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Advanced Thermographic Technologies

Technical Product Information

CHAMELEON PHOTOCHROMIC WATER BASED SCREEN PRINTING INK

Functionionality: Reversible Photochromic Ink
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Description

Water based Photochromic screen ink for paper and cardboard 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 article.

Application

CHAMELEON Photochromic screen printing ink suited to flat bed screen printing processes. As with all colour changing inks the printed effect is dependent upon several factors including substrate, drying time, temperature and mesh count. The printed ink exhibits a matt finish when printed. Therefore, it is always recommended that over laminate or spot varnish is used to give a glossy aspect.

Product Properties

Photochromic properties
CHAMELEON Photochromic water based screen ink is available in various colours (blue, yellow, purple, red, Orange and other colours upon request and against minimal volume order). Water based Photochromic 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 ñreversibleò When measured in the same conditions with varying temperatures, the colour intensity generated by the Water based Photochromic screen 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 an 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 colours are as follows:*

Blue Purple Red Orange Yellow 1-2

*Rating according to measurement on Blue Wool Scale

Adhesion
The adhesion of CHAMELEON Photochromic Water Based Screen Ink depends upon the surface properties of the selected substrate. Due to the wide variety of substrates it is recommended that this ink is evaluated fully prior to any commercial use.

Rub Resistance
An over varnish or laminate is necessary if any resistance to abrasion is required as resistance to pressure is low.

Overprintability/Lamination Properties

Evaluation for compatibility should always be carried out prior to commercial use.
When CHAMELEON Photochromic Water Based Screen Ink is intended for use on overprinting onto a surface pre-printed with offset inks, it is recommended that the offset inks are wax free.
Gloss laminate is recommended for best aspect.

Additional Product Properties

Pigment Content (%)	**24 ± 2%**
Pigment Size (µm)	**95% less than 8 microns**
Solid Content (%) [1]	**42 ± 3.0**
Solvent	**Water**
Supplied Viscosity (cps) [2]	**>5000 cps**

[1] AMB50 Moisture Content Analyzer
[2] Mixed ink measured on a LVT Brookfield Viscometer @ 25°C / 77°F

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.The theoretical ink volume of the screen is crucial for the desired effect. Using a higher theoretical ink volume will increase the intensity of colour of the product.

Recommended Mesh Size	**90T /**
Minimum Mesh Size	**150T**

Do not allow the ink to sit dormant on the screen as this will cause ódrying inôon the screen and affect print definition and quality. Always keep the screen flooded with ink and when air temperature is high, spray water onn top of the ink to avoid drying.

Dilution
The printing ink is supplied in a format that once mixed is at printing viscosity. The ink should not be thinned. Water should never be used to dilute this system.

Drying
The ink should be dried with hot air. Recommended temperature of the air is 70 C.

Cleaning recommendations
CHAMELEON Photochromic Water Based Screen Ink should be cleaned on screen using water only. Glycol based cleaners should not be used as these will damage the function of the ink.
After use screens can be cleaned with water. A high powered water jet may be required to remove all ink remnants.

Handling
CHAMELEON Photochromic Water Based Screen Ink is a 1 part ink system that will remain stable if stored in the correct storage conditions.

Mixing Instructions:
It is recommended that a mechanical stirrer or similar device be used to mix the product effectively. Never use bead or ball mills to blend the ink parts together.

Do not mix with other ink systems.

Storage
CHAMELEON Photochromic Water Based Screen Ink should be stored away from solvents, sources of UV light and high temperature to gain optimum performance from the product.

Shelf Life of Mixed Ink 6 Months

Do not store in temperatures in Excess of 25°c / 77°f
Do not freeze
As the product is water based it is important to keep the containers tightly shut to avoid evaporation and skinning of the product.

Please consult Material Safety Data Sheet before use