter the physical and chemical characteristics of the CDG Series ink.

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 relevant Material Safety Data Sheet.

Product Features

- * NVP Free
- * Bright Colors
- * Excellent Rheology
- * Very Opaque
- * Good Intercoat Adhesion
- * Fast Curing
- * Durable
- * Abrasion Resistant
- * High Gloss

Printing Recommendations:

All inks should be thoroughly mixed prior to use. Inks are supplied at print ready viscosity for most applications. If adjustment is needed the CDG-070 Thinner or CDG-000 Clear for powders can be used to thin the ink.

Mesh:

Mesh counts of 305-460 threads per linear inch (120-180 cm²) low elongation, monofilament polyester is suggested. Tension should range from 20-25 N/cm² on a rigid frame. Higher tension is recommended for 4-color process printing.

Stencil:

All direct emulsions and thin capillary films (15-25 µ before application) compatible with UV inks are acceptable.

Squeegee:

A sharp 80 shore durometer polyurethane squeegee is preferred. Inks can be printed with durometers ranging from 70-90 as well as dual durometer squeegees.

Curing Parameters:

Norcote® CDG Series inks cure only when exposed to UV light of the proper wavelength. Curing speeds depend on several factors including ink film thickness and the energy level of the lamps. Ink should be cured immediately after printing.



CDG Series

Adhesion:

The CDG Series is a nonvisual post-curing system. Although further cross-linking occurs up to 24 hours later, the CDG Series inks should pass a crosshatch tape test, (ASTM #D3359-97), after exiting the curing unit and cooling to room temperature.

Intercoat Adhesion:

CDG Series inks intercoat adhesion is excellent. NOTE: Intercoat adhesion should be monitored throughout the production run especially when printing 6 or more passes. Use of additives may adversely affect intercoat adhesion.

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 CDG Series inks.

Metallic Colors:

Most metallic pigments work well with the CDG-000 Clear for powders. The 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 CDG Series ink mixtures. RECOMMENDATION: Mix only enough metallic ink for one day.

Process Colors:

CDG Series Halftone Process inks were designed for High Definition 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.

Color Range:

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

Standard Colors:

Clear for Powders	000
Thick Clear	055
Mixing White	002
Opaque White	1046
Non-Chalking White	1054
Opaque Bright White	1056
Low Shrink Opaque White	1646
Black	005
Opaque Black	1019
Jet Black	4000 2 day lead time
Brown	007
Brilliant Yellow	016
Medium Yellow	017



Permanent Orange	019 •
Radiant Orange	020 •
Cha Cha Red	021 *
Red	022
Rhodamine Red	023
Rose	024
Graphic Red	025
Magenta	026
Emerald Green	030 2 day lead time
Spruce Green	031 2 day lead time
Permanent Blue	034 2 day lead time
Violet	035
Reflex Blue	037
Peacock Blue	038
Process Blue	050

Process Colors:

Halftone Base	060
Halftone Process Cyan	080
Halftone Process Magenta	081
Halftone Process Yellow	082
Halftone Process Black	083

High Density Process Colors:

HD Process Cyan	9001
HD Process Magenta	9002
HD Process Yellow	9003
HD Process Black	9004
HD Cyan Toner	9111 *
HD Magenta Toner	9112 *
HD Yellow Toner	9113 *
HD Black Toner	9114 *

Fluorescent Colors/JZB's:

Aurora Pink (Blue shade)	11 B
Aurora Pink (Yellow shade)	11 Y
Rocket Red	13
Fire Orange	14
Blaze Orange	15
Arc Yellow	16
Saturn Yellow	17
Signal Green	18
Horizon Blue	19
Corona Magenta	21

Metallics:

Gold Paste	040 • (See Note)
Silver Paste	042
Red Gold Paste	044
Copper Paste	046
Rich Gold Ink	240
Silver Ink	242

• 040 paste should be stored between 18C-35C to avoid solidification. If this occurs, reliquify the paste by placing it in an area with temperatures of 25C-35C.

* 3 gallon minimum

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

Key Additives

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

CDG-000 Clear for Powders:

Use CDG-000 low viscosity Clear for powders as an extender base or as a curing aid; however, CDG-000 is primarily used as a base to suspend special effects pigment. If used as an extender base or as a curing aid, add up to 25% by weight to base colors or until an appreciable color variance occurs. Use of CDG-000 will affect lightfastness if mixed into the base colors. Contact the Norcote® Technical Service Department for more information regarding proper use.

CDG-055 Thick Clear:

CDG-055 can be used as an extender base, a curing aid, an inter-layer clear (tie-layer) or as a final overprint clear to enhance the graphic effect of printed materials. If used as an extender base or as a curing aid, add up to 25% by weight to base colors or until an appreciable color variance occurs. Use of CDG-055 Thick Clear will affect lightfastness if mixed into base colors.

CDG-060 Halftone Base:

A thick clear used in the screenprinting of halftone or four-color process reproductions. CDG-060 may be used to decrease the density of a color in order to match the color key. Additions of 060 will enhance fine line detail or fine copy negative artwork. Additions of 20% or less by weight will correct most variations in color density or print quality. Use of 060 will adversely affect lightfastness.

065-Flow and Bubble Control:

Controls bubbles which may occur in the wet ink film upon screenprinting. This effect is primarily observed during high-speed printing. Use of 065 will adversely affect intercoat adhesion; monitor intercoat adhesion throughout the production run. Do not exceed additions of 1.5% by weight.

CDG-070 Thinner:

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

073-Cure Promoter:

Improves depth and speed of cure. Most useful for promoting rapid curing of thick ink deposits. 073 will increase surface hardness and may increase gloss if curing conditions and production speeds remain unchanged. Use of 073 may reduce shelf life of the CDG Series inks. Mix inks fresh daily. 073 may affect intercoat adhesion; monitor adhesion throughout the production run. Do not exceed additions of 3% by weight.

100 Thickening Agent:

Thickens the ink, yet the powder will not dramatically affect gloss. Monitor cure and adhesion of the CDG Series inks when using. Increased ink film thickness may result when printing more viscous inks. 100 Powder will adversely 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.

300 Matting Powder:

This powder will increase the matte effect and viscosity of the CDG Series inks. Monitor cure and adhesion. Increased ink film thickness may result when printing more viscous inks. Additions above 5% will impair surface durability. Do not exceed additions of 10% by weight.



Storage & Available Warranties

All UV CDG 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 CDG 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.

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