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Advanced Thermographic Technologies

Technical Product Information

CHAMELEON PHOTOCHROMIC UV CURE SCREEN PRINTING INK

Photochromic Function: Reversible
Article No: 1
Revision: 01
Last Revision: 29/05/2012

Description

Chameleon Photochromic UV Cure screen printing ink brings **reversible colour changing properties** to printed items. Chameleon Photochromic UV Cure screen printing Ink is suitable for a wide range of substrates including paper, plastic (polyethylene, TC polypropylene), coated papers and board substrates. The ink is supplied as a 1 part ink system ready formulated and easy to use allowing flexibility in application and optimisation in appearance of printed articles.

Application

Chameleon Photochromic UV Cure screen printing ink is ideally suited to flat bed screen printing process providing the ink is cured by exposure to UV lamps. As with all Photochromic inks, the printed effect is dependent upon several factors including press speed, substrate, drying time/temperature and mesh count.

Chameleon Photochromic UV Cure screen printing ink with viscosity adjusted to suit rotary screen printing process is also available on request.

Product Properties

Photochromic properties

Chameleon Photochromic UV Cure screen printing ink is available in various colours (blue, yellow, purple, red, Orange and other colours upon request and against minimal volume order). Chameleon Photochromic UV Cure screen ink becomes intensely colored after only 15 seconds of direct sun light exposure and return to clear after approximately 5 minutes out of any source of UV light. The different colours fade to clear at different rates.

Orange and yellow are the slowest to return back to clear. Yellow even requires visible light to return back to clear. If an exposed print or coat is put in a dark area, the yellow will not fade until it is left in normal room light (visible light) for a few minutes. The color change is "reversible". When measured in the same conditions with varying temperatures, the colour intensity generated by the

Chameleon Photochromic UV Cure screen printing ink is reduced at high temperatures (50 C) when compared to lower temperatures (less than 25 C).

Standard colours	Blue, yellow,, purple
Special colours	Red, orange, other colour available upon request

Light Fastness

Photochromic inks are inherently susceptible to damage by UV light. Protections by incorporating UV absorbers in a Overprint varnish will reduce accordingly the colour intensity. Addition of HALS in the OPV can be considered but should be evaluated prior to commercial use.

Light fastness properties of supplied Chameleon photochromic colours are as follows:*

Blue Purple Red Orange Yellow 1-2

*Rating according to measurement on Blue Wool Scale

Adhesion

Chameleon photochromic UV Cure Screen printing Ink is suitable for polyethylene, TC polypropylene, paper, coated paper and boards. However, due to the wide variety of substrates it is recommended that this ink is fully evaluated prior to any commercial use.

Rub Resistance

The ink exhibits good rub resistance properties. If a high level of resistance is required then a suitable over varnish or laminate can be used.

Overprintability/lamination Properties

Chameleon photochromic UV Cure Screen printing Ink is best overprinted with UV letterpress, UV offset and UV flexo varnish (additive may be needed). However, an evaluation for compatibility should always be carried out prior to commercial use. We recommend a gloss laminate for brighter aspect.

Additional Product Properties

Pigment Size (µm)	95% less than 6
Solvent	N/A
Supplied Viscosity (cps) ¹	>10000

¹ Measured on a LVT Brookfield Viscometer

Heat Behaviour

Reversible Photochromics are showing reduced colour intensity when ambient temperature is higher than approx 40 to 50 C. Conversely, at low temperature the colour of the UV irradiated print will take longer to come back to clear state in a UV radiation free environment.

Recommended Printing Parameters

Screen Configuration

The optimum screen configuration depends on several factors, the most important of which is the desired colour of the finished product.

	European/US Measurement
Recommended Mesh Size	120T / 310
Minimum Mesh Size	150T / 379

Ink consumption

Typical ink consumption for Chameleon Photochromic UV Screen Ink on a 120T mesh is approx 10g to 18g per sqm.

Dilution

The printing ink is supplied in a format that is at printing viscosity. Should the ink need to be thinned to suit application then UV thinners such as TPGDA or TMPEOTA should be used. Care must be taken with the use of diluents as Photochromic inks can be susceptible to damage with various reagents. Do not add more than 10% of diluents to the mixture.

Curing

The ink should be cured using suitable UV curing lamps.

Cleaning recommendations

After use, screens can be cleaned with a standard general purpose cleaner/screen wash. Use a clean screen free of solvents when printing Chameleon photochromic UV Cure Screen printing Ink since Photochromic effect can be affected by the presence of solvents.

Handling and Storage

Chameleon Photochromic UV Cure Screen printing Ink is a 1 part ink system that will remain stable for 3 months if kept in the unopened container. Chameleon Photochromic UV Cure Screen Inks should be stored away from solvents, sources of UV light and high temperature. Contents may settle on transit. Ink should be thoroughly mixed prior to application.

Please consult MSDS prior to use.

Shelf Life 3 Months

Do not store in temperatures in Excess of 25°C/77°F

Do not freeze

Material Safety Data Sheet to be consulted prior handling

Information in this Product Data Sheet is compiled from our general experience and data obtained from various technical publications. Whilst we believe that the information provided herein is accurate at the date hereof, no responsibility for its completeness or accuracy can be assumed. Tests are carried out under controlled laboratory conditions. Information is given in good faith, but without commitment as conditions vary in every case. The information is provided solely for consideration, investigation and verification by the user. We do not except any liability for any loss, damage or injury resulting from its use (except as required by law). Please refer to the Material Safety Data Sheet before using products to ensure safe handling.