

Gloss U.V. Ink for High Density Polyethylene Sheet and Corrugated Plastics

Features

- Press Ready
- Fast Cure Speeds
- High-Gloss Finish
- Excellent Flexibility and Intercoat Adhesion
- Superior Printability for Large Format Work
- Wide Adhesion Range

Substrate Application

Media Type
High Density Linear Polyethylene Sheet
Coroplast® Cor-X®, and other Fluted Polyethyl-ene/Polypropylene Stocks
Polystyrene
Many Rigid Plastics

Thinning

Stir well before every use. **PolyDyne** inks are supplied in a press ready condition for most printing applications. It may be necessary to thin slightly (3-5% with PN-TH Thinner) for cylinder press users or special applications.

Mesh

PolyDyne prints and cures well through 380 to 420 (150 to 165/cm) plain weave monofilament polyester. For optimum flexibility on unsupported substrates, every endeavor should be made to minimize ink film thickness.

Stencils

Stencil materials must be solvent resistant and produce a thin film stencil (3-6 microns over mesh). Dirasol 911, SuperCoat 915, and SuperCoat 916 dual cure, AST-210 and 220 dual cure, Dirasol Zenith Triple 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 cure (UV) inks are dependent on a high dosage of ultraviolet light to initiate cure, the process that converts the ink from a wet to a dry film. The light must, in effect, see through or penetrate the layer of ink to achieve proper cure.

Light energy level requirements vary from ink to ink and are dependent on a number of factors:

1. Ink chemistry
2. Color
3. Ink deposit (film weight)
4. Substrate being printed
5. Halftone or line color

For **PolyDyne** the following guidelines are recommended:

Halftone Inks – 380.34PW Mesh

Minimum millijoules—80-130 mJ/cm²—measured at the UVA component

Minimum milliwatts—500 mW/cm²—measured at the UVA component

Line Colors—355.34PW Mesh

Minimum millijoules—175 mJ/cm²—measured at the UVA component

Minimum milliwatts—600 mW/cm²—measured at the UVA component

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 MX (Mixing Clear) until proper cure is obtained.

Adhesion should be at least 80% immediately out of the reactor with final adhesion developing in one-half hour to four hours. If total cure on a given substrate with a specific color needs to be established, the piece should be passed through the reactor one or two more times. This will usually simulate final adhesion.

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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 press washes and after the production run with ink degradents.

Pre-Production Tests

PolyDyne has been formulated to adhere to most polyethylene and some polypropylene substrates with surface tension levels of 40 dyne/cm or higher. However, it is strongly recommended that all substrates be tested before use as supposedly similar substrates can vary between different manufacturers and even between different batches from the same manufacturers. Certain plastics may be impregnated with lubricants which, like plasticizer migration, may impair adhesion and block resistance, even a considerable period after printing. Other plastics can become brittle or caused to curl after printing.

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

Outdoor Use

Accelerated weathering tests indicate **PolyDyne** has an exterior life of up to two years on rigid stocks. Some rigid fluted stocks degrade rapidly in high humidity and sun exposure environments. To optimize ink adhesion under these conditions, add 3-5% by weight PN-WRA. Once catalyzed, the ink has a four to six hour pot life.

Color Availability

The PolyDyne color range includes ten base Intense Matching System (IMS) colors, eleven standard colors, and intense halftone colors.

The Intense Matching System

The Intense Matching System has been designed to enable printers to readily simulate PANTONE®* and most other colors in-house. The system consists of 10 IMS base colors, each of which has been selected for its cleanliness of tone and suitability for intermixing. Using the IMS base colors plus Shading Black, Tinting White, and Mixing Clear, almost any color can be produced.

PN-301 Black is somewhat ink film thickness sensitive. Use of a 380.34 pw mesh or higher is recommended. For lower meshes use PN-300 Opaque Black.

Standard Halftone Colors

PolyDyne standard halftone colors comply with the ISO 2846 color standard. ISO 2846 establishes specifications for color and transparency of four color process ink for four-color printing. PolyDyne halftone inks are ISO 2846 compliant as recommended when using the G7 color process control method. The densities are slightly higher than SWOP (Specification Web Offset Publication) under most conditions and, therefore, offer scope for adjustment with the addition of halftone extender base.

PolyDyne halftone inks are developed to meet high speed print conditions. They incorporate the EzFlow rheology that provides improved ink flow out on the screen and achieves excellent release from the screen at extremely high print speeds while using minimal UV energy (80-130 mJ/cm² of UVA) for curing. PolyDyne halftone inks print with a superior low dot profile and hold the dot structure over long press runs.

Intense Halftone Colors

PolyDyne Intense Halftone colors are considerably higher in density than SWOP standards. Reduction of color density is easily achieved by letting down the color with PN-HTX (Halftone Base) until proper density is obtained.

Special Matches

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

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

Standard Colors

PN-111	Lemon Yellow
PN-123	Medium Yellow
PN-131	Brilliant Orange
PN-141	Fire Red
PN-155	Rubine Red
PN-180	Warm Red
PN-190	Process Blue
PN-200	Peacock Blue
PN-205	Reflex Blue
PN-210	Ultra Blue
PN-221	Emerald Green
PN-300	Opaque Black
PN-301	Black
PN-311	Opaque White
PN-026	Brilliant White
PN-SB	Shading Black
PN-TW	Tinting White
PN-MX/OP	Mixing Overprint Clear

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Intense Matching System Colors

PN-064	IMS Yellow GS
PN-066	IMS Yellow RS
PN-114	IMS Orange
PN-121	IMS Red YS
PN-127	IMS Violet
PN-164	IMS Red BS
PN-165	IMS Magenta
PN-230	IMS Blue GS
PN-233	IMS Blue RS
PN-325	IMS Green

Standard Halftone Colors

PN-HTC	Halftone Cyan
PN-HTM	Halftone Magenta
PN-HTY	Halftone Yellow
PN-HTK	Halftone Black

Intense Halftone Colors

PN-IHC	Intense Halftone Cyan
PN-IHM	Intense Halftone Magenta
PN-IHY	Intense Halftone Yellow
PN-IHK	Intense Halftone Black
PN-HTX	Halftone Extender Base

Reducers/Modifiers

PN-TH	Thinner
PN-WRA	Water Resist Additive

Thinners / Modifiers

PolyDyne colors are supplied at a press ready viscosity for most printing applications. It may be necessary to thin slightly (3%-5%) with PN-TH for cylinder presses or special applications. PolyDyne Mixing Clear (PN-MX) may be used to reduce the strength of a color with minimal effect on viscosity.

When printing on low dyne or questionable substrate, between 35 and 42 dyne level, an addition of PN-WRA may be necessary to achieve proper adhesion. PN-WRA should be added 3% to 5% by weight, and once mixed, has a pot life of four to six hours. Unused ink with PN-WRA should be properly disposed of as outlined in the MSDS.

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. **PolyDyne** inks and reducers should not be stored in direct sunlight or extreme temperatures. 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.

High temperature storage/shipment of prints may have an adverse effect on block resistance

Safety and Handling

Refer to MSDS for safety, handling, waste disposal and regulatory information. All colors have been formulated to contain no pigments which 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.

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