



# Technical Data Sheet

## QX-1

### UNIVERSAL, SBQ-DUAL-CURE HYBRID EMULSION

**QX-1** is a blue-green, ready-to-use, fast-exposing SBQ-dual-cure direct emulsion formulated for industrial and fine halftone graphics printing with conventional and water-based UV inks, and aggressive, solvent-based inks. Its matte finish virtually eliminates the printing problems usually associated with high and low humidity conditions. **QX-1** is durable, and has good resolution and definition, and very good wet strength. It is very easy to reclaim, even if underexposed. Solids content: 37%. Viscosity: 6000 cps (25° C.) Shelf life: one year.

#### **INSTRUCTIONS**

##### **Step 1: PREPARE THE MESH**

Used or surface treated mesh need only be degreased using **Screen Degreaser Liquid No. 3** or dilute **Screen Degreaser Concentrate No. 33** or **Degreaser Concentrate 1:20**, or **Magic Mesh Prep**. (Mechanical abrasion is an option for new mesh that is not surface treated. It increases the surface area of mesh for a better mechanical bond of the stencil, increasing printing run length. Use **Microgrit No. 2** before degreasing. Abrading and degreasing can be combined in one step with **Ulanogel 23**.)

##### **Step 2: SENSITIZING**

**QX-1** is fully presensitized. No sensitizer need be added. **QX-1** should be handled only under yellow safe light conditions.

##### **Step 3: COATING THE SCREEN**

**Method 1:** Apply one coat of emulsion on the printing side, then one coat on the squeegee side. Dry the screen thoroughly.

**Method 2:** Apply two coats on the printing side, then two coats on the squeegee side, wet-on-wet. After each coating, rotate the screen 180°.

**Method 3:** Follow Method 2 (above). Then, after drying the screen, apply two additional coats on the printing side, wet-on-wet.

##### **Step 4: DRY THE SCREEN**

Dry multicoated screens (Methods 2 or 3) thoroughly in a horizontal position, printing side down, at room temperature in a dirt- and dust-free area. Use a fan to speed drying. If using a commercial dryer, dry the screen with warm, filtered air, up to 104° F. (40° C.). Use a humidifier in the drying area, if possible.

##### **Step 5: CALCULATE THE EXPOSURE**

Refer to the Base Exposure Table (below). Base Exposure Time X Exposure Variable Factors = Approximate Exposure Time. Use the **Ulano Exposure Calculator** or a Step Wedge Test (Step 6) to determine the optimal exposure time.

##### **Step 6: STEP WEDGE TEST**

Calculate five test exposures—two below and two above the Approximate Exposure Time. Tape the test positive to the screen. Expose the screen for the shortest exposure time to be tested. Mask 1/5 of the positive and expose the screen to arrive at the next shortest exposure time. Repeat this procedure until five exposures are made, to arrive at the longest exposure time. Make a print from the stencil and compare it to the test positive. The optimum exposure is indicated by: ■ No positive outline or darkening of the emulsion color is observable if the exposure is increased. ■ The squeegee side emulsion is hard and not slimy. ■ The print best duplicates the test positive at the needed level of resolution.

##### **Step 7: WASHOUT**

After exposure, wet both sides of the screen with a gentle spray of cold water. Then spray forcefully from the printing side until the image areas clear. Rinse both sides of the screen with a gentle spray until no soft emulsion is left on the squeegee side, and no foam or bubbles remain. Blot excess water from the printing side with newsprint (unprinted newspaper stock).

##### **Step 8: BLOCKOUT AND TOUCHUP**

**Blockout Option 1:** Before drying and exposing the coated screen, use excess emulsion from the coating step to cover the blockout area.

**Blockout Option 2:** For non-water-based inks, after exposure and washout, dry the screen. Apply **Red Blockout, Screen Filler No. 60** or **Extra Heavy Blockout No. 10**.

**Touchup Option 1:** Use excess emulsion and re-expose the screen.

**Touchup Option 2:** For non-water-based inks, use Red Blockout, Screen Filler No. 60 or Extra Heavy Blockout No. 10 thinned with water.

FOR ADDITIONAL INFORMATION PLEASE CONTACT YOUR LOCAL DISTRIBUTOR OR [www.ulano.com](http://www.ulano.com)

ULANO Corporation 110 Third Avenue, Brooklyn, N.Y. 11217 (USA) Tel: +1 718 622 5200

ULANO International CH-8952 Schlieren-Zürich (Switzerland) Tel: +41 44 755 44 77

ULANO Asia 25 Tagore Lane, Singapore, 787602 Tel. +65 6451 7505

**Step 9: STENCIL REMOVAL**

Remove ink from the screen using the solvent or solvent blend recommended by the ink manufacturer.

Use **Screen Degreaser Liquid No. 3** to help remove ink and solvent residues that might impair the action of the stencil remover.

Brush **Stencil Remover Liquid No. 4** or **Stencil Remover Paste No. 5** on both sides of the screen. As alternatives, use dilute **Stencil Remover Concentrate 1:20**, **Stencil Remover Liquid Concentrate No. 42**, or **Stencil Remover Powder No. 44**. With automatic stencil removal equipment, use **Stripmatic**. If using plastisols, use dilute **Ink and Stencil Remover Concentrate** (a combined plastisol ink wash and stencil remover liquid concentrate) manually or in dip tanks. Do not let the stencil remover dry on the screen. Rinse the screen with a water spray.

**Step 10: GHOST IMAGE AND HAZE REMOVAL**

Use **Walk Away Haze Remover**, **Fast Acting Haze Remover**, or **Haze Remover No. 78** to remove ink and haze residues, if necessary.

**BASE EXPOSURE TABLE** (For 305 threads/in.(120/cm.) white polyester or nylon at 40 in.(100 cm.) exposure distance.

LIGHT SOURCE	COATING METHOD		
	1	2	3
<b>Carbon Arc</b>			
15 amps	108 sec	324 sec	405 sec
30 amps	54 sec	162 sec	223 sec
40 amps	41 sec	122 sec	162 sec
60 amps	27 sec	81 sec	108 sec
110 amps	14 sec	45 sec	61 sec
<b>Metal Halide</b>			
1000 watts	25 sec	70 sec	93 sec
2000 watts	13 sec	35 sec	46 sec
3000 watts	8 sec	23 sec	30 sec
4000 watts	6 sec	18 sec	23 sec
5000 watts	4.5 sec	13.5 sec	18 sec
<b>Pulsed Xenon</b>			
2000 watts	65 sec	190 sec	210 sec
5000 watts	26 sec	76 sec	102 sec
8000 watts	16 sec	48 sec	65 sec
<b>Mercury Vapor</b>			
125 watts	257 sec	675 sec	945 sec
1000 watts	32 sec	93 sec	119 sec
2000 watts	16 sec	46 sec	59 sec
4000 watts	8 sec	23 sec	30 sec
<b>Fluorescent Tubes*</b>			
40 watts	81 sec	203 sec	338 sec

\*Base exposure times are for unfiltered black light, or super diazo blue tubes at 4 – 6 in. (10 – 15 cm.) exposure distance.

For plant-light, filtered black light, and "daylight" fluorescent tubes, use at least double the exposure time.

**EXPOSURE VARIABLES**

Multiply the above base exposure times by all factors and variables that apply.

**Mesh**

Metal mesh	2.0-4.0
Dyed mesh	1.5-2.0
Finer than 330T/in (130T/cm)	0.7-0.9
Coarser than 250T/in (100T/cm)	1.1-2.0
High heat and humidity	1.3-1.8

**DISTANCE FACTORS**

20 inches /50 cm.	0.25	44 inches /110 cm.	1.21
24 inches /60 cm.	0.36	48 inches /120 cm.	1.44
28 inches /70 cm.	0.49	52 inches /130 cm.	1.69
32 inches /80 cm.	0.64	56 inches /140 cm.	1.95
36 inches /90 cm.	0.81	60 inches /150 cm.	2.25
40 inches /100 cm.	1.00	72 inches /180 cm.	3.20

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