

LX-892

Chemically curable Dual-Cure Photoemulsion for Direct Ceramic and Textile Printing

ULANO LX-892 is used for the production of high-quality for ceramic decals, ceramic direct printing as well as glass and textile printing stencils. It is both water and solvent resistant. The print run resistance can considerably be increased by chemical hardening with ULANO HARDENER X. Before hardening, LX-892 is decoatable with Ulanogel Chemical Line products.

INSTRUCTIONS

Step 1: PREPARE THE FABRIC

Used or surface treated fabric need only be degreased using **Screen Degreaser Liquid No. 3** or diluted **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-892 is partially presensitized; therefore, it must be handled under yellow light. To fully sensitize the emulsion and make it ready for use, add lukewarm water up to the shoulder level of the W1 diazo bottle supplied with the emulsion. Shake the container well until the diazo powder is completely dissolved. Wait 15 minutes for bubbles to disperse. Add the diazo solution to the emulsion and mix thoroughly using a suitable tool made of stainless steel, glass or plastic. Avoid tools made of copper, which can react negatively with the diazo sensitizer. After mixing it is usually advisable to allow the emulsion to stand for an hour to allow bubbles and foam to rise to the surface and break. Write the date of sensitizing on the label.

Step 3: COAT THE SCREEN

LX-892 has excellent coating properties on mesh counts of 16 – 120/cm (40 – 305 threads/inch). ULANO LX-892 may be coated, handled and removed as any direct emulsion. In general and especially when coated manually, the coating should be done slowly and uniform. The use of an automatic coating machine is advantageous. As with all direct method systems, resolution or reproduction of fine details is favored by the use of dyed fabric.

Method 1: Apply one coat of emulsion to the printing side, then one coat on the squeegee side with a rounded-edge coating trough. 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. Apply additional coatings, with intermediate dryings, as needed. Method 3 optimizes the definition of printed edges.

Step 4: DRY THE SCREEN

The screen should be dried in a dust free drying cabinet with fresh air supply at a maximum temperature of 35-40° C with the print side of the screen down. Or dry screens thoroughly in a horizontal position, printing side down at room temperature in a dirt-and dust-free area. Avoid high humidity. Under humid conditions, dry the coated screen with warm, filtered air, up to 40°C (104°F) in a commercial dryer. Use a dehumidifier in the drying area, if possible.

Step 5: EXPOSE THE STENCIL:

The manufacture of the stencil is done by hardening the non printing part of the stencil with UV-light. Blue-actinic-light within a spectra wave range of 350-420 nm is required. Metal halide lamps are the most suitable light sources. Absolute values cannot be declared due to the enormous amount of variables that affect the exposure time, therefore the only way to achieve the optimum exposure time is by performing a step-wedge test. For the highest stencil resistance, take the exposure time by choosing the maximum time where finest details still resolve. This maximum exposure time is especially important when water based printing inks are used, as the required ink resistance in this case will be achieved by a higher exposure time.

The following are Base (theoretical) Exposure Times with a 5,000-watt metal halide lamp at a distance of 1 meter (40 inches):

Mesh	Average exposure time	
	Method 1 (1+1/)	Method 2 (2+2/)
PE 77 - 48 white	45 sec	50 sec
PE 51 - 70 white	63 sec	70 sec
PE 43 - 80 white	81 sec	90 sec

Note: Multiply the suggested exposure in this table by all the applicable factors for coating method, distance and so on, to determine the best suggested exposure for your particular conditions:

Distance factors		Fabric factors	High Humidity
0.50 m = 0.25	1.30 m = 1.69	Steel = 2.0 – 4.0	1.3 – 1.8
0.70 m = 0.49	1.40 m = 1.95	Dyed = 1.5 – 2.0	Taped up positive
0.80 m = 0.64	1.50 m = 2.25	Viscosity adjustment	1.2 – 1.3
1.00 m = 1.00	1.80 m = 3.20	5% dilution 0.95	Vellum positive
1.10 m = 1.21	2.00 m = 4.00	10% dilution 0.90	1.2 – 1.5
1.20 m = 1.44	2.30 m = 5.29	5% more viscous 1.10	

Step 6: DETERMINE THE OPTIMAL EXPOSURE TIME

Use the Approximate Exposure Time (the Base Exposure Time and multiply it by all relevant Exposure Variable Factors) as the central time in a Step Wedge Test (instructions can be found in the **Ulano Direct Emulsions Technical Data Booklet**) or with the **Ulano Exposure Calculator Kit**. Carry the test 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 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 squeegee side, and no foam or bubbles remain. Dry the frame with a rag, and blot excess water from both sides with unprinted newspaper stock, with a squeegee or with a water aspirator machine. Take care on the printing side.

Step 8: BLOCKOUT & TOUCHUP

Blockout: When using aqueous inks, before drying and exposing the stencil, coat the blockout area with emulsion. Dry and expose again the stencil and blockout area emulsion.

When using solvent-based inks, process the stencil, dry the screen, then apply **Screen Filler No. 60** or **Extra Heavy Blockout No. 10**. Dry the blockout areas before printing.

Touchup: When using aqueous inks, touch up the screen with **LX-892** thinned with water. Dry and expose again the touchup emulsion.

When using solvent-based inks, after making the stencil, dry the screen. Apply **Screen Filler No. 60** or **Extra Heavy Blockout No. 10**. Dry the **Screen Filler No. 60** or **Extra Heavy Blockout No. 10** before printing.

Step 9: OPTIONAL TREATMENT WITH HARDENER D

Best results are achieved when using ULANO HARDENER D which is free from solids. For special requirements other hardeners can also be suitable. After the stencil has been made and thoroughly dried, apply **Hardener D** with a soft-bristled brush or sponge. Blot excess solution from the image areas. The screen requires 24 hours to cure at room temperature. To accelerate the curing process, heat the screen for one or two hours at 60°C (140°F). *Note that this treatment is optional, and makes the screen virtually impossible to reclaim.* Please note that the printing resistance of a screen and textile printing stencil is influenced by a lot of parameters e.g. mesh, coating technique, drying, exposure time etc. Furthermore, a lot of printing media and printing machines are being used in practice, which have not all been tested by us

Step 10: 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 forceful spray. Brush **Stencil Remover Liquid No. 4** or diluted **Stencil Remover Liquid No. 42** or **No. 44** or with **Stencil Remover Paste No. 5** on both sides of screen. Do not let stencil remover dry on the screen. Rinse with spray. Wash-out with forceful spray of water (at least 80 bar). Use **Haze Remover Paste No. 78** to remove ink and haze residues. You can use **Walk Away Haze Remover** and activate it with **Fast Acting Haze Remover**, too.

PRODUCT FEATURES:

Color: Unsensitized: blue
Sensitized: blue-green

Solid contents: 48.6%

Viscosity: approx. 10.000 cps

VOC: none

STORAGE (20 – 25°C)

Unsensitized: 1 year. Protect against freezing.

Sensitized: approx. 4 weeks, and up to 3 months in a refrigerator.

Storage of coated screens: approx. 1 week (at 20 - 25°C and in total darkness)

Note: During a longer storage of pre-coated screens, the stencil material can absorb moisture out of the environment again, therefore a repeated drying prior to the exposure is recommended.

HEALTH HAZARDS/ ENVIRONMENTAL PROTECTION

Please follow further information given in the material safety data sheet (MSDS).