



LCR Hallcrest Ltd.  
Riverside Buildings, Dock Road,  
Connah's Quay, Flintshire,  
CH5 4DS U.K.  
Tel: +44 (0)1244 817107  
Fax: +44 (0)1244 818502  
Email: sales@lcrhallcrest.com  
Web: www.lcrhallcrest.com

---

Advanced Thermographic Technologies

## **CHAMELEON®** **THERMOCHROMIC EPOXY SCREEN INK**

**Functionality:** Reversible Thermochromic ink

**Article No:**

**Revision:** 03

**Last Revision:** 14/09/2011

### **Description**

CHAMELEON® Epoxy screen ink is recommended for printing onto glass and fired Ceramic. The ink can also be used to be printed onto plastic and metals (aluminium, stainless steel). Once cured, the print shows superior detergent and abrasion resistance. When printed onto glass, CHAMELEON® Epoxy screen ink produces dish wash resistant print in most cases. Supplied as a 2 parts ink system, CHAMELEON® Epoxy screen ink allows optimisation in appearance of printed article.

### **Application**

CHAMELEON® Epoxy screen ink is suitable for general screen application. As with all thermochromic inks the printed effect is dependent upon several factors including press speed, substrate, drying time/temperature, print thickness.

## **PRODUCT PROPERTIES**

### **Thermochromic properties**

CHAMELEON® Epoxy screen ink brings **reversible colour changing properties** to printed items. The print is fully coloured 3 degrees below the activation temperature and colourless 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 149°F) are also available.

### **Adhesion**

CHAMELEON® Epoxy screen ink shows very good adhesion onto glass, fired ceramics, plastics and metals (aluminums, stainless steel). However, due to the wide variety of substrate properties it is recommended that CHAMELEON® Epoxy screen ink is evaluated fully prior to any commercial use.

### **Abrasion Resistance**

The CHAMELEON® Epoxy screen ink exhibits very good abrasion resistance properties on multiple substrates when cured in optimum conditions.

### Overprintability/Lamination Properties

CHAMELEON® Epoxy screen ink does not require to be overprinted or laminated.

### Additional Product Properties

<b>Pigment Content (%)</b>	<b>28 ± 1.5</b>
<b>Pigment Size (µm)</b>	<b>90% less than 6</b>
<b>Viscosity (Cps) when both parts mixed</b>	<b>200 000 ± 100 000</b>

### 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 CHAMELEON® 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. Most thermochromic prints can experience more than 1000 heating/cooling cycles above their activation temperature.

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

## **RECOMMENDED PRINTING PARAMETERS**

### **MIXING**

The CHAMELEON® Epoxy screen ink is supplied as a 2 parts system.

For optimum properties, prepare the ink as follows by mixing:

- 7 parts of the CHAMELEON Thermochromic epoxy base,
- 1 part of the epoxy hardener.

Mix thoroughly to obtain homogeneous mixture and the right viscosity. Once mixed the ink has a pot life of 4 to 8 hours.

### **CURING**

The CHAMELEON® Epoxy screen ink can be cured in one of the following conditions:

Baking 30 minutes at temperature included between 150 C (300 F) and 160 C (320),  
Drying 1 hour with hot air (70 C to 90 C) circulation (solvent evaporation).  
The print requires 7 days at room temperature (20-25C) to achieve full curing.

The substrate will normally dictate which time and temperature is most suited.  
However, when printing onto glass substrate, best dish wash resistance is obtained by  
baking the ink at 160 C (320F) for 30 minutes, shortly after the printing process.  
Baking process will always give the most durable finish when compared against room  
temperature curing process.

### **Screen**

European 49-90 mesh recommended for most applications, depending on colour strength  
required.

### **Stencils**

Use a lacquer proof or direct emulsion film, photographic or water soluble hand-cut Stencils.

### **Cleaning recommendations**

Standard epoxy screen ink cleaning system is recommended. However, care must be taken  
not to cross contaminate the next print run with cleaning fluids.

### **HANDLING AND STORAGE**

CHAMELEON® Epoxy screen ink should be stored away from solvents, sources of UV light  
and high temperature. CHAMELEON® Epoxy screen ink is a 2 parts ink system that will  
remain stable if kept in the tightly closed supplied container and stored at temperatures  
included between 10 C and 25 C. It is important to keep the containers tightly closed.

Please consult MSDS prior to use.

Shelf Life 1 Months

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. 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.