

LX[®]-680

DIAZO-PHOTOPOLYMER (DUAL-CURE) EMULSION WITH EXCELLENT LATITUDE, RESOLUTION, AND DEFINITION; RESISTANT TO SOLVENT-BASED AND UV INKS

LX-680 has broad exposure latitude, superior edge definition and resolution, and resistance to a wide variety of solvent- and water-based ink systems. LX-680 also possesses excellent coating properties, mesh bridging, stencil build per coat, drying speed, and durability. LX-680 has a high-contrast blue color, and offers superior resistance to humidity, rapid drying, and quick exposure.

INSTRUCTIONS

Step 1: PREPARE THE FABRIC

Used or surface treated mesh need only be degreased using **Screen Degreaser Liquid No. 3**. Mechanical roughening 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 **Ulanaegel No. 23** to roughen and degrease in a single step.

Step 2: SENSITIZE THE EMULSION

LX-680 is partially presensitized; therefore, it must be handled under yellow light. Dissolve the diazo sensitizer powder by adding lukewarm water up to the shoulder of bottle according to the chart below.

LX680	Diazo #	# of Fills to Shoulder
QUART (60cc)	DIAZO C45	1 Time
1 GALLON (100cc)	DIAZO C41	2 Times
5 GALLON (500cc)	DIAZO C42	2 Times

Shake well. Wait 15 minutes for bubbles to disperse. Pour the fully dissolved sensitizer into the emulsion. Stir with clean, broad flat plastic or stainless steel instrument until the emulsion is uniform in color. Close the container. Wait at least one hour for the emulsion to debubble. Write the date of sensitizing on the label.

Step 3: COAT THE SCREEN

Method 1: Apply one coat of emulsion to 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°. Dry the screen thoroughly.

Method 3: Follow Method 2. Then, after drying the screen, apply two additional coats on the printing side, wet-on-wet. Dry the screen again. Method 3 optimizes the definition of printed edges.

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 accelerate the drying. Avoid high humidity. Under humid conditions, dry the coated screen with warm, filtered air, up to 104°F (40°C) in a commercial dryer. Use a dehumidifier in the drying area, if possible.

Step 5: CALCULATE THE APPROXIMATE EXPOSURE TIME:

From the Base Exposure Table below, select the type of light source you have and its wattage or amperage. The exposure times indicated are for 305/inch (120/cm.) white fabric at an exposure distance of 40 inches (= ca. 1 meter), using coating Methods 1, 2, or 3. The exposure time shown for your light source and coating method is your Base Exposure Time. Multiply your Base Exposure Time by all relevant Exposure Variable Factors (table, below) to find your Approximate Exposure Time.

Step 6: DETERMINE THE OPTIMAL EXPOSURE TIME

Make a Step Wedge Test (instructions can be found in the **Ulano Direct Emulsions Technical Data Booklet**) or use the **Ulano Exposure Calculator Kit**—carried through to actual printing—to determine your optimum exposure time. Optimum exposure is indicated: ■ At that exposure time when the emulsion first reaches its maximum color density and the edges of the positive do not "resolve." ■ The squeegee side emulsion is hard and not soft or slimy. ■ The print best duplicates the test positive *at the level of resolution that the job requires*.

Step 7: WASHOUT

Wet both sides of the screen with a gentle spray of cold water. Then spray the printing side forcefully until the image areas clear. Rinse both sides with 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).

Technical Data Sheet



Step 8: BLOCKOUT AND TOUCHUP

Blockout Option 1: With water-based inks, before drying and exposure, 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 **Screen Filler No. 65** or

Extra Heavy Blockout No. 10.

Touchup Option 1: When using water-based inks, use excess emulsion and re-expose the screen.

Touchup Option 2: For non-water-based inks, use **Screen Filler No. 65** or **Extra Heavy Blockout No. 10** thinned with water.

Step 9: RECLAIM THE SCREEN

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. Do not let the stencil remover dry on the screen. Wash the screen with a forceful spray of water. Use **Haze Remover No. 78** to remove ink and haze residues, if necessary.

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

Metal Halide			
1000 watts	55 sec.	155 sec.	205 sec.
2000 watts	28 sec.	78 sec.	103 sec
3000 watts	18 sec.	51 sec.	65 sec.
4000 watts	13 sec.	39 sec.	51 sec.
5000 watts	10 sec.	30 sec.	39 sec.
Mercury Vapor			
250 watts	285 sec	12.5 min	17.5 min
2000 watts	36 sec	103 sec	132 sec
4000 watts	18 sec	51 sec	65 sec
Fluorescent Tubes*			
FT 40 watts	180 sec	7.5 min	Not rec.

*Base exposure times are for unfiltered black light, or super diazo blue tubes, at 4-6' (10-15 cm) exposure distance. For plant-light, filtered black light, and "daylight" tubes, use double the time at least.

EXPOSURE VARIABLE FACTORS (Factors for Variables Affecting Base Time)

Fabric:		Viscosity Adjustment:	
Steel/metalized polyester	2.0 - 4.0	5% dilution	0.95
Dyed Fabric	1.5 - 2.0	10% dilution	0.9
305T white polyester or nylon	1.0	5% more viscous	1.1
Finer than 330T (130T/cm)	0.7 - 0.9		
Coarser than 250T (100T/cm)	1.1 - 2.0		
Multifilament PET	1.3 - 1.5	High Heat and Humidity:	
Exposure Distance:		Factor	1.3-1.8
20"/50cm	0.25		
24"/60cm	0.36	Taped-up Positives:	
28"/70cm	0.49	Factor	1.2-1.3
32"/80cm	0.64		

STORAGE: Unsensitized emulsion can be stored for up to 1 year. Sensitized emulsion can be stored for 3 - 6 weeks at room temperature, and up to 3 months in a refrigerator. Store coated screens in cold, dry, completely dark area until exposure.