

FOTECOAT 1835 N

Fotopolymer Emulsion for production of extra thick stencils

1. DESCRIPTION

- Thanks to its high solid content and very high viscosity can produce 3000 µm stencil thickness with simple and shorter coating procedure.
- Presensitized polymer screen emulsion, water resistant
- Suitable for plastisol ink, glitter printing, high-density printing, thermoplastics, silicones, textile inks, aqueous inks and adhesives, granulates, frit
- Green color with high contrast and good flexibility
- Solid content: 51%; viscosity: extra thick

2. SPECIAL CHARACTERISTICS

- Degassing is very slow because of the high viscosity; avoid stirring
- Should **FOTECOAT 1835 N** become cold, the viscosity will increase; make sure it reaches at least 25°C before coating or warm up the emulsion in a water bath.

3. STORING

This ready-to-coat emulsion should be stored in a closed can, protected from direct a light. Protect also against freezing.

Condition	Service Life
Unsensitized, 18-25°C storage	24 months
Pre-coated screens in total darkness at 20°C	2-3 weeks

4. STENCIL MAKING UNDER YELLOW OR TUNGSTEN LIGHT

- Degrease and dry mesh in the usual way.
- Use a standard trough (1,0 mm lip radius) for coating by hand or machine.
- Coat very slowly below chart shows you stencil build up with various coating methods
- Dry first with print side down for approx. 15 min. then finalize drying with print side upwards. Important for coarse meshes!
- **Temperature of circulating air:** maximum 30°C (86°F) to avoid skin forming.
- **Drying time:** The best is to let the stencil dry overnight.
- **Exposure:** A step wedge 7 is necessary. Only high intensity light sources should be used.
- **Washout:** The exposed stencil must be immersed in lukewarm water; then use a good spray to open the unexposed area. In this condition the stencil is soft and must be treated carefully and without high pressure.
- **Make ready:** Let the stencil dry and block the surrounding open mesh area with tape or water resistant emulsion.
- **Stencil cleaning:** **FOTECOAT 1835 N** is a water resistant emulsion; cleaning with white spirit or mild solvents only.
- **Stencil removal:** apply **FOTECHEM 2005** from squeegee side only, then peel away the thick stencil from the mesh and rinse with water pressure.

Emulsion over mesh build-up (in µm) with various coating methods:

Mesh (l/cm)	2+2	2+3	2+4	2+5	2+6	2+7	2+8	2+10	2+12
43/80 PW	40	75	100	135	160	185	220	260	300
34/100 PW	40	80	110	145	180	220	260	290	350
32/70 PW	70	140	240	300	360				
24/120 PW	50	95	150	210	250	280	320	390	

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5. STENCIL QUALITY

- **Stencil thickness:** It is important to realize that the mesh type, the mesh number, the thread diameter, the weave and the colour, together with the trough lip radius, the coating speed and the number of strokes applied control the repeatability and the effective thickness. Tests are necessary!
- **Fabric stretching:** Thick stencils have tendency to become brittle. Maintain screen tension at 30 N/cm or higher in order to ensure that the mesh will snap-off and release the ink in a slow and controlled manner.
- **Stencil opening/resolution thumb rule:**
3 x total stencil thickness = minimal stencil opening
Example: stencil thickness 500 µm x 3 = line width minimum 1500 µm
- **Stencil edge sharpness / definition:** The bridging of the mesh is excellent. Practically no crawl feet. The stencil shoulder is crisp and corresponds closely with the film positive. The stencil opening however is conical (smaller in the mesh) with the result that printing becomes more difficult because of obstructed ink flow.
By increasing the distance between lamp and vacuum frame and adapting the exposure time, the conical structure can be reduced.
- Dyed mesh allows to achieve residue-free, crisp mesh openings.
- **Distance light source to vacuum frame:** to reduce the exposure time for thick stencils a reduction from 100 cm down to 80 cm can be of advantage. This results in approx. 35% shorter exposure time. The conical structure however increases.
- **It is essential to** make first a test exposure (step wedge) to find the optimum exposure time in relation with the mesh colour, the number of threads, the thread diameter, the weave and the coated stencil thickness.

6. EXPOSURE

- **Light source:** Necessary is a high light intensity in the wave length of 340-405 nm. Metal halide lamps need a photopolymer bulb (not diazo or gallium); the type of instant starter (without shutter system) is generally well suited. Mercury vapour lamps need very long exposure times. Fluorescent tubes are not recommended. The metal halide bulb should have less than 500 operating hours.

7. WASHOUT DEVELOPING

- Because of the high stencil thickness special processing is necessary.
- The exposed stencil should be immersed in lukewarm water of 25 - 30°C depending on stencil thickness.
- A good spray only must be used to rinse the softened stencil until the reachable openings are clear.
- Ideal is the use of a special developing pistol.
- At this stage the stencil is soft and does not allow a maltreatment by excessive water pressure (maximum 20 bar).

8. CHEMICAL HARDENING

Use **FOTECHEM 2119** following the respective Technical Information. Hardened stencils might become very brittle. They are no longer decoatable.

9. PRINTING

The snap-off during printing should not exceed 1 mm. A sharp, hard squeegee is necessary for sharp printing.