

LX[®]-690

A HIGH SOLIDS (42%), DIAZO-PHOTOPOLYMER (DUAL-CURE) EMULSION WITH EXCEPTIONAL COATING AND IMAGING PROPERTIES; FAST DRYING AND EMULSION-OVER-MESH (EOM) BUILD-UP; SUPERB DEFINITION AND RESOLUTION

LX-690 is intended for the most demanding graphics, industrial, and general purpose applications. Its wide exposure latitude, superb line definition, excellent resolution, and high build per coat make it particularly suited to the highest quality fine line and halftone work. The excellent solvent resistance of LX-690 affords extended print runs with UV-cured and solvent-based inks, as well as easy reclaiming. Because of its high solids content, LX-690 dries very quickly, a feature especially useful in coating regiments using multiple coats or face coats with intermediate drying. LX-690 is red and supplied with powder diazo sensitizer.

INSTRUCTIONS

Step 1: PREPARE THE FABRIC

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

Step 2: SENSITIZE THE EMULSION

LX-690 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 and shaking it thoroughly. Wait 15 minutes for the bubbles to disperse. Pour the fully dissolved sensitizer into the emulsion. Stir with a 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°.

Method 3: Follow Method 2. Then, after drying the screen, apply additional face coats on the printing side with intermediate drying after each. This method optimizes the acutance (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 (\approx 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**—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, 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; spray the printing side forcefully until image areas clear. Rinse both sides with a gentle spray until no soft emulsion is left on the squeegee side, and no foam remains. Blot excess water from the printing side with newsprint.

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. 60** or

Extra Heavy Blockout No. 10.

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



Technical Data Sheet

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

Step 9: RECLAIM THE SCREEN

Remove ink with the appropriate solvent. Rinse the screen with water. Degrease the screen with **Screen Degreaser Liquid No. 3** to remove ink residues. Rinse with a forceful spray of water. Brush **Stencil Remover Liquid No. 4** or **Stencil Remover Paste No. 5** on both sides of the screen. Do not let stencil remover dry on the screen. Wash with forceful spray of water. Use **Haze Remover Paste No. 78** or **Ghost Remover** and **Ghost Remover Activator** to remove ink and haze residues.

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

Carbon Arc	Coating Method 1	Coating Method 2	Coating Method 3
15 amps	7 min.	21 min.	27 min.
30 amps	208 sec.	10 ½ min.	13 ½ min.
40 amps	156 sec.	8 min.	10 min.
60 amps	104 sec.	312 sec.	406 sec.
110 amps	58 sec.	173 sec.	225 sec.
Metal Halide			
1000 watts	97 sec.	269 sec.	350 sec.
2000 watts	49 sec.	135 sec.	176 sec.
3000 watts	32 sec.	89 sec.	116 sec.
4000 watts	24 sec.	68 sec.	88 sec.
5000 watts	19 sec.	52 sec.	68 sec.
Pulsed Xenon			
2000 watts	255 sec.	12 min.	16 min.
5000 watts	102 sec.	291 sec.	378 sec.
8000 watts	64 sec.	182 sec.	237 sec.
Mercury Vapor			
250 watts	7 ½ min.	22 min.	28 min.
2000 watts	62 sec.	178 sec.	231 sec.
4000 watts	31 sec.	89 sec.	116 sec.
Fluorescent Tubes*			
FT 40 watts	5 ½ min.	13 min.	not recommended

*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	Taped-up Positives:	
24"/60cm	0.36	Factor	1.2-1.3
28"/70cm	0.49		
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.

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