

ULANOLINE®

DIRECT/INDIRECT SYSTEM PHOTOGRAPHIC STENCIL FILM

Ulanoline is coated to a thickness of 20 microns, for use with mesh counts of 73 - 150 threads /cm (185 - 380 threads /inch), and 30 microns, for use with mesh counts of 55 - 120 threads /cm. (140 - 305 threads /inch). **Ulanoline** affords excellent mechanical durability and resistance to solvents, sharp printing edges, and rapid exposure.

INSTRUCTIONS:

Step 1: PREPARE THE MESH

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 COATING

Dissolve the sensitizer in water. Pour the sensitizer solution into the Coating. Mix the Coating thoroughly with a clean tool. Before using the sensitized Coating, wait at least one hour to allow it to de-bubble. Write the date of sensitizing on the label.

Step 3: ADHERE THE FILM TO THE MESH

Customary Method: Cut the film to size, dust it, and place it on a piece of flat glass or plastic that is somewhat larger than the frame. Be sure that the fabric is dry. Place the frame over the film and apply pieces of wide tape at both ends of the open screen on the squeegee side. Pour a "bead" of sensitized Coating onto one of the pieces of tape. Use a soft rubber squeegee, slightly larger than the Film, and apply the sensitized Coating using light pressure, as if printing. Using dichromate sensitized coating, make one stroke; with diazo sensitized Coating, make two strokes, wet on wet. After adhering, wait 3 minutes. Pull off the tape and remove any excess Coating in the open areas of the screen.

Optional Method: Trim the film and adhere it to the printing side of a degreased, dry screen with a small piece of tape in the middle of the top edge of the film, emulsion layer against the fabric. Place the frame with the taped-on film into "master frame," which provides support. Use a direct emulsion coating trough ("scoop coater") to apply one coat on the squeegee side over the film. To increase print run length, apply a second coat using the same method. We recommend turning the frame 180° (end to end) between coats to distribute the Coating more evenly.

Step 4: DRY THE ADHERED FILM AND REMOVE THE PLASTIC BASE

Dry the adhered film with a fan at room temperature. Drying time under normal conditions will be approximately 15 minutes, and longer if the relative humidity is high. When the film is dry, the plastic base can be peeled easily and with little resistance. The plastic base should be removed before exposure.

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 120 /cm (305 /inch) white fabric at an exposure distance of 40 inches (=ca. 1 meter). 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 or use the **Ulano Exposure Kit**—carried through to actual printing—to determine your optimum exposure time. Optimum exposure is indicated: ■ At that exposure time when 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*. Underexposure can be recognized by poor adhesion of the film to the fabric, ragged printing edges, reduced chemical resistance to inks, and shortened printing life. Exposures should be made in a vacuum frame (sometimes called a "drawing down," or "printing down table") with a soft, black rubber blanket, large enough to accommodate the entire screen frame.

Step 7: WASHOUT

Wet both sides of the screen with a gentle spray of tap water (no warmer than 45° C). Then spray the printing side with medium pressure 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. The finer the details, the longer the rinse should be. Blot excess water from the printing side with newsprint (unprinted newspaper stock). If close register is not needed, warm air can be used for drying.

Step 8: BLOCKOUT AND TOUCHUPS

Blockout: For non-aqueous inks, after exposure and washout, dry the screen. Apply **Screen Filler No. 60** or **Extra Heavy Blockout No. 10**.
Touchups: Apply water-thinned **Screen Filler No. 60** or **Extra Heavy Blockout No. 10** with an artist's brush.

Technical Data Sheet



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. 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 with a 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 120T/cm (305T/inch) white polyester or nylon at 100 cm (40 inches) exposure distance. Light Source

Carbon Arc	Ulanoline 20 Diazo	Ulanoline 20 Dichromate	Ulanoline 30 Dichromate
15 amps	1040 sec.	6 min.	680 sec.
30 amps	520 sec.	3 min.	340 sec.
40 amps	390 sec.	135 sec.	255 sec.
60 amps	260 sec.	90 sec.	170 sec.
110 amps	140 sec.	50 sec.	93 sec.
Metal Halide			
1000 watts	sec.	sec.	sec.
2000 watts	sec.	sec.	sec.
3000 watts	100 sec.	35 sec.	66 sec.
4000 watts	75 sec.	26 sec.	49 sec.
5000 watts	60 sec.	21 sec.	40 sec.
Pulsed Xenon			
2000 watts	850 sec.	275 sec.	520 sec.
5000 watts	340 sec.	110 sec.	205 sec.
8000 watts	sec.	sec.	sec.
Mercury Vapor*			
125 watts	2250 sec.	750 sec.	1420 sec.
400 watts	700 sec.	210 sec.	395 sec.
Fluorescent Tubes*			
FT 40 watts	930 sec.	310 sec.	585 sec.

EXPOSURE VARIABLE FACTORS

Fabric:

Steel/metalized polyester	2.0 - 4.0
Dyed Fabric	1.5 - 2.0
305T white polyester or nylon	1.0
Finer than 330T (130T/cm)	0.7 - 0.9
Coarser than 250T (100T/cm)	1.1 - 2.0
Multifilament PET	1.3 - 1.5

Exposure Distance:

20"/50cm	0.25	36"/90cm	0.81
24"/60cm	0.36	40"/100cm	1.00
28"/70cm	0.49	52"/130cm	1.21
32"/80cm	0.64		

High Heat and Humidity (Diazo):

Factor	1.3-1.8
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Taped-up Positives:

Factor	1.2-1.3
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* Philips Type HPR. **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.

ULANOTIPS

STORAGE TO AVOID THE DARK HARDENING EFFECT: Adhered and sensitized Film can be stored before exposure if kept in complete darkness at approximately 20° C. Diazo sensitized: maximum time 1 week. Dichromate sensitized: maximum time 12 hours.

SENSITIZING THE COATING: Diazo Coating: Add lukewarm water to the powder in the small bottle, close the lid firmly, and shake the bottle well for 2 minutes. **Dichromate Coating:** This sensitizer can be made up as follows: Dissolve 100 grams of ammonium dichromate in 400 cc. of distilled water. Add 1 part of this sensitizer to 5 parts of the Coating. • Slight changes in viscosity of the sensitized Coating do not influence the adhering of the film or the printing result. • Protect the Coating against freezing and strong light. Work in subdued light only.

STORING THE COATING: Diazo, unsensitized: up to 12 months at 10 - 20° C. **Diazo, sensitized:** store in a cool, dark place for up to 4 weeks. **Dichromate, unsensitized:** up to 12 months at 10 - 20° C. **Dichromate, sensitized:** up to 8 days under cool, dark conditions.

ADHERING THE FILM: • For extremely long runs, apply Coating, wait 1 minute, apply an additional stroke, then wait 3 minutes again before lifting the frame for drying. • Use double strokes with diazo sensitizer. • For steel and metalized fabric, apply coating, wait 15 minutes, apply an additional stroke, then wait 3 minutes before lifting the frame to day. • We do not recommend the use of diazo-sensitized coating with **Ulanoline 30**.