

## POLYCOL® VERSA-TEX PLUS™ (with diazo)

### 1. DESCRIPTION

POLYCOL® VERSA-TEX PLUS™ (with diazo) is a versatile high solids, pre-sensitized, red SBQ emulsion specially formulated for use with all textile printing inks including the newer phthalate-free and PVC-free plastisol, and the co-solvent water-base and discharge inks. Its high viscosity makes it ideal for drip-free coating on coarse mesh counts. POLYCOL® VERSA-TEX PLUS™ (with diazo) is resistant to plastisol, water-base and discharge inks. It also has good solvent resistance.

POLYCOL® VERSA-TEX PLUS™ (with diazo) builds up quickly and has excellent resolution. Its solvent resistance prevents solvents from "locking in" the emulsion making reclaiming easier.

**TIP:** To optimize resistance to water-based inks, be sure the emulsion coated screen is stored at ~35-40% relative humidity and is extremely dry at the time of exposure. Also, use longest practical exposure time to enhance durability and prevent pre-mature stencil breakdown. Post exposure will also help. See section 8 below.

**NOTE:** Stencil hardening fluid will further enhance resistance for printing discharge systems and/or for long runs with other water-base systems. See section 9 below for more information.

### 2. SENSITIZING

Sensitize with Diazo D supplied. Follow mixing instructions on the diazo bottle. Use of warm distilled water is recommended for optimum results.

### 3. DEGREASING

To achieve consistent, good quality stencils, degrease mesh with a good quality commercial degreaser such as KIWO's DEGREASER 1:20 CONCENTRATE or ULTRA PREP. For degreasers used in automatic equipment, KIWO offers a specially formulated machine grade degreaser KIWOCLEAN DEGREASER 1:40 CONCENTRATE. See separate Technical Information sheets for further details regarding KIWO's degreasers.

For best results, thoroughly brush both sides of screen with degreasing agent. Using a pressure washer to remove degreaser will help remove stubborn mesh contaminates, but may also re-introduce impurities to the mesh caused by blowback from the washout booth. To reduce blowback risk, perform a final flood rinse using low water pressure.

Mesh should be free of all contaminates 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® 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 surfaces 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® VERSA-TEX PLUS™ (with diazo) has excellent coating properties on mesh counts of 40-305 threads per inch (16-120 threads per cm). For standard stencil thickness, the following coating techniques are recommended using a round (2 - 2.5 mm) edged coating trough:

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

### 5. DRYING

Dry emulsion coated screens in complete darkness, or under safelight conditions, 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 exposing 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 30% - 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 photo emulsions reabsorb moisture if reintroduced to high humidity environments. Emulsions do not become humidity resistant until exposure, washout and drying are complete.

### 6. EXPOSING

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.

<sup>1</sup> 2.5 mm diameter round edged coating trough  
<sup>2</sup> Lamp: 5000 Watt metal halide at 40" (1m) distance

Mesh Count tpi (tpcm)	Mesh Color	Coating Technique <sup>1</sup>	Stencil Thickness (EOM)	Exposure Time <sup>2</sup>
110-80 (43-80)	White	2-1	18 µm	~ 45 sec.
		2-2	42 µm	~ 90 sec.
195-55 (90-48)	Yellow	2-1	10 µm	~ 60 sec.
		2-2	22 µm	~ 120 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.

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

Please contact KIWO if you have further questions regarding exposure time.



**7. DEVELOPING / WASHOUT**

**Preferred method**

High pressure developing: 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 squeegee side to remove any remaining emulsion residue. Vacuum or blot excess water from screen.

**Alternative method**

Develop the screen using full pressure tap water and a medium spray pattern. Adjust the water temperature to lukewarm or slightly colder. Rinse thoroughly from both sides of the screen. Vacuum off any excess water or blot it off with blank newsprint paper. This will avoid runs or scum from under-exposure in the open areas.

**8. POST-EXPOSURE**

Post-exposing the screen after developing and drying is somewhat effective. To improve the resistance post-exposure time needs to be 2-4 times the original exposure time. However, it is better to expose the screen fully during the initial exposure than to under expose initially, and then rely on post-expose to improve resistance. Post exposure is most often used for long printing runs when water based and discharge inks are used.

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

POLYCOL® VERSA-TEX PLUS™ (with diazo) can be chemically post-hardened using one of KIWO's stencil hardeners. There are two forms of stencil hardeners: reclaimable and un-reclaimable. If reclaiming ability is desired, use KIWO HARDENER HP or HARDENER WR.

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

**10. BLOCKOUT / TOUCH-UP**

For use with all plastisol inks, touching up and blocking out can be done with KIWO's BLOCKOUT, RED BLOCKOUT or KIWOFILLER SR 401 NV.

For use with water-based inks, touching up and blocking out can be done with KIWO's BLOCKOUT WR or POLYCOL® VERSA-TEX PLUS™ (with diazo).

For use with co-solvent water based inks, touching up and blocking out can be done with KIWO's KIWOFILLER SWR 22 or with POLYCOL® VERSA-TEX PLUS™ (with diazo).

NOTE: when blocking out with emulsion make sure to dry emulsion thoroughly and then re-expose completely on each side emulsion was used prior to using stencil hardeners.

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

**11. RECLAIMING**

POLYCOL® VERSA-TEX PLUS™ (with diazo) can be reclaimed with KIWO's STENCIL REMOVER 1:20 CONCENTRATE. Before reclaiming, ensure the screen is completely cleaned of ink or ink cleaning chemical residues. If water beads up on the stencil, residues are still present. If this is the case, degrease the screen again prior to reclaiming for best results.

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**

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

For best results, 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 KIWOCLEAN® CONCENTRATED INK WASH or ULTIMATE INK WASH to re-activate dried HAZE REMOVER.

Active components in FAST LIQUID HAZE REMOVER and MEGA CLEAN ACTIVE work in approximately five minutes and effectively remove both emulsion haze and ink ghost simultaneously. See separate Technical Information sheets for further details regarding KIWO's haze removers.

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

**13. PHYSICAL PROPERTIES**

Viscosity Sensitized:	Approx. 8,000 mPas
Solids Content:	approx.: 45%
Color:	Red
Storage:	1 year at 68°F/20°C
Potlife:	4-6 weeks at 68°F/20°C
Pre-coated screens:	1-3 weeks in complete darkness at 68°F/20°C
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**.