

MSK Series UV Curable Ink System

MSK SERIES UV SCREEN INK

MSK is a high end, UV curable, second surface ink system specifically formulated for use on many substrates common to the industrial graphics market, such as polycarbonate, print treated polyesters, and PC/PET blends. It finds use in demanding applications where adhesive resistance, opacity, embossability, and actuation resistance are required, such as user interface overlays, nameplates, and automotive applications. **It is the responsibility of the end user to pretest all substrates with Norcote® products prior to use in production.**

Product Features

- Extremely Flexible
- Embossable
- Excellent Adhesion
- Excellent Intercoat Adhesion
- Very Opaque
- Outstanding Print Definition

Recommended Substrates

- Polycarbonate
- Print Treated Polyester
- PC/PET Blends

Printing Recommendations

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% MSK-070 Thinner or 5-10% MSK-049 Mixing Clear can be added to thin the ink.

Do not microwave this product.

Mesh:

For single lamp (1) systems, a mesh count of 355 (140 cm²) and above are recommended.

For two (2) lamp systems mesh counts as low as 280 (110 cm²) can be used. Norcote® strongly recommends using a low elongation, monofilament, plain weave mesh. Tension should be such to provide good snap off with minimal off contact, based on screen size.

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:

While 80 durometer molded squeegee is preferred, cut (sharp) or molded 70-90 durometer or multi-durometer polyurethane blades that are UV compatible are suitable.

Coverage:

Approximately 2,200 - 3,200 square feet per gallon based on a film deposit of .40 - .60 mil.

Cure Parameters:

Norcote's® MSK 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. MSK Series inks work best two 200 wpi focused medium pressure mercury vapor lamps with a minimum millijoules (mJ) and milliwatts (mW) of:

200 mJ/cm² @ 600 mW/cm² for most colors and clear.
300 mJ/cm² @ 600+ mW/cm² for most opaque colors (600 mW/cm² is the bare minimum for most opaque colors and metallics).

These guidelines are meant to be a starting point only. Curing requirements vary depending on ink film thickness, substrate type, substrate color/background color, curing system, reflector type, etc. Testing should always be performed under actual production conditions prior to a production run to determine suitability.

Adhesion:

MSK Series is a non-visual post curing system. Although further cross linking occurs up to 24 hours later, it should pass a cross hatch tape test using 3M 600 tape after exiting the cure unit and cooling to room temperature. For best results, Norcote® recommends waiting 24 hours prior to applying pressure sensitive adhesives.

Intercoat Adhesion:

MSK Series exhibits exceptional intercoat adhesion characteristics. Although loss of intercoat adhesion is difficult, it should be monitored throughout the product run, especially when printing 8 or more passes. Use of additives may adversely affect intercoat adhesion.



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Weatherability/Lightfastness

MSK is not considered weatherable and is not recommended for first surface outdoor applications. MSK can be used outdoors in second surface applications where the ink is protected from environmental exposure. When using MSK for second surface, outdoor applications it is important to use only lightfast colors, as non-lightfast colors will fade when exposed to sunlight. For more information regarding weatherability, outdoor use and light-fastness, please contact Norcote's® Technical Service Department.

Die-Cutting / Embossing:

MSK Series inks are very flexible, providing excellent results under most embossing or die-cutting conditions. To obtain acceptable results ink must pass a cross hatch tape test before embossing. Inks with special effects pigments may not emboss easily. High stress embossing of metallic ink is not recommended.

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.

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.

Metallics:

Most metallic pigments work well with MSK-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).*

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.



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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:

MSK-007	Brown
MSK-012	Radiant Yellow*
MSK-015	Lightfast Yellow (Green Shade)
MSK-017	Medium Yellow
MSK-019	Permanent Orange*
MSK-2233	Opaque Yellow
MSK-2313	Lightfast Yellow
MSK-2872	Lightfast Orange
MSK-021	Cha Cha Red (SpecialOrder)
MSK-022	Red
MSK-023	Rhodamine Red
MSK-024	Rose
MSK-026	Magenta
MSK-030	Emerald Green
MSK-031	Spruce Green
MSK-034	Permanent Blue
MSK-434	High Density Permanent Blue
MSK-2021	Opaque Process Blue
MSK-035	Violet
MSK-037	Reflex Blue
MSK-038	Peacock Blue
MSK-050	Process Blue
MSK-330	HF Green*
MSK-335	HF Violet*

Whites, Blacks & Clears:

MSK-000	Metallic Mixing Clear
MSK-049	Mixing Clear
MSK-249	Ultimate Clear
MSK-259	NY (non-yellowing) Clear
MSK-1085	Lens Clear
MSK-2085	Improved Lens Clear
MSK-002	Mixing White
MSK-1046	Opaque White
MSK-1054	Non-Chalking White
MSK-1056	Non-Chalking Opaque White
MSK-1059	Non-Yellowing White
MSK-1066	Hi Speed Opaque White
MSK-1183	Signature Panel White
MSK-1593	HV Opaque White
MSK-005	Mixing Black
MSK-1019	Opaque Black
MSK-1020	Midnight Black
MSK-1022	Deadfront Black
MSK-2500	Super Dense Black
MSK-4000	Super Dense Black
MSK-4100	Jet Black

Process Colors:

MSK-060	Halftone Base
MSK-080	Halftone Process Cyan Halftone
MSK-081	Process Magenta Halftone
MSK-082	Process Yellow Halftone
MSK-083	Process Black Process Cyan Toner
MSK-880	Process Magenta Toner
MSK-881	Process Yellow Toner
MSK-883	Process Black Toner
MSK-9001	HD Process Cyan
MSK-9002	HD Process Magenta
MSK-9003	HD Process Yellow
MSK-9004	HD Process Black

Transparents:

MSK-092	Transparent Red
MSK-093	Transparent Green
MSK-094	Transparent Blue
MSK-095	Transparent Yellow
MSK-194	Transparent Blue
MSK-195	Transparent Yellow*
MSK-196	Transparent Orange*
MSK-1122	Deadfront Black
MSK-1186	Lt. LED Red
MSK-2286	Lt. LED Red
MSK-2287	Dk. LED Red

Transparent inks have a shelf life of 1 year from date of manufacture when stored under the proper conditions. Refer to Storage & Available Warranties for more information.

* 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.

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 Norcote for more information at 800-488-9180.



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Textured Clears:

MSK-CL2	Matting Clear
MSK-CL6	Low Texture Satin Finish

Textured Clears have a 2 day lead time.

Textured clears have a shelf life of 1 year from date of manufacture when stored under the proper conditions. Refer to Storage & Available Warranties for more information.

Specialty:

ODMSK-2586-A2 Light-block Ink A mesh count of 355.34 pw is recommended with two 300 wpi medium pressure mercury lamps.

Storage & Available Warranties:

All MSK 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 MSK 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 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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