

88 Series UV Curable Ink System

The 88 Matte Series inks are recommended for use on polyethylene (container & flat sheet), some polypropylene-flat sheet, soft vinyl's (French calf, suedene, patent, etc.), most decal material, PETE, PETG, many polyesters (print- treated and top-coated), PVC, polycarbonate, paper and card stocks, styrene, some coated metals and most acrylics and book cloths.

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

Product Features

- Matte Finish
- Chemical Resistant
- Excellent Intercoat Adhesion
- Multi-purpose Product
- Opaque
- Quick Curing
- Resistant to Blocking

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 88-070 Thinner or 88-049 Overprint Clear can be used to thin the ink

Do not microwave this product.

Mesh:

A mesh count of 305-355 threads per linear inch (120-140 cm²) low elongation, monofilament polyester is suggested. Tension should range from 18-25 N/cm² on a rigid frame.

Stencil:

All direct emulsions and thin capillary films (15-25µ 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 60-90 as well as dual durometer squeegees.

Curing Parameters:

Norcote® 88 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.

Additives:

Check the Norcote® additives list for the products compatible with this ink series. The list is available on our website at www.norcote.com or call us at 800-488-9180 to receive a copy.

Curing Equipment:

88 Series inks are fast curing and work well with one 300 watts/in (120 watts/cm) or two 200 watt/in (80 watts/cm) focused medium pressure mercury vapor lamps with millijoules (mJ) and (mW) of:

200 mJ/cm² @ 600 + mW/ cm² minimum for most colors and clears.

300 mJ/cm² @ 600 + mW/ cm² minimum for opaque colors (blacks, whites, tans, grays, metallics, etc.). The 88 Series inks will cure up to 100 feet per minute (30 meters 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:

Approximately 2,500 square feet per gallon (230 square meters per gallon) depending on printing variables affecting ink film thickness and coverage.

Mixing:

All Norcote® 88 Series colors are intermixable. The 88 Series matte inks may be combined with the 80 Series gloss inks to achieve a wide range of gloss levels.

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.



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Adhesion:

The 88 Series is a non-visual post-curing system. Although further cross-linking occurs up to 24 hours later, the 88 Series inks should pass a crosshatch tape test, (ASTM #D3359-97), using 3-M 600 tape after exiting the curing unit and cooling to room temperature. Maximum chemical and abrasion resistance and adhesion will be attained after 24 hours. 800 Initiator may improve adhesion and surface durability.

Intercoat Adhesion:

88 Series inks intercoat adhesion is excellent. Although loss of intercoat adhesion is difficult, it should be monitored throughout the production run especially when printing 6 or more passes.

Weatherability:

The 88 Series inks are not weatherable.

Scoring and Folding:

The 88 Series inks provides fair results under controlled scoring and folding conditions. To obtain acceptable results, the 88 Series inks must pass a cross-hatch tape test, (using 3-M 600 tape) before scoring and folding. Highly pigmented (opaque) inks and inks with special effects pigments may not score or fold well. For further details contact the Norcote® Technical

Chemical Resistance:

The 88 Series inks have been exposed to a variety of chemicals to determine chemical resistance. The 88 Series inks proved to be resistant to most common chemicals when properly cured.

Process Colors:

88 Series Halftone Process inks were designed for 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.

88-060	Halftone Base
88-080	Halftone Process Cyan
88-081	Halftone Process Magenta
88-082	Halftone Process Yellow
88-083	Halftone Process Black

Metallics:

Most metallic pigments work well with the 88-049 Overprint Clear. 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 88 Series ink mixtures.

RECOMMENDATION: Mix only enough metallic ink for one day.

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).**

Fluorescent Colors/JZB's:

Fluorescent colors are available upon request. Fluorescent pigments are not lightfast 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 Notcote® for more information 800-488-9180.



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Color Range:

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

Standard Colors:

88-007	Brown
88-012	Radiant Yellow•
88-017	Medium Yellow
88-2313	Lightfast Yellow
88-019	Permanent Orange•
88-2872	Lightfast Orange
88-022	Red
88-023	Rhodamine Red
88-024	Rose
88-026	Magenta
88-030	Emerald Green
88-031	Spruce Green
88-034	Permanent Blue
88-035	Violet
88-037	Reflex Blue
88-038	Peacock Blue

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

Black , White & Clear:

88-002	Mixing White
88-005	Mixing Black
88-049	Overprint Clear

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.

Storage & Available Warranties:

All UV 88 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 standard conditions, Norcote® warrants the 88 Series standard inks 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 inks intermixed with 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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