

# Water based Screen Stencil Emulsions

## FGD -132

These pre-sensitised photostencil emulsions offer distinct production advantages without compromising quality and performance.

FGD - 132 is designed for graphic and industrial printing.

### Main Characteristics

<b>FGD ►</b>	<b>132</b>
Ink Resistance	Solvent-based, conventional UV, and water-based UV
Colour	Blue
Definition	Excellent
Resolution	Excellent
Decoatability	Excellent
Solids Content (sensitised)	38%
Dry coating weight	38g/m
Stencil Build (microns)	4
Sensitised viscosity at 25° (mPas)	6000
Approx. shelf-life (22°C)	12 months
Approx. coated screen life (22°C)	3 months
Typical through-cure exposure speed using 5kw metal halide lamp at 1.2m.	42 secs

2+2 coats on 62.64 white mesh. 1+2 coats on 150.34 dyed orange mesh.

### Properties

#### FGD 132

Outstanding resolution and definition. Highly resistant to solvent-based and conventional UV inks. Good resistance to high humidity conditions.

### Instructions for Use

#### Safelightning

FGD -132 photopolymer emulsions are pre-sensitised, and therefore sensitive to light at all times. FGD -132 emulsions should be carried out in light which is low in blue and ultra-violet content. A photographic safelight is not essential, but yellow or weak tungsten illumination is. A useful form of light for the workroom is provided by gold fluorescent tubes. Daylight should be excluded or filtered by a yellow lacquer coating or film applied over windows. Coated screens should be stored in total darkness.

#### Preparing the Screen

Degrease the mesh in automatic screen cleaning machines using Xtend Prep 300 Sprayable Degreasing Concentrate or by hand with Prep 102 Degreasing and Emulsifying Concentrate.

When degreasing by hand using Prep 102, wet the screen and apply with a sponge or brush and then rub the mesh with a light circular motion. Ensure that both sides of the screen are thoroughly treated. Leave to stand for a few minutes and rinse with cold water to remove all traces of Prep. Allow the mesh to dry before coating.

#### Colorcroma Coating Troughs

Colorcroma Coating Troughs are designed for accurate and consistent coating of direct photostencil emulsions. The troughs are composed of precision extruded aluminum channeling fitted with injection moulded end pieces.

The channeling has a hard anodized finish which effectively seals the surface. This makes cleaning easy and also protects from corrosion. The end pieces have a special shoulder which ensures the coating edge is consistently at the optimum angle in relation to the screen. To help eliminate the beads formed at the extremities of conventional

troughs, special slots have been incorporated into the end pieces. These features permit even relatively inexperienced operators to coat screens faster and more accurately.

Colorcroma Coating Troughs have been designed to deposit medium coating thicknesses. It is therefore possible to coat a screen to a given stencil thickness with fewer strokes than would be required with a sharper or less precise edge.

The amount of emulsion used to coat a given area of a screen is principally governed by the fineness of the mesh. Colorcroma Coating Troughs have sufficient capacity to cover approximately 1.5-2m in a single stroke.

Colorcroma Coating Troughs are available in sixteen standard sizes. When ordering please specify the overall length required, measured from the outside edge of one end piece to the other.

#### Coating

##### Automatic Coating

Apply a simultaneous single coat to each side of the screen, followed by a second coat to the squeegee side. If a higher build is required, extra coats should be applied to the squeegee side of the screen.

##### Hand Coating

Stand the screen on edge slightly inclined away from the operator and process the screen as follows:

Depending on the stencil build required, apply 1 or 2 coats, wet-on-wet, to the print side of the screen followed by 1 or 2 coats applied, wet-on-wet, to the squeegee side of the screen.

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## Drying

The wet screen must be dried in darkness or subdued yellow light, ideally in a horizontal position, squeegee side up. A warm air fan or well-ventilated heated cupboard (up to 40°C) may be used but care should be taken not to blow dust on to the drying screen. For maximum stencil durability the screen must be thoroughly dry before exposure. Dried Water based Screen Stencil Emulsion screens may be stored in the dark at cool roomtemperatures for not longer than the time quoted in 'Main Characteristics', page 1.

## Exposure

Correct exposure is most important to obtain optimum resolution, definition and stencil life. For this reason, it must be determined by the use of the 'step and repeat' test exposure method, which is achieved by masking off sections of the image for a range of different exposure times. When using an exposure calculator, as ther is no diazo colour change, the correct exposure is the first step at which no emulsion is washed from the squeegee side of the screen.

For a durable stencil, the ideal time is the maximum exposure to achieve optimum resolution. If necessary, repeat with smaller time intervals to determine exposure more accurately.

The following times (seconds) can be used as the basis of an initial test exposure:

Lamp	50 Amp
Type at	Open
120cm	Carbon
Distance Arc	Metal Halide

132 510-570 250-290 165-195 80-100 45-65 40-50

Exposure values achieved with the following screens:

132 150.34 orange (1+2 Coats).

An HPR 125W Mercury Vapour Lamp achieved the same exposure values as a 1000W Metal Halide Lamp.

Exposure values quoted are the times required to fully cure and therefore completely harden the sensitised emulsion - Using these through-cure exposure values prevents emulsion being washed away from the inside of the stencil during development and ensures stencils of optimum definition, durability and decoatability.

Multifilament, stainless steel, different coloured mesh and multi-coat stencils require longer exposure, white mesh requires a shorter exposure. The length of exposure time depends on the light source, the thickness of the Dirasol coating, the fineness of the mesh, and the transparency of the background of the positive.

## Developing

Place the screen in a sink or automatic developing machine and gently spray both sides with cold or warm water (not above 40°C). After 1-2 minutes the spray pressure can be increased slightly. Continue developing until all parts of the image appear clean and sharp. With thick, heavily coated screens, leave to stand wet for a few minutes before commencing spray development.

## Final Drying and Spotting

Dry with the aid of a warm air fan. Any small blemishes or pinholes, usually caused by dust specks or spots on the positive, can be filled in by spotting with a brush containing sensitised Water based Screen Stencil emulsion or screen filler. After spotting, the screen is ready for printing.

NB: If using water-based inks, the screen should be re-exposed to harden the emulsion used for spotting.

## Reclaiming the Screen

Automatic Screen Cleaning Machines:

Remove ink residues using an Xtend Screen Cleaner and decoat stencil using diluted Strip Liquid Concentrate.

Manual Screen Cleaning:

Remove ink residues using a wiper soaked with an Xtend Screen Cleaner. Rinse the screen with water and then apply diluted Strip Powder or Strip Liquid to both sides of the stencil. Leave for a few minutes. The stencil can then be easily removed with a strong water jet or high-pressure water gun.

## Standard Packing

### FGD -132

FGD -132/20 Large Jumbo Pack - 20(4 x 5) ltr. emulsion. FGD -132/6 Mini Jumbo Pack - 6(6 x 1) ltr. emulsion.

## Storage

Store in original containers with the lid firmly sealed, at the coolest possible room temperature and in no case below 5°C or above 35°C. The emulsions will then remain stable for twelve months.

## Safety and Handling

Water based Screen Stencil Photopolymer Emulsions:

- Are formulated to be free from any toxic, carcinogenic, mutagenic or reprotoxic chemicals.
- Do not have a flashpoint and is therefore exempt from the Highly Flammable Liquid regulations.

Diazo Powder:

- Is formulated to be free from any toxic, carcinogenic, mutagenic or reprotoxic chemicals.

Comprehensive information on the Safety and Handling of Water based Screen Stencil emulsions and Diazo Powder is given in the appropriate Colcromca Safety Data Sheets, available upon request.

## Environmental Data

Water based Screen Stencil Photopolymer Emulsions:

- Do not contain ozone depleting chemicals as described in the Montreal Convention.
- Are moderately biodegradable as determined by the OECD 301D Closed Bottle Test.
- Are free of any volatile solvent and is therefore beneficial to the environment when compared to solvent based products.
- Are free from Phthalate Plasticisers.
- Have a pH of 4-5 Diazo Powder:
- Does not contain volatile organic solvents, or ozone damaging materials.
- Does not have any carcinogenic, mutagenic or reprotoxic properties

## Problems and Solutions

Faults	Probable Cause and Remedies
1. Image does not wash out.	<ul style="list-style-type: none"> <li>a. Accidental exposure - Check emulsion and coated screen have not been exposed to a light source or daylight.</li> <li>b. Screen dried with excessive heat - Dry screen at even temperature not exceeding 40°C. Avoid hot spots.</li> <li>c. Maximum storage life of sensitised emulsion or coated screen has been exceeded.</li> </ul>
2. Only part of image washes out.	<ul style="list-style-type: none"> <li>a. Uneven coating on screen - Ensure screen is taut and coating trough is undamaged.</li> <li>b. Montage positives comprised of films of different clarity - Use same type film for image area.</li> <li>c. Exposure time excessive for detail areas of design - Use dyed mesh or reduce exposure.</li> <li>d. Uneven contact - Check vacuum frame for contact between positive and screen.</li> <li>e. Over-exposure - Reduce exposure time.</li> <li>f. Inadequate positive opacity - check density and adjust.</li> </ul>
3. Apparently open areas of stencil will not print.	<ul style="list-style-type: none"> <li>a. Uneven coating - Ensure screen is taut and coating trough is undamaged.</li> <li>b. Inadequate exposure resulting in squeegee side of stencil running down screen, causing blocking during development or hardening.</li> </ul>
4. Exposed stencil washing away from screen or premature stencil breakdown.	<ul style="list-style-type: none"> <li>a. Inadequate exposure - Dyed, multifilament and stainless steel meshes, or multiple coatings all require longer exposure. A brown stained mesh after reclaiming the screen indicates under-exposure.</li> <li>b. Mesh improperly prepared and degreased.</li> <li>c. Excessive water pressure being used in development.</li> <li>d. Incorrect coating technique - Coat both sides of mesh.</li> <li>e. Emulsion not properly dried - Ensure moisture can escape when drying.</li> </ul>
5. Image has excessive sawtooth.	<ul style="list-style-type: none"> <li>a. Screen developed with excessive water pressure - Pre-soak screen and use gentle spray.</li> <li>b. Light scatter - Use dyed mesh.</li> <li>c. Insufficient contact - Ensure even contact between positives and screen.</li> <li>d. Mesh too coarse for design.</li> <li>e. Insufficient build of emulsion - Coat squeegee side last.</li> <li>f. Inadequate exposure - Increase exposure.</li> </ul>
6. Fisheyes	<ul style="list-style-type: none"> <li>a. Screen improperly prepared - Thoroughly degrease with recommended preparation chemical.</li> <li>b. Blemishes on coating - Ensure coating trough edge is clean and no skin particles have formed on the surface from prolonged use of uncovered emulsion in the trough.</li> <li>c. Environmental contaminants - Ensure clean working area and limit dust contamination.</li> </ul>
7. Pinholes in screen.	<ul style="list-style-type: none"> <li>a. Dirty glass or positive during exposure.</li> <li>b. Coating too fast - Slow down to allow mesh aperture to fully fill without aeration.</li> <li>c. Under-exposure - Increase exposure times to avoid weak stencil.</li> </ul>

The information and recommendations contained in this Product Information sheet, as well as technical advice otherwise given by representatives of our Company, whether verbally or in writing, are based on our present knowledge and believed to be accurate. However, no guarantee regarding their accuracy is given as we cannot cover or anticipate every possible application of our products and because manufacturing methods, printing stocks and other materials vary. For the same reason our products are sold without warranty and on condition that users shall make their own tests to satisfy themselves that they will meet fully their particular requirements. Our policy of continuous product improvement might make some of the information contained in this Product Information sheet out of date and users are requested to ensure that they follow current recommendations.



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