

# Thermochromics from the Hallcrest Group



*Moulded plastic baby's spoon that changes colour if the food is too hot.*

**Thermochromics are smart materials that change colour when a specific temperature is reached.**

The Hallcrest Group of Companies has been involved in their production for over 30 years and have developed a wide range of colour change products for numerous industries. The raw materials of most of these thermochromics are micro-encapsulated in the company's laboratories, prior to being mixed into slurries and inks.

There are a number of different thermochromic technologies which can be either reversible/reusable, or irreversible. Generally the temperature of colour change spans from  $-10^{\circ}\text{C}$  up to  $+65^{\circ}\text{C}$  for reversibles and very much higher for irreversibles. The irreversibles are available as adhesive labels, as inks and as paints. The reversibles are available mainly as inks or as coatings. A plastic masterbatch is available for moulding and extrusion. Liquid crystal formulations are made into

adhesive-backed thermometer strips and touch-sensitive polyester sheets.

Thermochromic liquid crystal thermometers are flat, lightweight, easy to read and unbreakable. Originally they were manufactured for safety applications where traditional glass thermometers were not appropriate and for irreversible colour changing labels for industrial applications (i.e. to warn when axle bearings were becoming too hot, or when a process such as sterilization had reached the required temperature to be effective). Today major applications include food temperature monitoring, baby care, medical, environment control and the advertising promotional market.

Liquid crystals are usually printed onto thin plastic or board with a black background, which allows the full spectrum of colour-play to be seen, from muted yellows and reds to more vibrant greens and blues.



## HOW WARM IS YOUR ROOM?

**CHECK NOW WITH THIS THERMOMETER**

- TOO WARM** Above  $75^{\circ}\text{F}/24^{\circ}\text{C}$   
Unless you are feeling cold, turn your heating down and save some money.
- OK**  $70^{\circ}\text{F}/21^{\circ}\text{C}$  Your ideal room temperature.
- COOL**  $62^{\circ}\text{F}/17^{\circ}\text{C} - 68^{\circ}\text{F}/20^{\circ}\text{C}$   
Turn your heating up now.
- COLD**  $61^{\circ}\text{F}/16^{\circ}\text{C}$

**DANGER!**  
There is a risk of you suffering from hypothermia, a heart attack or a stroke. **DON'T WAIT!** Take action now to keep warm, by turning up your heating and putting on plenty of layers of clothing.

HELP THE AGED WE WILL **British Gas** MAYOR OF LONDON  
Working together to stop the cold killing older people