

QS Series UV Curable Ink System

The QS Series is specially formulated to achieve adhesion to a wide range of acrylic, PETG and styrene requiring heat-bending, router cutting, and thermoforming for the sign and graphics market. This series has excellent durability while maintaining flexibility. Additional substrates include polycarbonate, most rigid and flexible vinyl, static cling vinyl, rigid and flexible treated polyethylene and polypropylene, treated fluted polypropylene and some anodized metals. The QS Series does not contain N-Vinyl-2-Pyrrolidone. **It is the responsibility of the end user to pretest all substrates with Norcote® products prior to production runs.**

Product Features:

- Excellent Adhesion Properties
- Thermoforms and Heat Bends Well
- More Opaque Blacks and Whites
- Outstanding Flexibility
- Excellent Weathering

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% UVO Universal Thinner or 5-10% QS-010 Mixing Clear can be added to thin the ink.

Do not microwave this product.

Mesh:

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

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 sharp 80 durometer blade is recommended.

Screen Cleaning:

Norcote recommends Press Wash 110 (flash point 113° F), 140 (flash point 140° F) or NSW-824 (flash point 150° F). These products are used for cleaning ink off screens during on press color changes or before storing the screen.

Coverage:

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

Cure & Adhesion:

QS Series inks will cure with one 200 watt per inch lamp at belt speeds between 50-90 feet per minute using 355-420 mono-filament polyester mesh. Adhesion should be a minimum of 95% from curing unit with final adhesion occurring within one hour 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% of QS Series Mixing Clear will increase light penetration and improve cure.

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.

Outdoor Use:

Extensive QUV accelerated weathering tests have been conducted on Fluted Polyethylene, Polyethylene Banner and vinyl films printed with the QS Series. The QS Series withstood 1,000 hours of exposure in a QUV chamber, with 4-hour cycle times of UV light and condensation, with minimal to no changes in color or gloss. Accelerated machine weathering results reference standards and cannot precisely reproduce actual outdoor performance.

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 our Technical Service Representatives.



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Metallics:

Most metallic pigments work well with QS-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).*

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:

QS 101	Primrose Yellow
QS 111	Lemon Yellow
QS 114	CMG Orange
QS 121	CMG Red (YS)
QS 123	Medium Yellow
QS 127	CMG Violet
QS 141	Fire Red
QS 165	CMG Magenta
QS 190	Process Blue
QS 205	Reflex Blue
QS 230	CMG Blue
QS 325	CMG Green

Whites, Blacks & Clears:

QS-010	Metallic Mixing Clear*
QS-012	Overprint Clear
QS 301	Opaque Black*
QS 311	Opaque White

Process Colors:

QS Series four color process colors exceed SWOP standards. Variation of the densities may be achieved with the use of QS-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 ID		Density
QS-410	HT Yellow	1.10
QS-420	HT Magenta	1.75
QS-430	HT Cyan	1.80
QS-440	HT Black	2.00
QS-450	HT Base	N/A

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.

11B	Aurora Pink (Blue Shade)
11Y	Aurora Pink (Yellow Shade)
13	Rocket Red
14	Fire Orange
15	Blaze Orange
16	Arc Yellow
17	Saturn Yellow
18	Signal Green
801	Horizon Blue
21	Corona Magenta

Color Matching Guide*:

QS-010	Mixing Clear
QS-111	Lemon Yellow
QS-214	Weatherable CMG Orange
QS-121	CMG Red (YS)
QS-127	CMG Violet
QS-241	Weatherable Fire Red
QS-165	CMG Magenta
QS-230	CMG Blue
QS-301	Opaque Black
QS-311	Opaque White
QS-325	CMG Green

* Used in Norcote's® Color Matching Guide



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Storage & Available Warranties:

All QS 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.

Norcote® International, Inc. Locations

World Headquarters

Norcote® International, Inc.
605 Lafayette Ave.
Crawfordsville, IN. USA 47933

Nor-Cote® Int'l Pte. Ltd.
Blk 4012 Ang Mo Kio Ave 10
#07-06 Techplace 1
Singapore 569628
+65-6291-0898
info_asia@norcote.com

Nor-Cote® Int'l Ltd.
Unit 8, Warrior Park
Chandlers Ford Ind. Est.
Eastleigh Hampshire UK S053 4NF
+44-2380-270542
info@nor-cote.co.uk

Norcote® Internacionales
de Mexico S.A. de C.V.
1ra Calle No. 124 Oriente
Colonia Miguel Alemán
San Nicolás de los Garza
Nuevo León, 66479
+52-81-8394-8299
infomexico@norcote.com

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