Dirasol Diazo Photopolymer Emulsions

Multipurpose: 902 – 915 – SuperCoat – 916 – 917 – Zenith
Speciality: SuperPro – 948 – SuperTex – Enduro

The combination of diazo and photopolymer chemistry creates photostencil systems capable of the highest standards of printing for all applications and ink systems.

Instructions for Use

Safelighting

Handling of Dirasol emulsions should be carried out in light that is low in blue and ultra-violet content. Gold fluorescent light tubes are recommended, and daylight should be excluded or filtered by a yellow lacquer coating or film over the windows.

Sensitising

Dirasol diazo-photopolymer emulsions are supplied as two-pack systems consisting of:

Part A – liquid emulsion
Part B – diazo sensitiser

Which should be mixed as follows:

1. Add water to the shoulder of the sensitiser bottle (about 80% full) and shake until the sensitiser is fully dissolved.
2. Add the sensitiser solution to the emulsion and thoroughly stir in with a plastic or wooden stirring stick. Leave to de-gas for minimum one hour before use.

If stored at room temperature, the sensitised emulsion should be used within the sensitised life quoted in the table 'Main Characteristics'.

Preparing the Screen

In automatic machines: use Xtend Prep 300 diluted with up to 5 parts of water. By hand: wet the screen, and brush Xtend Prep 102 onto both sides of the screen with a light circular motion. Leave to stand for 60 seconds, then rinse thoroughly with cold water. Allow mesh to dry before coating.

Sericol Coating Troughs

Made from precision extruded aluminium with injection moulded end pieces and designed to deposit medium coating thicknesses. The end pieces have a special shoulder, which ensures that the coating edge is consistently at the optimum angle in relation to the screen. This allows even relatively inexperienced operators to coat screens quickly and accurately.

Coating

Automatic Coating

Apply a simultaneous single coat to each side of the screen. A second simultaneous coat, or a second coat to the squeegee side only may be necessary, if a higher build is required. Additional single coats should always be applied to the squeegee side to ensure emulsion builds on the print side of the screen.

Hand Coating

Apply one coat to the print side of the screen, followed by additional coats, wet-on-wet, to the squeegee side.

Drying

The coated 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. Avoid humidity levels above 60% or below 20%. For maximum stencil durability, screens must be thoroughly dried before exposure. Dried Dirasol screens may be stored in the dark at cool room temperatures for not longer than the times quoted in the table 'Main Characteristics'.

Exposure

Correct exposure is most important to obtain optimum resolution, definition and stencil life. The use of an exposure calculator is recommended with an unfamiliar emulsion, with a new light source, or replacement bulb. Exposure times should be verified with a calculator on a regular basis, even if no changes have been made to any processing parameter. This will ensure that exposure times remain correct even if lamp output has deteriorated with use.

Position the film positive, emulsion side in contact with the print side of the emulsion coating, and secure with clear tape. Place the screen into the vacuum print-down frame and ensure perfect contact with the glass before exposing.

Refer to the chart below for suggested exposure times. These may vary depending on the emulsion coating thickness, colour of mesh dye, transparency of the film positive, equipment type, bulb age, and other variables in workshop conditions. All values (Light Units) are based on a lamp distance of 120cm.

	Metal Halide	
Dirasol	**1000W**	**5000W**
902*	360-440	70-90
915*	500-530	90-115
SuperCoat*	500-530	90-115
916*	350-400	65-85
917*	330-380	60-80
Zenith*	320-370	55-75
SuperPro*	320-370	55-75
948+	580-660	115-135
SuperTex#	1000-1070	180-220
Enduro+	850-940	170-190

* 150.34 dyed plain weave, coated 1+2
\+ 62.64 white plain weave, coated 2+2
\# 43.80 white plain weave, coated 2+2

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Main Characteristics

Multi-purpose Dirasol Emulsions		Ink Resistance	Colour	Solids Content (Sensitised)	Sensitised Viscosity at 25°C (mPas)
Dirasol 902	Produces stencils with exceptional definition for graphic and industrial printing. Wide exposure latitude and easy decoatability	SB, CUV, P	Violet	40%	7000
Dirasol 915	Resistant to all graphic, speciality and textile inks. Formulated to overcome static problems in high humidity conditions.	SB, WB, CUV, WUV, P	Deep Blue	38%	4500
Dirasol SuperCoat	Superb coating characteristics and resistant to all ink types. Formulated to overcome static problems in high humidity conditions.	SB, WB, CUV, WUV, P	Deep Blue	38%	4500
Dirasol 916	Universal graphic emulsion offering superb resolution and definition. Highly resistant to water-based UV graphic ink systems.	SB, WB, CUV, WUV, P	Deep Blue	40%	4500
Dirasol 917	Specifically designed for high quality printing using UV and solvent-based inks. Particularly suitable for production of wet-on-dry or face-coated stencils.	SB, CUV, P	Deep Blue	42%	5000
Dirasol Zenith	Specifically designed for high quality printing using UV and solvent-based inks. Fast reliable, processing including rapid development and easy decoating properties.	SB, WB, CUV, WUV, P	Violet	37%	5000

Main Characteristics

Speciality Dirasol Emulsions		Ink Resistance	Colour	Solids Content (Sensitised)	Sensitised Viscosity at 25°C (mPas)
Dirasol SuperPro	Fast exposing, high quality emulsion designed for use with direct projection cameras. (See 'Dirasol Direct Projection Emulsions' Product Information Sheet for more information)	SB, WB, CUV, WUV, P	Violet	40%	5500
Dirasol 948	High solids content and viscosity for the easy production of high-build stencils for applications which require heavy ink deposits.	SB, CUV, P	Light Blue	48%	9000
Dirasol SuperTex	For the production of high quality, durable stencils for garment printers	P, WBT	Blue	41%	6000
Dirasol Enduro	Developed to have extreme mechanical and chemical resistance, particularly the aggressive frit pastes used in ceramic and glass printing.	SB, WB, CUV, P, WBT	Pale Blue	46%	5500

SB = Solvent-based
WB = Water-based
CUV = Conventional UV
WUV = Water-based UV
P = Plastisol
WBT = Water-based textile

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	Stencil Build (microns)**	Definition	Resolution	Ease of washout	Ease of decoating	Approx. sensitised emulsion life (22°C)	Approx. coated screen life (22°C)	Typical through-cure exposure speed (5kw metal halide lamp at 120cm) **
	4	8	7	8	8	3 months	1 month	85 light units
	4	8	9	9	10	3 months	1 month	100 light units
	4	8	9	9	10	3 months	1 month	100 light units
	4	9	9	8	7	3 months	1 month	80 light units
	4	9	9	9	8	3 months	1 month	75 light units
	4	9	9	10	10	3 months	1 month	70 light units

** Based on: 1+2 automatic coating: 150.34 plain weave dyed mesh.

	Stencil Build (microns)**	Definition	Resolution	Ease of washout	Ease of decoating	Approx. sensitised emulsion life (22°C)	Approx. coated screen life (22°C)	Typical through-cure exposure speed (5kw metal halide lamp at 120cm) **
	4 **	9	9	8	7	3 months	1 month	70 light units (conventional exposure) **
	30 ++	9	6	7	7	2 months	2 weeks	125 light units ++
	20 !!	8	8	8	8	2 months	1 month	200 light units !!
	12 ++	9	7	7	7	2 weeks	3 days	180 light units ++

** 1+2 coats on 150.34 plain weave dyed mesh 10 = Superb. 5 = Good. 0 = Poor.
++ 2+2 coats on 62.64 plain weave white mesh
!! 2+2 coats on 43.80 plain weave white mesh

Developing

Gently spray both sides with cold or warm water. Continue washout from print side, using increased water pressure after one minute, if necessary. Continue developing until all parts of the image appear clean and sharp. Screens with a thick emulsion coating can benefit from being left to stand wet for a few minutes prior to washout. Dry the screen completely in a drying cabinet or with the aid of a warm air fan.

Spotting and Masking Out

Spotting out with a brush using Xtend Green or Red Filler can fill in any small blemishes or pinholes in the stencil. The same fillers are recommended for blocking out between the edges of the stencil and the frame.

Reclaiming the Screen

Automatic Screen Cleaning Machines:

Use an Xtend Screen Cleaner to remove ink residues, and diluted Xtend Strip Liquid Concentrates to decoat the stencil.

Manual Screen Cleaning:

Remove ink residues using a wipe soaked with an Xtend Screen Cleaner. Rinse the screen with water, and apply diluted Strip Powder or Strip Liquid to both sides of the stencil. Leave for a minute then remove the stencil with high-pressure water.

Standard Packing

	Double pack:	Mini Jumbo:
Dirasol	**9 (2x4.5) litres**	**5.4 (6x0.9) litres**
902	DLD52/9	DLD52/5,4
915	DMM14/9	DMM14/5,4
SuperCoat	DMA07/9	-
916	DM916/9	DM916/5,4
917	DM917/9	DM917/5,4
Zenith	EPZEN/9	EPZEN/5,4
SuperPro	DCPRO/9	-
948	DND58/9	DND58/5,4
SuperTex	DOTEX/9	DOTEX/5,4
Enduro	EADUR/9	-

Storage

Unsensitised Dirasol should be stored in as cool a temperature as possible, but not below 2°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 up to the period stated in 'Main Characteristics', but keeping it in a household type refrigerator can extend this. The pot life will be significantly reduced as the temperature increases above 22°C.

Fujifilm Speciality Ink Systems Limited:

- Has certification to the International Environmental Standard, ISO 14001
- Is committed to minimising the risk to users of our products, and also to minimising the impact of our activities on the environment, from formulation through to production and supply.
- Research & development team, work to an in house Health, Safety and Environmental policy, termed 'Design for Health, Safety and Environment', with the aim of proactively developing products with the least impact on health, safety and the environment.
- Regularly review and monitor our impacts and activities, setting objectives and targets as part of a continual improvement process.
- Is committed to reducing waste through better use of raw materials, energy, water, re-use and recycling.

Safety and Handling

Dirasol diazo-photopolymer emulsions:

- Are formulated to be free from any chemicals toxic to health, carcinogenic, mutagenic, or reprotoxic according to Directive 67/548/EC.
- Have flashpoints greater than 55°C and are therefore not classified as "dangerous substances" under the Dangerous Substances and Explosive Atmospheres Regulations (DSEAR).

Comprehensive information on the safety and handling of Dirasol emulsions and diazo sensitiser is given in the appropriate Safety Data Sheets.

Environmental Data

Dirasol diazo-photopolymer emulsions:

- Do not contain ozone-depleting chemicals as described in the Montreal Convention.
- Are formulated free from aromatic hydrocarbons.
- Are free of any volatile solvent and can therefore be considered to have less impact on the environment when compared with solvent-based products.
- Are free from phthalate plasticisers.
- Have a pH of 4-5

FUJIFILM

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