

PRODUCT INFORMATION

FEATURES

- ▶ Excellent outdoor durability when overprinted with Duracal Overprint Clears
- ▶ Exceptional for fleet applications over rivets and corrugation
- ▶ Highly flexible
- ▶ Excellent chemical abrasion resistance for OEM applications
- ▶ Bright, clean single pigment blending system
- ▶ Superior color matching ability
- ▶ Capability of matching metallics including coarse flakes
- ▶ Resists pressure sensitive adhesives when used in polycarbonate applications
- ▶ Transparent colors available

SUBSTRATE APPLICATIONS

- ▶ Premium pressure sensitive vinyls
- ▶ Gloss and textured polycarbonate sheeting
- ▶ Most print treated / top coated polyesters
- ▶ Vinyl receptive reflective sheeting

THINNING

Stir well before every use. Duracal inks are supplied in a press ready condition for most printing applications. It may be necessary to thin slightly (3-5% with DCL-TH Thinner for colors or DCL-OPTH Thinner for clear coat) for automatic presses and in-line processors.

MESH

Duracal colors are recommended to print through 355 to 390 (140 to 150/cm) monofilament polyester fabrics. DCL40908 Clear and Metallics are designed to print through 305 to 355 (120 to 140/cm) monofilament polyester fabrics.

STENCILS

Stencil materials must be solvent resistant and produce a thin film stencil (3-6 microns over mesh). Xtreme AST-210, AST-220, Dirasol 915, Dirasol 916 dual cure, or Dirasol 132 one pot direct emulsions are recommended to give the highest print quality, minimize deposit variables, and improve economy.

CURE PARAMETERS

Ultraviolet curable inks are dependent on a high dosage of ultraviolet light to initiate cure. Light energy must penetrate the entire ink layer to achieve proper cure and ink performance. Only the recommended screen mesh listed above should be used to ensure proper ink film thickness and proper cure. Duracal colors are designed to cure in units containing one 200-watt/inch (80-watt/cm) lamp at 40-50 feet per minute (250mj+). Duracal Overprint Clears are designed to cure in units with one 300 watt/inch (120-watt/cm) lamp at 40-50 feet per minute (350mj+). Cure speeds are dependent on colors, film thickness, opacity, and condition of the curing unit.

If under-cure is experienced with any color, demonstrated through a wet film or loss of gloss, it is usually due to excessive ink deposit. To correct this, the mechanics, such as mesh, squeegee, color density, belt speed, or the amount of UV energy, must be changed.

Reduction of color density is easily achieved by letting the color down with DCL-MX (Mixing Clear) until proper cure is obtained. Adhesion should be at least 90% immediately out of the reactor with final adhesion developing in one half hour. If total cure on a given substrate with a specific color needs to be established, the printed piece should be passed through the reactor one or two more times. This will usually simulate final adhesion.

COVERAGE

Standard line colors should yield coverage of 2,800- 3,500 square feet/gallon (64 to 80 m²/liter) depending on film thickness.



WASH UP

Wash up on press with Xtend™ press washes and after the production run with Xtend™ ink degradents.

PRE-PRODUCTION TESTS

It is strongly recommended that adhesion be tested prior to production. Pressure sensitive films can vary from different manufacturers and even between different batches from the same manufacturer. PS vinyls contain ingredients that could migrate to the surface due to age or storage of the film causing poor adhesion. In this case, wiping the film with alcohol can improve adhesion.

END-USER MUST DETERMINE SUITABILITY OF THIS PRODUCT FOR THE INTENDED USE PRIOR TO PRODUCTION.

OUTDOOR USE

Accelerated weather tests have been conducted on prints produced with Duracal in QUV and Xenon Arc weatherometers. Under these conditions, over-printed Duracal colors withstood 2500 hours with no appreciable color change or deterioration evident. Accelerated weathering tests cannot be precisely related to actual outdoor performance, but it is considered that 2500 hours of exposure approximately equates to up to five years outdoor exposure in temperate climates.

Exterior durability of any ink is directly related to ink film thickness and pigment concentration. The thinner the ink film, the faster the film will deteriorate. Likewise, the less the pigment concentration, the quicker the color will fade. Optimum results can be attained with a 355.34pw mesh and full strength toner concentration. We do not recommend quantities of 5% or less by weight of any toner in a blended color.

NOTE: Duracal inks must be overprinted with DCL40908 Overprint Clear or DCLF-OP Fleet Overprint Clear to achieve outdoor durability.

WARRANTY

Information regarding warrantable applications can be obtained from your Technical Sales Manager. For the warranty to be valid, it must be obtained in writing prior to the production use of the Duracal system.

COLOR AVAILABILITY

The Duracal color range includes matching system colors, the intense four-color process halftone colors and transparent colors. DCL-301 Opaque Black, DCL 302 Super Opaque Black, DCL-311 Opaque White, DCL-312 Super Opaque White, and DCL-026 Bright White are also available.

COLOR MATCHING

The Duracal matching system has been designed to enable printers to readily match colors in-house. The system consists of 13 blending colors, each of which has been selected for its cleanliness or tone, durability, and suitability for intermixing. Using the matching system colors plus DCL-SB Shading Black, DCL-TW Tinting White, and DCL-MX Mixing Clear, almost any color can be produced.

CAUTION: Using less than 5% of any color in a match will decrease its outside durability. Using more than 60% clear and/or white will decrease outdoor durability.

FOUR COLOR PROCESS COLORS

Duracal halftone inks are high intensity colors and need to be let back with halftone base to achieve a specific density. Both high and low viscosity halftone bases are available and selection will depend on the type of press used. Contact your Technical Sales Manager for specific recommendations.

METALLICS / PEARLESCENTS

DCL Mixing Clear is recommended for use with metallic and pearlescent pigments. The viscosity of the Mixing Clear insures good metallic suspension and excellent cure speeds. The recommended mixing ratio is a maximum of 12% by weight. **(NOTE: Call your NAZDAR Technical Service Manager for specific recommendation of metallic and pearlescent pigments.)** Screen mesh should range between 305 and 355 monofilament polyester. 305 mesh should be used for coarse flakes. For medium and fine flakes, 355 mesh should be used and a minimum of 300 watts and 350 mj of energy is required.

SPECIAL MATCHES

Special colors can be supplied against prints, wet ink, PANTONE®* numbers, or other standard colors.

*Pantone, Inc's check-standard trademark for reproduction and color reproduction.

FLEET, REFLECTIVES, AND POLYCARBONATES

The Fleet OP Clear (DCLF-OP) must be applied in fleet applications (rivets and corrugation), when using polycarbonate substrates, or when reflective materials are involved.



GRAPHIC OVERLAY APPLICATIONS

Duracal performs well on second surface polycarbonate overlay applications when used in conjunction with laminating adhesives, such as 3M's 467 and 468. Proper initial cure and a minimum of 24 hour post cure are required before adhesive application.

There are specific colors in the Duracal line that require additional energy to cure due to their physical characteristics. Therefore, we do not recommend the use of the items listed below for second surface polycarbonate applications.

DCL-301 Opaque Black

The DCL-302 Super Opaque Black has been formulated for optimal performance in second surface polycarbonate applications and should be substituted in place of the DCL-301.

STANDARD COLORS

ITEM	DESCRIPTION
DCL-301	Opaque Black
DCL-302	Super Opaque Black
DCL-311	Opaque White
DCL-312	Super Opaque White
DCL-026	Brilliant White
DCL40908	Overprint Clear
DCLF-OP	Fleet Overprint Clear

MATCHING SYSTEM COLORS

ITEM	DESCRIPTION
DCL-010	Yellow GS
DCL-101	Primrose Yellow**
DCL-123	Medium Yellow**
DCL-014	Yellow RS
DCL-020	Orange
DCL-131	Brilliant Orange**
DCL-030	Red YS
DCL-031	Red BS
DCL-032	Deep Red
DCL-033	Red QYS
DCL-034	Red QBS

DCL-035	Magenta
DCL-037	Pink
DCL-039	Violet
DCL-040	Green BS
DCL-041	Green YS
DCL-050	Blue GS
DCL-052	Blue RS
DCL-SB	Shading Black
DCL-TW	Tinting White
DCL-MX	Mixing Clear
DCL-MMX	Metallic Mixing Clear

**Replaced Krolor colors, pre-production test strongly recommended.

HALFTONE COLORS

ITEM	DESCRIPTION
DCL-IHY	Intense Halftone Yellow
DCL-IHR	Intense Halftone Red
DCL-IHB	Intense Halftone Blue
DCL-IHK	Intense Halftone Black
DCL-LVX	Low Viscosity Base
DCL-HVX	High Viscosity Base

REDUCERS / MODIFIERS

ITEM	DESCRIPTION
DCL-TH	Thinner
DCL-OPTH	OP Thinner
DCL-FTH	Fast Thinner

TRANSPARENT COLORS

ITEM	DESCRIPTION
DCL-035	Magenta
DCL-037	Pink
DCL-040	Green BS
DCL-041	Green YS
DCL-050	Blue GS
DCL-052	Blue RS



Duracal

LONG TERM DECAL UV INK

DCL-210	Transp Yellow GS
DCL-214	Transp Yellow RS
DCL-230	Transp Red YS
DCL-231	Transp Red BS
DCL-239	Transp Violet

STORAGE

Containers should be tightly closed immediately after use. At the end of long printing runs, surplus ink from the screen should be disposed of. Refer to Material Safety Data Sheet (MSDS) for materials and conditions to be avoided.

In the interest of maximum shelf life, storage temperatures should be between 50°F (10°C) and 77°F (25°C). When stored under these conditions, the maximum shelf life is shown by the Use By dates, which are clearly marked on all ink containers.

SAFETY AND HANDLING

Refer to MSDS for safety, handling, waste disposal and regulatory information. All colors have been formulated with pigments that do not contain lead or other heavy metals. These products are formulated to meet CONEG Packing Legislation and ROHS Electrical and Electronic Equipment Directive. If necessary, certification of lead and heavy metals content can be obtained from an independent laboratory.

The information and recommendations contained in this Technical Data Sheet, as well as technical advice otherwise given by representatives of our Company, whether verbally or in writing, are based on our present knowledge and believed to be accurate. However, no guarantee regarding their accuracy is given as we cannot cover or anticipate every possible application of our products and because manufacturing methods, printing stocks and other materials vary. For the same reason our products are sold without warranty and on condition that users shall make their own tests to satisfy themselves that they will meet fully their particular requirements. Our policy of continuous product improvement might make some of the information contained in this Technical Data Sheet out of date and users are requested to ensure that they follow current recommendations.