



Technical Product Information

THERMOCHROMIC WATER BASED SCREEN INK TI 11000

Functionality: Reversible Thermochromic ink

Description

Water based Thermochromic ink for absorbent paper and board substrates. Thermochromic Water Based Screen Ink is supplied as an easily mixed 2 part ink system to give optimum shelf life and on press flexibility for control of color intensity, opacity and press performance.

Application

Screen printing ink ideally suited to flat bed screen printing processes onto absorbent paper and board substrates for applications such as labels, tags, tickets and boards. As with all Thermochromic inks the printed effect is dependent upon several factors including press speed, substrate, drying time/temperature and mesh count.

The prints exhibit a matt finish. Therefore, it is always recommended that over laminate or spot varnish is used to give a glossy aspect.

Product Properties

Thermochromic properties

Thermochromic Water Based Screen Ink brings **reversible color changing properties** to printed items. The print is fully colored 3 degrees below the activation temperature and colorless above the activation temperature.

Standard activation temperatures are 15, 31 and 47°C (59, 88 and 117°F). Activation temperatures included within -10 and 69°C (14 and 156°F) are also available.

Adhesion

Thermochromic Water Based Screen Ink is suitable for absorbent paper and boards. 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

Hot laminates can be used with Thermochromic WB Screen Inks. Thermochromic WB Screen Inks can be also overprinted with UV offset, UV flexo and UV screen varnish. However an evaluation for compatibility should always be carried out prior to commercial use.

When ThermoChromic 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. For applications that use a ThermoChromic ink activated at cold temperatures (less than 20°C/68°F) we would recommend the use of a matt laminate for optimum effect. For warm and hot temperatures activation inks (20°C/ 68°F and above), we would recommend a gloss laminate.

Additional Product Properties

Pigment Content (%)	24 ± 1.5
Pigment Size (µm)	95% less than 6 microns
Solid Content (%) ¹	46 ± 2.0
Solvent	Water
Supplied Viscosity (cps) ²	1700-2000

¹ AMB50 Moisture Content Analyzer

² Mixed ink measured on a LVT Brookfield Viscometer Spindle #2

Light fastness

ThermoChromic inks are inherently susceptible to damage by UV light. They are only recommended for use in applications with minimal exposure to UV light. UV protective varnish should be used to slow degradation caused by UV light.

Light fastness properties of supplied thermoChromic ink colors are as follows:*

Green	1
Red, Orange & Magenta	1-2
Yellow, Blue, Purple	2
Turquoise	3

*Rating according to measurement on Blue Wool Scale

Heat Behavior

Reversible ThermoChromics are showing thermal Hysteresis. This means temperature against color curves on the heating cycle does not match the cooling cycle curve. ThermoChromic prints can experience far more than 1000 heating/cooling cycles above their activation temperature. ThermoChromics consistently heated up at temperatures above 50°C (122°F) will slowly lose color intensity below the activation temperature.

Recommended Printing Parameters

Screen Configuration

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

The theoretical ink volume of the screen is crucial for matching the desired effect. Using a higher theoretical ink volume will affect the print as follows:

- Below the activation temperature, color intensity is increased
- Beyond the activation temperature, the level of residual color is increased accordingly.

Handling and Storage

Thermochromic Water Based Screen Inks are a 2 part ink system that will remain stable if both parts are kept in separate containers and stored in the correct storage conditions. As the product is water based it is important to keep the containers tightly shut to avoid evaporation and skinning of the product.

Thermochromic Water Based Screen Inks should be stored away from solvents, sources of UV light and high temperature. Ink should be thoroughly mixed prior to application. Please consult MSDS prior to use.

Shelf Life of Unmixed Ink	12 Months
Shelf Life of Mixed Ink	24 Hours

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

Do not freeze

Information in this Product Data Sheet is compiled from our general experience and data obtained from various technical publications. While 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.