



## ChromaZone® Slurry

## Technical Data Sheet

### Description

ChromaZone® slurry is a dispersion of thermochromic micro capsules in an aqueous medium. ChromaZone® slurry is designed for use in aqueous based inks (gravure, flexo and screen), paints and coatings systems although their use is not limited to these applications. For non-aqueous based systems and plastic applications, we recommend using ChromaZone® free flowing powder.

<b>Standard activation temperatures</b>	15°C, 31°C and 47°C.
<b>Special activation temperatures</b>	Any temperature between -10°C to +69°C.
<b>Standard colours</b>	Black, Blue, Magenta, Green, Orange and Red
<b>Customs colours</b>	Yellow, Purple, Turquoise, pink, vermilion...

ChromaZone® slurry turns colourless or to a light color when heated up to its activation temperature. On the heating cycle, the color starts to fade at approximately 4° C below the activation temperature and will gradually weaken until activation temperature is reached.

The color change is reversible, i.e., the original color will be restored upon cooling below the start of fade temperature. ChromaZone® Slurries are available for activation temperatures included between -10°C and +69°C.

### Special Care and Storage / Handling Instructions

ChromaZone® slurries are more sensitive to solvents, UV light, pH, shear stress and temperature than any other types of pigment (see sensitivity).

Long term exposure to UV light or elevated temperature will cause permanent loss of the thermochromic functionality.

ChromaZone® slurries have excellent stability when stored away from heat (Store below 25°C) and light. A shelf life of 12 months is guaranteed provided that the material is stored in a cool and dark environment and kept in the tightly sealed original container.

## TECHNICAL DETAILS

<b>Solids</b>	48% +/-2%
<b>Particle Size</b>	97% <6um
<b>pH (Dispersion)</b>	4.8 – 5.5
<b>Light Fastness (blue wool scale)</b>	1 – 2
<b>Shelf Life</b>	12 months

All raw materials used for production of CHROMAZONE® pigments are listed in: EINECS, TSCA and DSL/NDSL.

## **SENSITIVITY**

ChromaZone® slurries are sensitive to adverse environmental conditions. These conditions are listed below. Most of them are listed below, alongside with a description of the nature of the sensitivity, and relevant recommendations.

### **MIXING:**

‘Mix thoroughly ChromaZone® slurry before use as content may settle on transit. Capsules are in primary particle form, mixing using a paint stirrer will result in properly dispersed capsules. The use of Ball or bead mills is prohibited..

### **LIGHT:**

The ChromaZone® slurry must be protected from UV light irradiation. Exposure of more than several days of direct sunlight or more 600 hours of a strong fluorescent light will degrade the Thermochromic functionality. Addition of UV inhibitors (organic and inorganic) will help improving light fastness.

### **HEAT:**

Extended exposure to high temperatures of 50°C or higher can degrade the pigment. ChromaZone® Thermochromic microcapsules can survive temperatures as high as 200°C when exposed for a very short periods of time.

### **pH**

pH higher than 7.5-8 have will reduced significantly shelf life of ChromaZone Slurry based formulations. Ammonia is not compatible with ChromaZone® slurry. It can be advantageously replaced by substituted ethanol amines.

### **CHEMICALS:**

ChromaZone® slurry is sensitive to solvents. Ethanol and Ketones (acetone, MEK and the likes) are not compatible with ChromaZone® slurry, N-methyl pyrrolidone, propanol, butanol can damage the capsule even though used at low concentration in Chromazone based aqueous formulation. Isopropanol, isobutanol are compatible with most Chromazone slurries when present at up to 3.5% in the formulation.

**ALL APPLICATIONS USING CHROMAZONE SLURRIES SHOULD BE THOROUGHLY TESTED PRIOR TO APPROVAL FOR PRODUCTION.**

Storage longer than 12 MONTHS is not recommended. Please consult MSDS prior use. Please contact TMC Hallcrest at +44 1244 818348

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 at TMC HALLCREST 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. TMC HALLCREST 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.