

## POLYCOL® XXL

**Highly viscous, one-component photopolymer emulsion for very high stencil build-up thickness.**

POLYCOL XXL is a one-component photoemulsion. High viscosity and solids content make it especially suitable for direct coating of coarse mesh and the production of stencils with a high coating thickness. Stencils made with POLYCOL XXL are typically used for printing Plastisol, sealing compounds, special applications of the textile and ceramic industry, as well as granulates.

**SENSITIZING** Not applicable, as ready-to-use.

**DEGREASING** Before coating it is recommended to clean and degrease the screen mesh to achieve reproducible coating results. Ensure proper tension of the screen mesh. Use manual degreasers of the PREGAN range or KIWOCLEAN degreasing concentrates for automatic units (see separate technical information). After thorough rinsing with water and drying the screens are ready for coating.

**COATING** POLYCOL XXL can be coated manually or by machine. The use of a coating machine is especially recommended because it achieves an even and reproducible coating result. Use a coating trough with a round edge of radius approx. 1,5-2,5 mm.

In order to avoid bubbles during coating, do not stir POLYCOL XXL prior to use. Coat the stencil slowly and evenly. Ensure that the mesh openings are filled from the printing side (generally 2-3 coatings). Only then begin with the emulsion build-up from the squeegee side - depending on the print job.

In order to avoid that the emulsion runs down the screen, we recommend turning the stencil by 180° after 4-5 coatings from the squeegee side and then continue coating from the squeegee side until achieving the desired emulsion thickness

Notice: POLYCOL XXL was developed for coating very coarse mesh (8-12 threads/ cm). When working with fine mesh, or for special applications POLYCOL XXL can be reduced with approx. 2-5% water (distilled or de-ionized).

**DRYING** In order to achieve the highest resistances of the screen printing stencil, the coated screens have to be dried well before exposure. This should preferably be done in a dust-free drying-chamber with fresh-air inlet at temperatures of between 35-40°C. Depending on the coating technique and the mesh it may be of advantage to dry the stencils with the printing side showing upwards.

Notice: When using a mesh coarser than 15-250 W, we recommend drying the stencil for 4-5 minutes with the printing side upwards, than continue drying with the printing side downwards.

Note: Drying time depends on the emulsion thickness. Emulsion thicknesses of approx. 500 µm should dry for at least 6-8 h, thicknesses of approx. 1000 µm 8 h, preferably over night.

## POST COATING

When the stencil build-up thickness is very high, the anchoring of the emulsion to the mesh can be improved by an additional two coats from the squeegee side. After drying the stencil again, exposure can be started.

## EXPOSURE

The stencil is created by UV-light hardening of the non-printing stencil parts. Expose with blue actinic light at a wave length of 320 - 380 nm. A metal halide lamp provides best results.

Due to the many variables that determine the actual exposure time, accurate exposure times cannot be given. Optimum copying results can only be achieved by trials (step exposure). For best resistances, please choose an exposure time which is as long as possible. This maximum exposure time must still allow reproduction of fine details. This is especially important when water based printing inks are used, as in this case the resistance will be achieved by the exposure time.

**General rule:** From trials we found the following general rules for the exposure time in s.

- a) mesh of 43-80 W to 15-250 W:  
 $\text{total thickness (mesh + build-up thickness)} / 2 = \text{exposure time in s}$   
i.e.: total thickness of the stencil of 600 µm = exposure time of 300 s
- b) mesh of 15-250 W to 8-300 W:  
 $\text{total thickness (mesh + build-up thickness)} = \text{exposure time in s}$   
i.e.: total thickness of the stencil of 600 µm = exposure time of 600 s

Guide values: Light source: 5.000 W metal halide lamp at a distance of 1 m; manual coating (H) or automatic coating (MA):

Mesh	Coating technique	Stencil build-up thickness	Average exposure time
10 – 260 W	2D/4R (H) 2D/6R (H) 2D/10R (H) 2D/12R (H)	Approx. 360 µm Approx. 520 µm Approx. 900 µm Approx. 1100 µm	6-9 min 8-13 min 14-20 min 16-25 min
21 – 140 W	2D/5R (H) 2D/8R (H) 2D/12R (H)	Approx. 190 µm Approx. 300 µm Approx. 500 µm	3-6 min 5-8 min 8-13 min
15 – 250 W	2-9 (MA)	Approx. 300 µm	5-8 min
21-140 W	2-5 (MA)	Approx. 200 µm	3-6 min
31-100 W	2-9 (MA)	Approx. 330 µm	6-9 min
43-80 W	2-5 (MA)	Approx. 140 µm	2,5-5 min

D = coating from the printing side, R = coating from the squeegee side

## DEVELOPING

### Method 1:

The exposed stencil can be developed with the KIWO PROFI-WASH, or low pressure (approx. 30 bar) from both sides, with the final washing preferably from the printing side. A stencil thickness of approx. 1000 µm can be developed with higher pressure (approx. 60 bar) from the printing side. During developing/ rinsing the stencil becomes soft, therefore work carefully without too much water pressure.

### Method 2:

Before developing, put the exposed stencil into a container with cold water. After 15-30 min (depending on the stencil build-up thickness) the unexposed parts can be rinsed with the KIWO PROFI-WASH, or low water pressure (approx. 30 bar)

Developing time depends on the stencil build-up thickness. Thicknesses of approx. 200-300 µm need approx. 15-20 min., thicknesses of 500 µm approx. 20-30 min. and thicknesses of approx. 1000 µm approx. 30-60 min for developing.

Note: In order to achieve highest resistance, the exposed and developed stencils have to be dried thoroughly prior to printing.

## POST CURING

To achieve optimum resistance, the completely copied and dried stencil can be exposed again from the squeegee side, e.g. 3-5 min with a 5000 W metal halide lamp at a distance of approx. 1 m.

POLYCOL XXL can be chemically hardened with KIWOSET products. Ask KIWO for advice.

## RETOUCHING/ BLOCKING-OUT

For retouching / blocking-out use products of the KIWOFILLER range. When printing with aqueous inks, preferably use water based products which dry water resistant. These can be removed with PREGASOL decoating agents and a high pressure water washer. Ask your KIWO distributor or KIWO direct for advice.

## DECOATING

Due to the high stencil build-up thickness we recommend to wet the screen thoroughly with water. After 5-10 min apply a PREGASOL product and let the solution react for some time. Spray off with a high pressure water washer.

Use a PREGAN post-cleaner to remove any ink residue or so-called ghost images which may remain on the screen after decoating. Trials are essential as the type of residue may vary. Please make tests and ask for samples.

## NOTICE

Please note that the printing resistance of a screen 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. Therefore, please accept our offer and test the suitability of our products by asking for emulsion samples, as we can only guarantee a constant quality according to our own working conditions.

## COLOUR

Light blue

## VISCOSITY

Approx. 30.000 mPas (Rheomat RM 180, MS 33, D = 30 s<sup>-1</sup>, 23°C)

**HEALTH HAZARDS/  
ENVIRONMENTAL  
PROTECTION**

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

**STORAGE**

18 months (at 20-25°C) Protect against freezing.

Screens coated in advance: at least 4 weeks (at 20°C and in complete darkness)

When storing precoated screens for a longer period of time, the copying material can absorb humidity from the environment. Therefore, dry again prior to copying.