



## Dirasol Diazo Emulsions

RAPID - 22 - 29 - 32 - 25 - T

Dirasol Rapid, 22, 29 and 32 are formulated for use with solvent-based and UV curing inks in graphic and speciality screen printing. Dirasol 25 is specially formulated for printers of T-shirts, sports and fashion wear, using water-based or plastisol inks. Dirasol T is for the textile reel to reel flatbed printer with either automatic machines or tables.

Main Characteristics						
Dirasol ►	Dirasol Rapid	Dirasol 22	Dirasol 29	Dirasol 32	Dirasol 25	Dirasol T
Stencil Type	Light Blue, 2 pack diazo direct emulsion	Violet, 2 pack diazo direct emulsion	Light Violet, 2 pack diazo direct emulsion	Violet, 2 pack diazo direct emulsion	Light Violet, 2 pack diazo direct emulsion	Blue, 2 pack diazo direct emulsion
Ink Resistance	Solvent-based, conventional UV	Solvent-based, conventional UV	Solvent-based, conventional UV	Solvent-based, conventional UV	Plastisol, water based	With Sericure, all water based dye and pigment systems
Recommended Applications	Graphic and Speciality printing	Graphic and Speciality printing	Graphic and Speciality printing	Graphic especially fine line & half tone	Textile printing: T-Shirts, sports & fashion wear	Web textile printing
Definition	Good	Good	Good	Good	Good	Good
Resolution	Good	Good	Good	Excellent	Good	Good
Decoatability	Good	Good	Excellent	Good	Fair	Good, prior to hardening
Solids Content (Sensitised)	29%	27%	33%	29%	38%	33%
Dry Coating Weight	25g/m <sup>2</sup> *	24g/m <sup>2</sup> *	28g/m <sup>2</sup> *	25g/m <sup>2</sup> *	67g/m <sup>0</sup> †	53g/m <sup>2</sup> †
Stencil Build in microns	6*	6*	7*	6*	21†	18†
Sensitised Viscosity at 25° (mPas)	6,000	5,500	7,500	7,000	5,500	3,500
Approx. Life Sensitised (22°)	2 months	3 months	3 months	3 months	3 months	1 month
Approx. Life Coated Screen (22°C)	3 months	3 months	3 months	3 months	3 months	1 week

\* 2+2 coats 120.40 mesh †2+2 coats 62.64 mesh

### Properties

#### Emulsions for graphic and Speciality Printing

##### Dirasol Rapid

One of the fastest exposing diazo emulsions available.

- Ultra-fast exposure
- Excellent mechanical resistance.

##### Dirasol 22

The all-round emulsion with a wide exposure latitude and excellent resolution.

- Wide exposure latitude
- Excellent solvent resistance.

##### Dirasol 29

The easiest diazo emulsion to decoat.

- Extremely easy decoating
- Excellent mesh bridging.

##### Dirasol 32

The emulsion for ultra-fine line and halftone reproduction.

- Excellent resolution.

#### Emulsion for Garment Printing

##### Dirasol 25

A reclaimable emulsion for fabric printing using plastisols or water-based inks, adhesives and pastes. Not resistant to a water/solvent mix.

- Excellent mesh bridging
- Good see-through for easy registration/setting up.
- Can be post hardened with Dirasol Super Hardener or water proofed with Sericure.

#### Emulsion for Web Textile Printing

##### Dirasol T

Once treated with Dirasol Super Hardener or Sericure is impervious to all water-based dye and pigment systems found in textile printing.

- Solvent free/low odour
- Extremely long print runs without requirement of over-lacquering
- Easily reclaimed prior to Dirasol Super Hardener/ Sericure treatment.

# Dirasol Diazo Emulsions

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## Instructions for Use

### Safe Lighting

All handling of Dirasol emulsions should be carried out in light of low blue and ultra-violet content. A photographic safelight is not essential, but it is advisable to use yellow or weak tungsten illumination. A useful form of light for the workroom is provided by gold fluorescent tubes and daylight should be excluded or filtered by a yellow lacquer coating or film applied over windows.

### Sensitising

Dirasol diazo emulsions are supplied as a two pack system consisting of:

1. Coloured Emulsion
2. Diazo Sensitiser

which should be mixed as follows:

- i) Part fill the sensitiser bottle with water to not less than 80% of its total capacity and shake it until the sensitiser is fully dissolved.
- ii) Add the sensitiser solution to the emulsion and thoroughly stir-in with a plastic or wooden stirring stick. Ideally the emulsion should be allowed to de-gas for one hour before use.

### 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. The mesh must be dry before coating with emulsion.

### Sericol Coating Troughs

Sericol Coating Troughs have been designed for the accurate and consistent coating of direct photostencil emulsions. The troughs are composed of precision extruded aluminium channelling fitted with injection moulded end pieces. The aluminium channelling of the troughs has a hard anodised finish which effectively seals the surface. This feature makes the troughs easier to clean and also protects them from corrosion. The end pieces have a special shoulder which ensures that 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 consistently. Sericol Coating Troughs are designed to deposit medium coating thicknesses. It is therefore possible to coat a screen up to a given stencil thickness with fewer strokes than would be required with a sharper or less precise edge. Sericol Coating Troughs are available in seventeen standard sizes. When ordering please specify the overall length required, measured from the outside edge of one end piece to the other.

### Automatic Coating

When using an automatic coating machine, 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

#### Dirasol Rapid, 22, 29, 32 and 25

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

Apply one or two coats, wet on wet, on the print side of the screen and then apply extra coats on the squeegee side of the screen depending on the stencil build required.

#### Dirasol T

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

1. Apply one or more coats wet on wet on the print side of the screen to fill the mesh, the thickness of the finished stencil being controlled by the mesh grade.
2. A scrape coat to improve cosmetic appearance may be applied on the squeegee side.

Coating from both sides is neither necessary nor desirable as this can entrap air bubbles, giving rise to weak spots. This is especially likely with monofilament meshes coarser than 43.80.

### Drying

Dry the screen in a horizontal position, squeegee side up, in darkness or subdued yellow light. 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. Dirasol screens may be stored in the dark at cool temperatures prior to exposure. See paragraph 'Storage' for recommended maximum period.

### Exposure

Correct exposure is most important to obtain optimum resolution, definition and stencil life. To establish this, with an unfamiliar emulsion or light source, the use of an exposure test scale is recommended. This can be done by:

1. Using an exposure calculator.
2. Placing a fine detail positive film over a coated screen and giving it a series of stepped exposures using a black paper mask. The exposure time is usually doubled from one step to the next. The correct exposure is the longest exposure that can be given whilst still obtaining optimum stencil resolution and definition after wash out. Over-exposed areas would result in loss of detail, whilst under-exposed areas may result in weak, thin stencils. Position the positive, emulsion side in contact with the Dirasol coating, on the underside of the dry screen, securing with tape. Then place the complete screen into the vacuum print down frame and ensure perfect contact before exposing to light. The length of exposure time depends on the light source, the thickness of the Dirasol coating, the fineness and colour of the mesh, and the transparency of the background of the positive. The following guide can be the basis of an initial test exposure.

# Dirasol Diazo Emulsions

## Exposure Guide (seconds)

Dirasol	22	25	Rapid	29	32	T
50 Amp Open Carbon Arc at 120cm	1330-1420	665-810	720-840	1080-1200	1500-1800	450-510
HPR 125W Mercury Vapour Lamp at 50cm	740-860	370-430	360-440	630-730	830-970	230-285
Metal Halide Lamps at 120cm						
1000W	740-860	370-430	360-440	630-730	830-970	230-285
2000W	360-440	180-220	180-220	310-370	410-490	115-145
3000W	240-300	120-150	110-150	210-250	270-330	70-90
5000W	140-180	70-90	70-90	120-160	160-200	45-55
6000W	110-150	55-75	60-80	90-130	130-170	50-70

The exposure values quoted are the times required to fully cure and therefore completely harden the sensitised emulsion on a 120.40 dyed (62.64 white for Dirasols 25 and T) monofilament screen, with a 2+2 coating (see also Dirasol T technique). Using these through-cure exposure values prevents emulsion being washed away during development and ensures stencils of optimum resolution, definition, durability and decoatability. Stainless steel, dyed fabrics and multi-coat stencils require longer exposure.

## 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. Immediately after developing, remove surface moisture with a screen vacuum or by gently mopping both sides of the screen (which should be in a horizontal position) with a soft moist chamois leather. This will speed final drying and also remove any impurities that might cling to the open areas of the screen.

## Final Drying and Spotting Out

Dry the stencil 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 out with a brush containing screen filler or sensitised Dirasol emulsion. After spotting out, the screen is ready for printing. **Dirasols 25 and T should be re-exposed when used as a spot out with resistance to water-based inks.**

## Waterproofing/Post Hardening Dirasol Stencils

(See Product Information Sheet on Xtend Screen Fillers and Stencil Treatment)

### Sericure (SCK81)

Sericure is a solution which can be used to produce water resistant stencils. Sericure is suitable for use with all Dirasol stencils on polyester and stainless steel mesh. Stencils treated with Sericure are more difficult to reclaim.

### Dirasol Super Hardener (JHH76/JHH77)

Dirasol Super Hardener is a two-pack chemical system which can be used to post harden all Dirasol Emulsions. Post hardening produces stencils which have maximum resistance to solvent and water-based inks as well as improved abrasion resistance. Stencils, correctly treated with Super Hardener, must be considered non-reclaimable.

## Instructions for Use

1. Mix Dirasol Super Hardener, Parts A and B, in equal proportion by weight or volume.
2. Apply Sericure/Dirasol Super Hardener to both sides of dry stencil using a soft brush or sponge.
3. For maximum stencil durability allow treated stencil to stand overnight, or leave to stand at room temperature for one hour and then place in front of hot fans (above 40°C) for a further hour.

## Reclaiming the Screen

In automatic screen cleaning machines, remove ink residues using an Xtend Screen Cleaner and decoat stencil using diluted Xtend Strip Liquid Concentrate. When removing by hand, remove all traces of ink with a rag soaked in Xtend Screen Cleaner. Rinse the screen with water and then apply diluted Xtend Strip 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

18 (4 x 4.5) litres.

DVL47	Dirasol Rapid
SZK96	Dirasol 22
DTT34	Dirasol 29
DGU15	Dirasol 32
DYL33	Dirasol 25
DWU51	Dirasol T

Mini-Jumbo Pack - Emulsion and Diazo Sensitiser to make 5.4 (6 x 0.9) litres.

DVL47	Dirasol Rapid
SZK96	Dirasol 22
DTT34	Dirasol 29
DGU15	Dirasol 32
DYL33	Dirasol 25
DWU51	Dirasol T

## Storage

Unsensitised Dirasol should be stored in as cool a temperature as possible, but not below 5°C or above 35°C. Sensitised Dirasol should be stored under similar conditions, in its original container with the lid sealed. The product will remain stable at 22°C for 3 months, but this can be extended by keeping in a household type refrigerator. The storage time will be significantly reduced as the temperature increases above 22°C.

### Storage Limits of Sensitised Dirasol (months)

Dirasol	22/25/29/32	Rapid	T
20°C - 25°C	3	2	1
In Household Refrigerator	6	4	2

## Safety and Handling

Dirasol Emulsions:

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

Comprehensive information on the Safety and Handling of Dirasol Emulsions and Diazo Sensitiser is given in the appropriate Sericol Safety Data Sheets, available upon request.

## Environmental Data

Dirasol 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, to solvent-based products.

## Problems and Solutions

Faults	Probable Cause and Remedies
1. Image does not wash out.	a. Accidental exposure - Check emulsion and coated screen have not been exposed to light source or daylight. b. Screen dried with excessive heat - Dry at temperature not exceeding 40°C. Avoid hot spots. c. Maximum storage life of sensitised emulsion or coated screen exceeded.
2. Only part of image washes out.	a. Uneven coating on screen - Ensure screen is taut and coating trough is undamaged. b. Montage positives comprised of films of different clarity - Use same type film for image area. c. Exposure time excessive for detail areas of design - Use dyed mesh or reduce exposure. d. Uneven contact - Check vacuum frame for contact between positives and screen. e. Over-exposure - Reduce exposure time. f. Inadequate positive opacity - Check density and adjust.
3. Apparently open areas of stencil will not print.	a. Inadequate washing out - Mop up excess water from stencils. b. Inadequate exposure resulting in emulsion on squeegee side of stencil running down screen causing blocking during development or hardening. c. Uneven coating on screen - Ensure screen is taut and coating trough undamaged.
4. Exposed stencil washing away from screen or premature stencil breakdown.	a. Inadequate exposure - Dyed, multifilament and stainless steel meshes or multiple coatings all require longer exposure. A brown stained mesh after reclaiming indicates under-exposure. b. Emulsion under-sensitised - Ensure sensitiser is dissolved and completely mixed with emulsion. c. Mesh improperly prepared and degreased. d. Excessive water pressure being used in development. e. Incorrect coating technique - Coat both sides of mesh. f. Stencil not properly dried - Ensure moisture can escape when drying.
5. Image has excessive sawtooth.	a. Screen developed with excessive water pressure - Pre-soak screen and use gentle spray. b. Light scatter - Used dyed mesh. c. Insufficient contact - Ensure even contact between positive and screen. d. Mesh too coarse for design. e. Insufficient build of emulsion - Coat squeegee side last. f. Inadequate exposure - Increase exposure.
6. Fish Eyes	a. Screen improperly prepared - Thoroughly degrease with Xtend Prep 102 or 300. b. Blemishes on coating - Ensure coating trough edge is clean and no skin particles have formed on surface of uncovered emulsion in the trough. c. Environmental contaminants - Clean working area and limit dust contamination.
7. Pinholes in Screen	a. Dirty glass or positive during exposure. b. Coating too fast - Slow down to allow mesh aperture to fully fill without aeration. c. Air bubbles in emulsion - Allow time to degas after mixing with sensitiser. d. Under-exposure - Increase exposure times to avoid weak stencil.

*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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