

## POLYCOL LIGHT-SCRIBE LX PLUS (with diazo)

### 1. DESCRIPTION

POLYCOL LIGHT-SCRIBE LX PLUS (with diazo) is a high solids, fast exposing, pre-sensitized 'pure photopolymer' SBQ-photopolymer emulsion specially formulated for use with all of the newest textile inks including plastisol, water-based, and discharge systems.

It is developed for use on the newest Direct Laser Computer-to-Screen imaging & LED exposing systems as well as conventional exposure systems.

POLYCOL LIGHT-SCRIBE LX PLUS (with diazo) builds quickly and has excellent edge definition and resolution. POLYCOL LIGHT-SCRIBE LX PLUS (with diazo) does not 'lock in' the emulsion after treated with cleaning solvents, making reclaiming easier.

**TIP:** To optimize the emulsion's resistance to water-base and discharge ink systems, be sure the emulsion is extremely dry at the time of exposure and select the longest possible exposure time.

**NOTE:** For best results post expose dried, imaged screen from the squeegee side for triple the initial exposure time.

In extreme cases or for use in shops with uncontrolled humidity, the use of stencil hardener and/or diazo additive may be required for longer print runs. See SENSITIZING and POST HARDENING below for more information.

### 2. SENSITIZING

Sensitize with Diazo H (supplied).

**Step 1:** Fill sensitizer bottle to the shoulder for gallons and 5-gallon containers and half full for quart size containers - preferably using *warm distilled* water. Cover lid with rag or paper towel to protect hands from leakage, then shake bottle until diazo is fully dissolved.

**Step 2:** Pour dissolved diazo into emulsion.

**Step 3:** Stir thoroughly and completely to assure proper mixing.

**Step 4:** Allow the mixed emulsion to de-bubble after sensitizing for two hours.

Store emulsion in a cool (68°F / 20°C) dark place.

Diazo sensitizer dissolves easier in warm water and distilled water assures no potentially detrimental heavy metal contamination occurs.

### 3. DEGREASING

Degrease mesh with a commercial degreaser such as KIWO's DEGREASER 1:20 CONCENTRATE or ULTRA PREP to achieve consistent, superior quality stencils. Use KIWOCLEAN DEGREASER 1:40 CONCENTRATE, our low foaming mixture, for use in recirculating automatic reclaiming equipment. See separate Technical Information sheets for further details regarding KIWO's degreasers.

For best results, thoroughly brush both sides of the wet screen with degreasing agent. Using a pressure washer to remove degreaser will

help remove contaminants trapped in the mesh but may re-introduce impurities to the mesh caused by 'blowback' from the washout booth. To reduce this risk, perform a final flood rinse using low water pressure.

Mesh should be free of all contaminants such as ink and emulsion residues, oil, dust, and ghost/haze images prior to emulsion coating.

### 4. COATING PROCEDURE

Coating can be done manually or by machine. The use of a KIWOMAT® SIMPLEX coating machine is especially recommended because it achieves a more reproducible coating result. When coating manually, begin on the substrate side of the screen with wet-on-wet coats until emulsion becomes glossy on the squeegee side (generally 2 coats when using round edged coating trough). Then finish with wet-on-wet coats on the squeegee side to build up the emulsion coating to the desired thickness depending on the printing requirements.

POLYCOL LIGHT-SCRIBE LX PLUS (with diazo) has excellent coating properties on mesh counts of 40-305 threads-per-inch (16-120 threads-per-cm). For quality stencil thickness, the following coating techniques are recommended using a round (2 - 2.5 mm) edged coating trough:

40-86 tpi (16-34 tpcm):	2-2 (substrate-squeegee) wet-on-wet
110-156 tpi (43-61 tpcm):	2-2 (substrate-squeegee) wet-on-wet
195-305 tpi (77-120 tpcm):	2-1 (substrate-squeegee) wet-on-wet

### 5. DRYING

Dry emulsion coated screens in yellow safelight conditions (or complete darkness) in a horizontal position with the substrate side facing down. Temperature, relative humidity, and airflow affect the drying time. Screens must be *dried thoroughly* before exposure to achieve highest chemical (ink and ink cleaners) and mechanical (abrasion) resistance. Environmental conditions play a vital role. Temperatures of 86°-104°F (30°-40°C) with a relative humidity of 20% - 35% (50% maximum) and moderate airflow are optimum conditions. Drying at room temperature and in uncontrolled conditions may lead to inconsistent results and varying screen resistance.

TIP: Keep screens and all screen handling areas dry until exposure is complete. This includes storage, exposure preparation, *and* exposure areas, as dry emulsion reabsorbs moisture in high humidity environments. Emulsions do not become humidity resistant until exposure, washout and drying are complete.

### 6. EXPOSING

**NOTE:** When imaging with a direct laser CTS imaging system, exposure calibration is required. This can be done with a test pattern of art imaged repeatedly on the same screen at different speeds or power output settings that can be evaluated for level of resistance and resolution. Please contact KIWO directly for detailed instructions on how to perform this exposure test.

Expose with ultra-violet light at a wavelength of 350 – 420 nm. *Metal halide lamps provide the best results.* Due to the many variables that determine optimum exposure time, accurate exposure times cannot be given.



The following examples are offered as a guide only.

\*\*\* **LAMP: 5000 WATT METAL HALIDE AT 40" (1M) DISTANCE:**

Mesh Count Threads-per-inch (Threads-per-cm.)	Mesh Color	Coating Technique Substrate side- Squeegee side	Exposure Time
110-80 (43-140)	White	2-1	~ 15 sec.
156-64 (61-64)	Yellow	2-1	~ 30 sec.

\*\*\* Correct exposure times for your equipment and mesh selection must be determined through exposure tests using an exposure calculator such as the KIWO® ExpoCheck.

**NOTE:** Under-exposed screens feel slimy on the squeegee side during developing. At or near correct exposure time, the screen is not slimy. Overexposure leads to the loss of small details. Correctly exposed screens will withstand high water pressure during washout.

**7. DEVELOPING / WASHOUT**

Wet both sides of the screen thoroughly with water, then after a short dwell time, wash out screen from the substrate side of the screen using a power washer (~1,500 psi) on fan spray setting at 12-18" distance until image is fully developed. Briefly rinse the squeegee side to remove any remaining emulsion residue. Remove excess water from screen with water vacuum or clean compressed air.

If emulsion is slimy on the squeegee side of the screen or the stencil is damaged due to developing with a pressure washer, the emulsion was under-exposed and/or was not properly dried, or the mesh is too coarse for the artwork when only the finest details are damaged.

**8. POST-HARDENING (UV POST-EXPOSURE)**

For maximum resistance to aggressive ink systems, post expose dried, imaged screen from the squeegee side for 3X the initial exposure time.

Exposing the screen fully with the primary exposure offers better resistance than under exposing initially, then post-exposing to improve resistance. Post exposure is most often used for long printing runs when water based and/or abrasive inks are used.

**9. POST-HARDENING (CHEMICALLY)**

To increase stencil durability, emulsion can be chemically post-hardened using one of KIWO's stencil hardeners. Stencil hardeners can be classified as reclaimable or un-reclaimable. If reclaiming ability is desired, use KIWO HARDENER HP.

If a permanent un-reclaimable stencil is desired, for example when cataloging screens for future use, or when aggressive inks are used for large print runs, use KIWO HARDENER K. See separate Technical Information sheets for further details regarding KIWO's stencil hardeners.

**10. BLOCKOUT / TOUCH-UP**

When printing with plastisol ink, retouching and blocking out can be done with KIWO BLOCKOUT (blue) or RED BLOCKOUT.

For a water resistance stencil, block out and retouch with KIWOFILLER SWR 22 or use POLYCOL LIGHT-SCRIBE LX PLUS (with diazo). If using the emulsion, it must be dried thoroughly and re-exposed completely prior printing or using stencil hardeners). See separate Technical Information sheets for further details regarding KIWO's blockouts.

**11. RECLAIMING**

POLYCOL LIGHT-SCRIBE LX PLUS (with diazo) can be reclaimed with KIWO's STENCIL REMOVER 1:20/1:50 CONCENTRATE. Before reclaiming, ensure the screen is completely cleaned of ink or ink cleaning chemical residues.

For best results, work both sides of the screen i.e. apply stencil remover, brush, and pressure wash both sides of the screen. After applying stencil remover, a short dwell time may be used prior to pressure washing to allow more working time for the stencil remover especially when using coarser meshes and/or thicker stencils.

**CAUTION:** Never allow stencil removers to dry prior to removal, as the emulsion will become locked into the mesh and virtually impossible to remove. See separate Technical Information sheets for further details regarding KIWO's stencil removers.

**12. HAZE REMOVING**

Fresh ink stains alone can be effectively removed with EXCEL INK WASH or KIWOCLEAN® CONCENTRATED INK WASH without the use of caustic haze removers.

To remove emulsion haze or stubborn ghost images left from the ink, use KIWO's MEGA CLEAN ACTIVE, FAST LIQUID HAZE REMOVER, or HAZE REMOVER.

MEGA CLEAN ACTIVE and FAST LIQUID HAZE REMOVER work in approximately five minutes and effectively remove both emulsion haze and ink ghost simultaneously.

KIWO HAZE REMOVER should be applied to a dry screen, then allowed to completely dry on the screen. For more effective ink ghost removal, HAZE REMOVER can be used in conjunction with or EXCEL INK WASH to re-activate dried HAZE REMOVER.

For maximum effectiveness, haze removers, like ink washes and stencil removers, should be worked into the screen mesh from both sides of the screen before removing.

See separate Technical Information sheets for further details regarding KIWO's haze removers.

**13. PHYSICAL PROPERTIES**

Viscosity:	Approx. 8,000 mPas
Solids Content:	approx.: 42%
Color:	Violet
Storage:	18 months at 68°F/20°C
Potlife:	18 months at 68°F/20°C
Pre-coated screens:	8 weeks in complete darkness at 68°F/20°C or 1-3 weeks when using diazo additives
Freezing:	Protect against freezing
VOC:	None
TLV:	N/A
HMIS rating:	Health – 1 Flammability – 0 Reactivity – 0

**14. PACKAGING**



1 US Quart, 1 US Gallon, 5 US Gallons, 55 US Gallon Drum.

**15. ADDITIONAL INFORMATION**

For additional product information, please visit our web site at [www.kiwo.com](http://www.kiwo.com). All products mentioned in this technical data sheet are available through KIWO Inc. and its distributor network. For further information contact your authorized KIWO distributor or KIWO direct.

Thank you for choosing **KIWO**.