



Technical Product Information

Functionality: Reversible Thermochromic ink concentrate

Article No: 1600 and 160x

Revision: 02

Last Revision: 15/04/2015

Description

ThermoStar® Metal deco Ink Concentrate is a blend of Thermochromic microcapsules and G324 resin. The concentrate is suitable for manufacturing Thermochromic Metal Deco inks, mainly dedicated to be printed onto Metal. This product can only be sold to DIC/Sun Chemicals. The concentrate contains 48 %, 55% Thermochromic microcapsules as standard loadings. However higher Thermochromic microcapsules loading can be produced on request

Application

ThermoStar® METAL DECO Ink Concentrate is designed to be blended with curing agent for having Metal deco inks manufactured. This is a specialty product that will not give the same performances as a conventional offset ink in terms of opacity or colour intensity.

Product Properties

Thermochromic properties

ThermoStar® METAL DECO Ink Concentrate brings **reversible colour changing properties** to inks. The print resulting from the printed ink will show full colour approx 3 degrees below the activation temperature and will be colourless above the activation temperature.

Adhesion

ThermoStar® METAL DECO Ink Concentrate is designed to be used for manufacturing offset printing inks suitable for metal.

Additional Product Properties

Pigment Content (%)	48 ± 1.5 or 55 +/-1.5 %
Pigment Size (µm)	90% less than 2
Solid Content (%)	95 ± 2.0
Volatiles	Tridecanol Residual water (less than 5%)
Supplied Viscosity (cps) ¹	N/A

Light Fastness

Thermochromics 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.

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

Heat Behaviour

Reversible Thermochromics are showing thermal Hysteresis. This means temperature against colour curves on the heating cycle does not match the cooling cycle curve..

Thermochromics continuously heated up at temperatures above 50°C (122°F) will slowly lose colour intensity below the activation temperature.

Recommended mixing Parameters

This is left to the appreciation of the ink manufacturer so that colour intensity requirement is matched whilst retaining printability and transfer.

Ideally the offset concentrate is mixed in the finished ink formulation using a triple roll mill. The milling should be processed with minimum pressure so as to avoid microcapsules crushing.

Thoroughly clean The Triple roll mill, press equipment and rollers of any traces of ink and solvents. Any contamination will have a negative effect on both the aspect of the print and the Thermochromic properties.

Dilution

Thermochromic inks are sensitive to various reagents. Avoid contact with solvents of any kind. If diluents are required a small amount of high boiling mineral oil can be used. Alcohol should be avoided.

Drying

The ink should be dried using conventional drying methods for Dry offset inks. Care should be taken not to use excessive heat on drying.

Handling and Storage

ThermoStar® METAL DECO Ink Concentrate will remain stable for 3-6 months if kept in the unopened original container and if stored away from solvents, sources of UV light and temperatures above 25 C. Please, consult MSDS prior to use. Do not freeze

Shelf Life 3-6 Months

Material Safety Data Sheet No:1600

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.