

Industrial Graphics Series UV Curable Ink System

The IGX Series is a UV curable screen printing ink that has been specifically designed to meet the demands of the Industrial Graphics Market, including automotive, white goods, and user interface applications. The IGX Series features outstanding adhesion to many of the materials commonly used in Industrial Graphic applications, i.e. print treated polyester, polycarbonate, and polycarbonate blend films and displays superior inter layer adhesion where multiple exposure to UV energy is required. When processed as directed, the IGX Series exhibits excellent color strength, opacity, flexibility and is resistant to both tape UV printable adhesives. The IGX Series can also be used in many IMD/IML applications. The IGX Series does not contain N-Vinyl-2-Pyrrolidone (NVP) and is VDA and RoHs compliant.

It is the responsibility of the end user to pretest all substrates with Norcote® products prior to use in production.



Product Features:

- Tack Free Ink Surface
- Robustness in Application
- Embossable / Formable
- Excellent Intercoat Adhesion
- Compatible With most PSA's

Printing Recommendations:

The IGX Series is formulated to print from the container without the use of additives. Prior to printing, all colors should be well mixed. Excess ink from print runs should be kept in a separate container to avoid contamination.

Do not microwave this product.

Mesh:

305 plain weave or higher mesh counts are recommended for opaque colors where two (2) lamp systems are used. 355.34 plain weave or higher mesh counts are recommended where one (1) lamp systems are used.

Stencil:

Direct or capillary emulsions that are UV compatible, with a dry micron thickness between 7-10 µm is recommended. Thicker stencils can be used based on 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 molded 80 durometer blade is recommended.

Thinner:

The IGX Series is supplied in print ready condition. For reduction of ink viscosity, the use of IGX-049 Clear is recommended.

Coverage:

Approximately 2,000-3,000 square feet per gallon, depending upon ink deposit.

Cure Parameters:

Please see notes on page 2.

Precautions:

Gloves and/or barrier cream are recommended when handling UV inks. Avoid direct contact of ink with skin and clothing. If contact occurs wash affected area with warm soapy water (do not use solvents or thinners). If eye contact occurs, irrigate the area with water for 15 minutes and consult a physician. For more specific information refer to the relevant Safety Data Sheet.

Please see important warranty and testing information on page 4.



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Cure and Adhesion:

Adhesion and/or cure was determined by use of a cross hatch tape test, following ASTM Standards F1842-09 and/or D3359, using 3M #600 tape. Test prints were tested after exiting the cure unit and cooling to room temperature (approximately five minutes). UV intensity/energy were measured with a calibrated EIT Power Puck !!. On MacDermid polyester films and listed polycarbonate and polycarbonate blend films, adhesion was maintained after 11 exposures to UVA energy at 200 mJ/cm² and .800 mJ/cm² for each exposure. (When exposing Marnot® polyester films to UV energy more than five (5) times, it is recommended that the IGX-049 Clear is used as a printer coating to obtain adhesion for extended pass/-exposures. Exposing MacDermid polyester films to UV energy more than 11 times may also require the use of the IGX-049 Clear to obtain adhesion.) Multiple exposures to excessive UVA energy (greater than five (5) exposures in excess of UVA 300/cm² / 1.0/cm² per exposure may cause the loss of intercoat adhesion between colors and /or may lower the number of passes that is obtained on MacDermid print treated polyester films. Note: it is possible for the opaque colors to pass a cross hatch tape test at low UV energy (<170mJ/cm² /500mW/cm², however the cure may not be sufficient for other end use requirements, such as resistant to adhesives.

Materials Tested:

- MacDermid Autoflex EBG187L (EBG77) Polyester
- MacDermid Autoflex XE V207 (2v87xe) Polyester
- MacDermid Autoflex EBG 180L (EBG7) Polyester
- Sabic 8010 Lexan® Polycarbonate
- Bayfol® CR6-2 PC/PBT Blend

Adhesive Resistance/Compatibility:

The IGX Series has been formulated to be compatible with standard PSA and UV curable printed adhesives commonly used in the Industrial Graphics Market. When printed through 355.34 plain weave mesh and exposed to the minimum cure requirements, the IGX Series displayed excellent resistance to adhesive attack and subsequent delamination. The IGX Series also exhibited superior compatibility to the adhesives tested and displayed by shear subsequent delamination.

Flexibility - Emboss & Fatigue:

The IGX Series has been formulated with flexibility required for standard embossing and die cutting without cracking or crazing of the printed ink film. Only inks that pass cross hatch tape test should be embossed or die cut. When printing through a 355.34 plain weave mesh and exposed to minimum cure requirements the IGX Series displays excellent flexibility when embossed. Testing has been conducted using multiple substrates, ink layers and emboss depth and types. In all tests conducted no cracking or crazing of the ink film was detected in any of the embossed area.

Using embossed test samples, the IGX Series have been evaluated for durability and resistance to fatigue when subjected to simulated switch actuations. When printed through a 355.34 plain weave mesh and exposed to the minimum cure requirements, the IGX Series displays excellent durability and resistance to fatigue on a wide variety of substrates, including polycarbonate. In limited actuation evaluations, (both internal and external), the IGX Series has been subjected to over 1 million actuations with no observable defects on both polycarbonate and print treated polyesters.

Additives:

Check the Norcote® Additives list for the products that are compatible with this series. This list is available on our website at www.norcote.com, or call us at 800-488-9180 to receive a copy. If further information is needed contact one of our Technical Service Representatives.

Clean Up:

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), Press Wash 140 (flash point 140°F) or NSW-824 (flash point 150°F). These products are used for cleaning ink off screens during 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.



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Color Range:

Custom and specific colors can be matched at Norcote® with customer supplied print sample, wet ink sample, Pantone® numbers as well as other recognized standards.

Standard Colors:

IGX-012	Radiant Yellow*
IGX-017	Medium Yellow
IGX-019	Permanent Orange*
IGX-2233	Opaque Yellow
IGX-2313	Lightfast Yellow
IGX-2872	Lightfast Orange
IGX-021	Cha Cha Red (Special Order)
IGX-022	Red
IGX-023	Rhodamine Red
IGX-024	Rose
IGX-026	Magenta
IGX-030	Emerald Green
IGX-031	Spruce Green
IGX-034	Permanent Blue
IGX-424	High Density Rose
IGX-035	Violet
IGX-037	Reflex Blue
IGX-038	Peacock Blue
IGX-330	HF Green*
IGX-335	HF Violet*

* 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.

Black's, White's & Clear's

IGX-000	Mixing Clear
IGX-049	Overprint Clear
IGX-1046	Opaque White
IGX-1056	Non-Chalking Opaque White
IGX-1085	Ultimate Clear SR (scratch resistant)
IGX-1593	HV Opaque White
IGX-1019	Opaque Black
IGX-4100	Dense Black

038 Silver Powder:

038P is a coated powder that is meant to line up the silver particles at the bottom of a printed and cured ink film. It is for second surface applications only. 038P requires gentle mixing, it is best mixed by hand. Avoid dispersion using toothed mixing blades on mixers. It should not exceed 15% by weight. Thoroughly mix the powder in to metallic mixing clear. Ability to cure a suspension is related to pigment load and UV exposure. Use mesh counts of 305.33 pw (120/cm) or lower when printing a metallic mixture. Adhesion and intercoat adhesion should be monitored throughout the production run. Higher percentages of metallic pastes can decrease adhesion and intercoat adhesion properties. Mix ink fresh daily. Keep the container away from direct and indirect light and heat. The lid should always be tightly secured.

Metallics:

Most metallic pigments work well with IGX-000 Metallic Mixing Clear. The increased viscosity helps to stabilize pigment suspension. Recommended mixing ratios are (by weight):

040 Gold Paste:	up to 20%*
042 Silver Paste:	up to 8%
044 Red Gold Paste:	up to 20%
046 Copper Paste:	up to 15%
038 Silver Powder:	up to 15%
240 Liquid Gold:	up to 30%
243 Silver Metallic:	up to 30%

Select mesh with openings large enough to transfer the metallic pigment of choice; generally a mesh count of 195-305 pw are recommended.

Using Metallics:

Metallic pigments will reduce the shelf life of ink mixtures. Actual shelf life will depend upon individual users conditions. As a general rule it is recommended to only mix enough metallic ink for one day.

**040 Gold Paste should be stored between 64°-95° F (18°-35° C) to avoid solidification. If this occurs, reliquify the paste by placing it in an area with a temperature of 77°-95° F (25°-35° C).*



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Fluorescent Colors/JZB's:

Fluorescent colors are available upon request. Fluorescent pigments are not light-fast beyond 60-90 days even with an overprint clear. For maximum brightness and color stability 230-260 plain weave monofilament mesh counts are recommended.

T-Powders are also available. Please contact Norcote more information. 800-488-9180

Storage & Available Warranties:

All IGX 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 until the expiration date shown on the product label. **Norcote® will not warrant any custom colors containing metallic pastes or any ink intermixed 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 result 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 product to use in production.

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