

UV9 Series UV Curable Ink System

UV9 SERIES UV SCREEN INK

The UV9 is an ultraviolet curable acrylic screen-printing ink specifically formulated for multi-purpose use in Point of Purchase printing. This series demonstrates excellent adhesion properties while maintaining a high degree of flexibility for die cutting. Formulated with premium lightfast pigments, the UV9 is an extremely durable outdoor system with very good opacity and fast cure speeds. UV9 Series has a very high degree of reactivity for extremely high cure speeds, which works exceptionally well with in-line printers or carousel type presses. **It is the responsibility of the end user to pretest all substrates with Norcote Products prior to use in production.**

Product Features

- Non-Blocking Gloss Finish
 - Excellent Adhesion and Intercoat Adhesion
 - Excellent Weatherability
 - Perfect for Die-Cutting
 - Low Shrinkage Properties
- (for excellent weatherability on premium vinyl's)

Recommended Substrates

Pressure sensitive vinyl, print treated polyester PSA films, rigid vinyl, coated and uncoated card stock, polystyrene, ABS and some coated metals. The UV9 Series will adhere to high density and fluted polyethylene with the addition of 3-5% Adhesion Promoter. UV9 Series is not recommended for vinyl materials that contain a high degree of plasticizer. Full testing by the end user is recommended to determine suitability of product for a specific substrate and application.

Mesh:

355 or higher mesh counts are recommended for opaque colors where a single (1) lamp system is used. 305 or higher mesh counts 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.

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.

Coverage:

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

Stencil:

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

Thinner:

The UV9 Series is supplied in a print ready condition. For reduction of ink viscosity, the use of up to 10% of the UVO Thinner is recommended.

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.

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).

Cure & Adhesion:

A minimum of 125 mJ/cm² and .300 watts per inch is required for complete cure. Adhesion should be at a minimum of 95% from curing unit, with full adhesion within four (4) hours of initial cure. When using coarser screen meshes, cure conditions may need to be adjusted for the increased ink deposit. If a loss of adhesion due to insufficient cure is noticed, the use of 5-10% UV9 Series Mixing Clear will increase light penetration and improve cure. Do not microwave this product.



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Outdoor Use:

Extensive QUV accelerated weathering tests have been conducted on vinyl films with the UV9 Series. The UV9 Series withstood 1,500 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 cannot precisely reproduce actual outdoor performance.

Metallics:

Most metallic pigments work well with UV9-011 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).***

Intercoat Adhesion:

All inks should be thoroughly mixed prior to use. Inks are supplied at a print ready viscosity for most applications. If adjustment is needed up to 10% UVO Universal Thinner or 5-10% UV9-010 Mixing Clear can be added to thin the ink.

Do not microwave this product.

Ultra-Dot Halftone Process Inks:

The Ultra Dot Halftone inks exhibit a smooth butter like viscosity for superior screen release. This exclusive feature allows for a much lower dot gain and dot height than traditional halftones. Estimated coverage is 2,500-2,800 square feet per gallon based on a film deposit of .40-.60 mil

Cure & Adhesion for Process Inks:

Ultra-Dot Series Halftone's cures well with one 200 watt per inch lamp at belt speeds between 60-80 feet per minute using 355-420 monofilament polyester mesh. Adhesion should be a minimum of 95% from curing unit with final adhesion developing within four (4) hours 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% Ultra Dot Series Halftone's Mixing Clear or HT Base will increase light penetration and improve cure.

Outdoor Use (Ultra Dot) Process Inks:

Extensive accelerated weathering tests have been completed on vinyl films with Ultra Dot Series Halftone's. Ultra-Dot Series Halftone's withstood 1000 hours of exposure with 4-hour cycle times of UV light and condensation at elevated temperatures with minimal color change and marginal shrinkage. Accelerated machine weathering's are reference standards and can't precisely reproduce actual outdoor performance. The use of premium grade, long-term vinyl films are recommended for all applications intended to weather up to three (3) years.

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 our Technical Service Representatives.



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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:

UV9-123	Medium Yellow
UV9-131	Brilliant Orange
UV9-151	Scarlet Red
UV9-155	Rubine Red
UV9-160	Rhodamine Red
UV9-190	Process Blue
UV9-200	Peacock Blue
UV9-205	Reflex Blue
UV9-210	Ultra Blue
UV9-220	Emerald Green
UV9-415	HT Yellow
UV9-485	Warm Red

Color Matching Guide:*

UV9-010	Mixing Clear
UV9-101	CMG Primrose Yellow
UV9-112	CMG Lemon Yellow
UV9-114	CMG Orange
UV9-121	CMG Red (YS)
UV9-127	CMG Violet
UV9-141	CMG Fire Red
UV9-241	CMG Fire Red
UV9-165	CMG Magenta
UV9-230	CMG Blue
UV9-301	Opaque Black
UV9-311	Opaque White
UV9-325	CMG Green

* Used in Norcote's® Color Matching Guide

**Do NOT use outdoors

Whites, Blacks & Clears:

UV9-011	Metallic Mixing Clear
UV9-012	Overprint Clear
UV9-015	Satin Overprint Clear
UV9-026	Barrier White
UV9-030	Shading Black
UV9-031	Tinting White
UV9-305	Jet Black
UV9-312	Dense Black
CLUV9-2777	Sunscreen Clear

Process Colors:

UV9 Series four color process colors exceed SWOP standards. Variation of the densities may be achieved with the use of UV9-450 Halftone Base. For best results a plain weave mesh with a thread count suitable for the LPI, and smooth (low rz) stencil with an OEM of >7 is recommended.

Product Identification	Density
UV9 410 HT Yellow	1.10
UV9 420 HT Magenta	1.75
UV9 430 HT Cyan	1.80
UV9 440 HT Black	2.00
UV9 450 HT Base	N/A

Product Identification	Density
UV9 510 HD HT Yellow	1.20
UV9 520 HD HT Magenta	2.20
UV9 530 HD HT Cyan	2.10
UV9 540 HD HT Black	2.10

Product Identification	Density
710 Ultra Dot HT Yellow	.80
UV9 720 Ultra Dot HT Magenta	1.35
UV9 730 Ultra Dot HT Cyan	1.25
UV9 740 HT Ultra Dot Black	2.00

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. Please contact Norcote® for more information. 800-488-9180

CLUV-2777 Sunscreen Clear:

Sunscreen Clear is recommended to increase the outdoor durability of screen printed images. Use of this product will also increase the lightfastness of digitally printed images and make dull digital graphics "pop" with a high gloss finish.



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Storage & Available Warranties:

All UV9 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.

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.

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