Thermographic Measurements Co. Ltd.

ChromaZone® Thermobatch Concentrate

Description

'ChromaZone® Thermobatch Concentrates are thermochromic microcapsules blended with a LDPE wax carrier and come in powder form. They have been specially designed to be compatible with most plastics systems. ChromaZone® Thermobatch Concentrates are coloured below a specific temperature and change to colourless or to another lighter colour as they are heated through the temperature range. These pigments are available in various colours and activation temperatures and have been used in many diverse applications such as baby feeding spoons, bottles, cups, childrens toys and drinking straws.

Standard activation temperatures	Cold, Warm and Hot .
Special activation temperatures	-10° c to +69°c.

The activation temperature is defined as the temperature above which the pigment has almost achieved its final clear or light colour end point. The colour starts to fade at approximately 4° C below the activation temperature and will be in between colours within the activation temperature range. The colour change is "reversible," i.e., the original colour will be restored upon cooling.

Standard colours	Black, Blue, Magenta.
Special custom colours	Purple, Green and Turquoise.

Special Care and Storage / Handling Instructions

ChromaZone® Thermobatch Concentrates are more sensitive to the influences of UV light, Shear and temperature than many other types of pigment (see sensitivity). It should be noted that there are differences in performance of the various colours so that each should be thoroughly tested before commercial application.

ChromaZone® Thermobatch Concentrates have excellent stability when stored away from heat. Store below 25°C. A shelf life of 12 months is guaranteed provided that the material is stored in a cool and dark environment. Long term exposure to UV light or elevated temperature can cause loss of thermochromic function. Storage longer than twelve months is not recommended. Consult product MSDS prior to use.

Tel: 44 (0) 1244 818348
Fax: 44 (0) 1244 818502
E-mail: sales@t-m-c.com
Internet: http://www.t-m-c.com

TECHNICAL DETAILS

Particle Size	97% <6um
Light Fastness (blue wool scale)	1 – 2
Shelf Life	12 months
Processing Temperature	Should not exceed 230°C
Pigment Concentration	50%.
Solids	99% +/-1%

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

SENSITIVITY

CHROMAZONE® thermochromic microcapsules are sensitive to adverse environmental conditions. These are listed below, along with a description of the nature of the sensitivity, and recommendations with regards to them.

MIXING:
ChromaZone® Thermobatch Concentrate can withstand most standard mixing procedures for plastics applications. Care should be taken not to over heat whilst mixing (see HEAT below).

LIGHT:
Long exposure to UV and some fluorescent lights can degrade colour intensity. Extreme exposure of more than several days of direct sunlight may degrade the colour of the microcapsules, though it will probably still change colour. More than 600 hours of a strong fluorescent light may also cause a loss of colour in the thermochromic.

HEAT:
Extended exposure to high temperatures of 50°c or higher can degrade the pigment. With heat the exposure only has an effect if a given temperature is constantly maintained for a given amount of time. ChromaZone® thermochromic microcapsules can survive temperatures >200°c however they can only be exposed to these temperatures for a very short periods of time (whilst being molded).

CHEMICALS:
CHROMAZONE® can be incorporated into many types of aqueous and UV curing formulations however thermochromic materials are sensitive to chemical exposure. Care must be taken to avoid the use of polar solvents such as alcohols, acetates etc. as thee can damage the micro capsule walls.

ALL APPLICATIONS USING COLOUR-CHANGING PIGMENTS AND INK OF ANY KIND SHOULD BE THOROUGHLY TESTED PRIOR TO APPROVAL FOR PRODUCTION.

For further information or assistance, please contact Thermographic Measurements Ltd +44 1244 818348

Tel: 44 (0) 1244 818348
Fax: 44 (0) 1244 818502
E-mail: sales@t-m-c.com
Internet: http://www.t-m-c.com