



## Technical Product Information

### Development Product

#### Thermostar® SOLVENT BASED FLEXO INK

**Functionality:** Reversible Thermochromic Solvent Based Flexo Ink

**Article No:** 1240-

**Revision:** 04

**Last Revision:** 15/04/2015

#### Description

Thermostar Solvent Based Thermochromic Flexo ink is suitable for absorbent papers, board substrates and plastic substrates. Supplied as a 1 part ink system either ready formulated or as a concentrate, the ink is available as bisphenol A free grade.

#### Application

Thermostar® Solvent Based Flexo Ink is suitable for in line printing. As with all thermochromic inks the printed effect is dependent upon several factors including press speed, substrate, dry ink film thickness.

#### Product Properties

##### Thermochromic properties

Standard activation temperatures are 15, 31 and 47°C (59, 88 and 117°F). Activation temperatures included within -10 and +69°C (14 and 149°F) are also available.

##### Adhesion

It is recommended that this ink is evaluated fully prior to any commercial use.

##### Rub Resistance

The ink exhibits moderate rub resistance properties on absorbent substrates. If a higher level of resistance is required then a suitable over varnish or laminate should be used.

##### Overprintability/Lamination Properties

Both heat and cold set laminates can be used with Thermostar® Solvent Based Flexo Ink. the Ink can be overprinted with UV offset, UV Flexo and UV screen varnish. The ink has to be fully dried prior lamination, so as to avoid trapped solvents that will ultimately affect thermochromic properties.

## Additional Product Properties

<b>Pigment Content (%)</b>	<b>24 ± 1.5</b>
<b>Pigment Size (µm)</b>	<b>95% less than 8</b>
<b>Solid Content (%) <sup>1</sup></b>	<b>38 ± 3.0</b>
<b>Solvents</b>	<b>Iso-propanol / ethyl acetate</b>
<b>Supplied Viscosity (cps) <sup>2</sup></b>	<b>100 ± 50</b>

<sup>1</sup> oven,

<sup>2</sup> Mixed ink measured on a LVT Brookfield Viscometer at 25°C

### Light Fastness

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

Light fastness properties of supplied Thermostar® colours are as follows:\*

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

\*Rating according to measurement on Blue Wool Scale and Valid for BPA based materials.

### Heat Behaviour

Reversible Thermochromics show thermal Hysteresis. Temperature against colour on the heating cycle does not match the cooling cycle. Thermochromics consistently heated up at temperatures above 50°C (122°F) will slowly lose colour intensity below the activation temperature.

## Recommended Printing Parameters

### Anilox Configuration

Using a higher theoretical ink volume will increase the colour intensity of the product when below its activation temperature. Thermochromic ink colour intensity increases with dry ink film thickness.

### Dilution

Should the ink need to be thinned, then a mixture of isopropanol and ethyl acetate mixed at a 1:1 ratio can be added. No other diluents should be used as these can minimize ink performance and damage the Thermochromic functionality

### Drying

The ink should be dried using hot air dryers or IR lamps set to a maximum temperature of 80°C.

### Cleaning recommendations

After use the anilox can be cleaned with Ethyl acetate or with a standard commercial general purpose anilox cleaner/wash. Care should be taken not to contaminate the Thermochromic ink with other solvents or additives than the one recommended.

## Handling and Storage

Thermostar® Solvent Based Flexo Ink is a 1 part ink system that will remain stable for a short period of time. As the product is solvent based, it is important to keep the containers tightly shut to avoid evaporation and skinning of the product. Do not store in temperatures in Excess of 18°C / 77°F  
Thermostar® Solvent Based Flexo Ink should be stored away from other solvents than those contained in the ink. The ink should be kept away from sources of UV light. Ink should be thoroughly mixed prior to application.

Shelf Life

maximum expected less than 1 Month

Material Safety Data Sheet No:1240 or 1242

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.