

Technical Product Information

Thermochromic Function: Irreversible

Product Name: **SC447**

Last Revision: 23/02/2018

Description:

SC447 is a solvent based paint showing a temperature related irreversible colour change. The temperature at which thermal paints change colour is related to the length of time exposed as well the actual temperature. A longer period of heating can initiate the same colour change that would occur after a short exposure at a higher temperature.

The initial colour is green and above 240°C the green colour darkens to almost black before the full colour change to a salmon pink at 447°C (temperatures related to 10 minutes heating).

The green colour has been seen as unchanged after 150 hours at 300°C in laboratory tests. Recent experience with pipelines held at 150 - 170°C have shown that the green colour will change to yellow after weeks of exposure at these temperatures.

Technical Details

Pigments	Thermochromic
Binders	Acrylic & Silicon
Solids	45%
Solvent	PMA, Xylene
Flash Point	31°C (Pensky Martin closed cup)
Drying method	Solvent evaporation. Touch dry typically 20-30 minutes depending on ventilation / coating thickness.
Coverage	Giving 30u dry film allow 13-15 sqm per litre of paint
Application.	

Paint may settle on storage and should be thoroughly stirred before use. Viscosity can be reduced by adding PMA solvent (CAS 108-65-6).

Before use the test surface should be thoroughly cleaned by removing all traces of grease, oil and loose material. Application direct to the metal surface is preferred method. If any kind of primer has previously been applied this should be carefully evaluated to ensure it is not affected by the thermal paint and in turn does not affect the colour change properties and adhesion of the thermal paint when heated. Zinc based primers have been used with thermal paint but compatibility should always be tested.

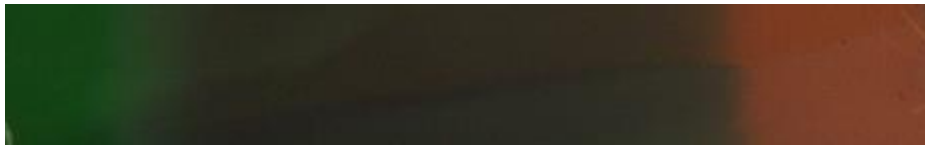
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A single coat of paint should be applied to give an opaque covering. Typically a 30u coat will be suitable. The coating should be completely dry before heating – allow 24 hours.

When held at 550°C for 10 minutes a colour change to salmon pink is seen but a full calibration has not been carried out for this.

Colour Change.

Initial 240°C 550°C

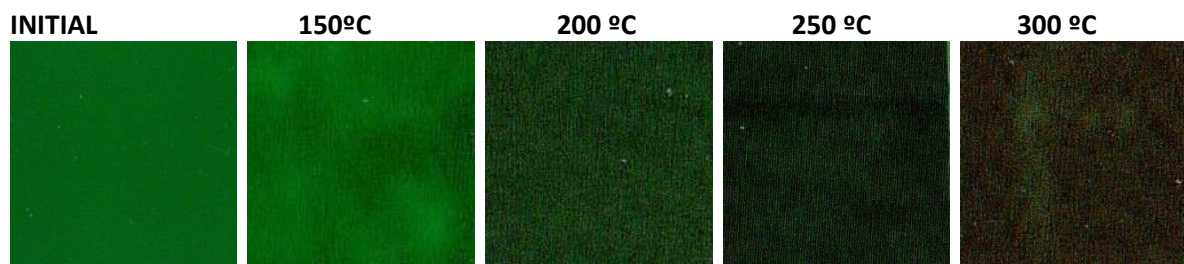


The relationship between time and temperature measured on a butterfly test rig gave the following results. Different calibration procedures may give different temperatures but the time / temperature / colour change relationship will be the same.

Colour Change to Salmon Pink

Time (minutes)	Temperature
10	550 °C

LONG TERM EXPOSURE TO 150 HOURS AT STATED TEMPERATURES



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