

**Colour Changing
Thermochromic Paints**

www.indestructible.co.uk

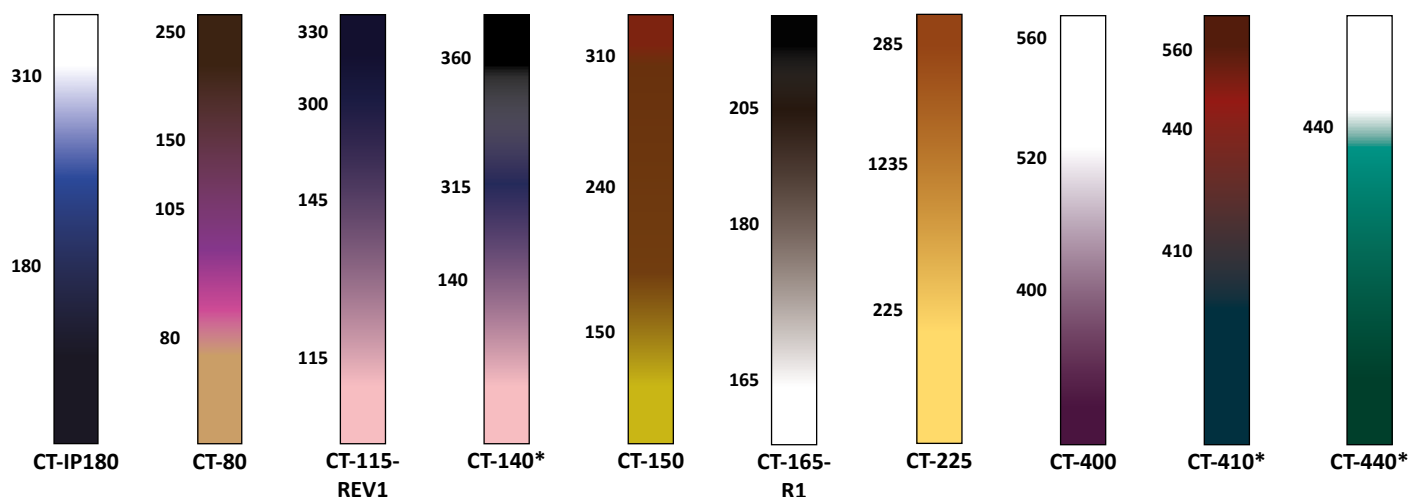
Thermochromic Paints - Non-Reversible

Thermochromic paints are designed to change colour at specific temperatures giving a visual indication of a temperature change. This can be used for activities such as safety indicators on thermally sensitive systems, indication of the thermal history or R&D components, over temperature safety indicators in the petrochemical industry, etc. These paints function by the action of chemical change within solid components of the coating.

The colour change is **non-reversible** within this range. The paints are designed to be thermally stable when used below their first temperature change level. When the coatings approach their first colour change the reaction will occur quickly at the specified temperature or gradually if the paint is held within a few tens of degrees of the change temperature.

Examples of the visual colour changes exhibited by our Non-Reversible Thermochromic Paint Range, in response to temperature rise.

Once subject to heating, paints will permanently change colour. Heated within 10 minutes to temperature shown or above. Changes may occur at lower temperatures if heated over long periods.



Temperatures shown in degrees centigrade.
For demonstrative purposes only, colours may vary.

Paints Available In The Range											
Product Code	Colour Change Temperature Degrees Centigrade (°C)				Initial Colour	Product Code	Colour Change Temperature Degrees Centigrade (°C)				Initial Colour
CT-80	80	240	295		Beige	CT-IP180	180	310			Dark Blue
CT-115-Rev1	115	145	300	330	Pink	CT-225	225	235	285		Deep Yellow
CT-140	140	316	360		Pink	CT-400	400	520	560		Purple
CT-150	150	240	310		Yellow	CT-410	410	440	560		Blue
CT-160	160	190	250	300	Blue	CT-440	440				Green
CT-165-R1	165	180	205		White	CT-8590XI	Thinner For CT Non-Reversible Colour Range				

Thermochromic Paints - Reversible

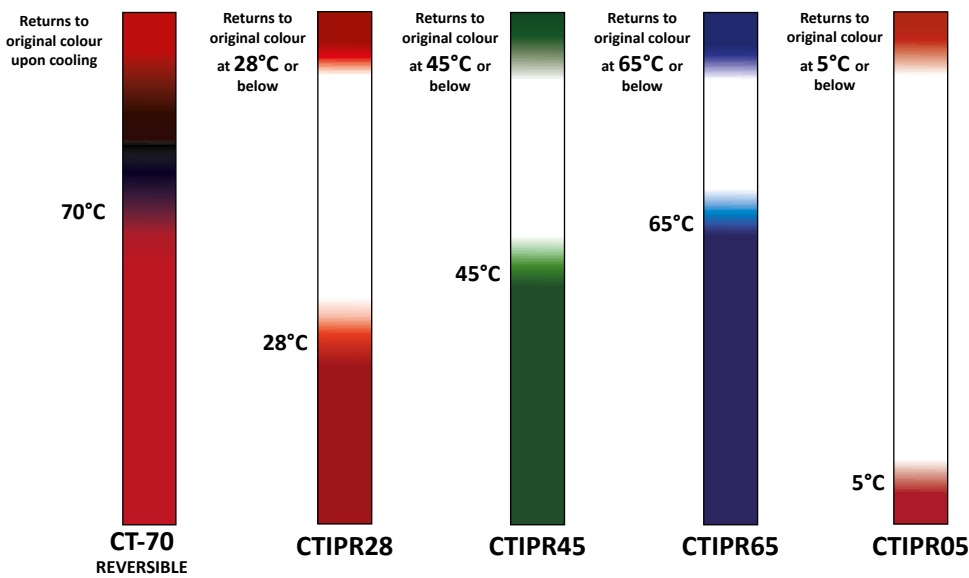
A range of coloured, lower temperature, reversible thermal indicating paints.

CT-IPR Range: Paints are coloured when below the stated temperature, changing to clear or a lighter colour above the relevant temperature.

The colour starts to fade from about 4°C below the change activation temperature.

The original colour will return as temperature drops below the activation temperature

Examples of the visual colour changes exhibited by our Reversible Thermochromic Paint, in response to temperature rise. Once subject to heating, paints will change to colour indicated and revert back to original colour upon cooling. Heated within 10 minutes to temperature shown or above. Changes may occur at lower temperatures if heated over long periods.



Temperatures shown in degrees centigrade.
For demonstrative purposes only, colours may vary.

Paints Available In The Range		
Product Code	Colour Change Temperature Degrees Centigrade (°C)	Initial Colour
CT-70	70	Red
CT-IPR28	28	Rose Red
CT-IPR45	45	Green
CT-IPR65	65	Deep Blue
CT-IPR05	05	Thermo Red

Thermochromic Ink - Non-Reversible

Irreversible Thermal Indicating Ink

A water-based thermochromic coating to permanently indicate temperature change at lower temperatures.

- Designed for simple use via printing
- Clear colour contrast for instant visual indication of temperature change
- Permanent record of when temperature has been exceeded
- Appropriate for use as a security measure

A semi-transparent off white/pink water based coating, produced from organic encapsulated thermochromic pigments. This material is specially designed to be printed and over lacquered, if used. Changes from light pink to red irreversibly at temperatures indicated.

Initial starting colour
(ambient temperature)

Permanent colour change at
temperatures between 55-60°C



Colour Change



Ambient Temperature

55-60 °C

Also available in the Colour Therm Range

- Solvents, Cleaners and Thinners for the individual paints.
- Anti-corrosive primers for use, for example, to protect steel structures.
- Clear over lacquers for some products, as UV resistance is not yet a qualified resistance.

Refinery Products - CT-IP180

A functional coating for identification of hot spots and internal insulation failures. Exhibiting a visual colour change in response to temperature rise.

Typically used on reaction vessels on chemical and petrochemical sites as a one-time warning of dangerous temperature increases.

This product can be used in two coats as a self-priming system over stainless steel, or over an inorganic zinc primer for optimum corrosion protection to carbon steel substrates. Suitable for application both in the fabrication yard and on-site.

Irreversible Thermochromic Paint

- Simple method of measuring temperature with a single paint pack
- Non-reversible, accurate method of measuring temperature
- Invaluable tool in thermal measurement to indicate dangerous temperature increases
- Strong and clear colour contrast
- Multi change paint indicates more than one temperature rise

Colour change from dark blue to blue at temperatures between 180-220°C (356-428°F), and from blue to white at temperatures between 310-350°C (590-662°F).



Ideal For Refinery Use



CT-IP180 is a one time warning system. The colour change is permanent.

After warning of a temperature change the coating must be reapplied after proper surface preparation has been performed

Example of colour change on reaction vessel. For demonstrative purposes only, colours may vary.

Surface Temperature Monitoring System

Irreversible Labels

A fast, simple temperature monitoring system based on Proprietary colour change technology

- Inexpensive and easy to use
- Immediate response
- Permanent record of highest temperature
- Oil, water & steam resistant
- Temperature range 40 to 260°C
- Labels or strips
- Silver to black colour change
- Last black event is the highest temperature achieved



Ten Level Strips

A	°C	40	43	46	49	54	60	66	71	77	82
	°F	105	110	115	120	130	140	150	160	170	180
B	°C	88	93	99	104	110	116	121	127	132	138
	°F	105	110	115	120	130	140	150	160	170	180
C	°C	143	149	154	160	166	171	177	182	188	193
	°F	290	300	310	320	330	340	350	360	370	380
D	°C	199	204	210	216	224	232	241	249	254	260
	°F	390	400	410	420	435	450	465	480	490	500

Specifications

Size: 54 x 18mm (2.00" x 0.7")

Type: Vertical, Self adhesive

Scale: °C and °F

Range: (Sold in units of 10)



Eight Level Strips

A	°C	40	43	46	49	54	60	66	71
	°F	105	110	115	120	130	140	150	160
B	°C	77	82	88	93	99	104	110	116
	°F	170	180	190	200	210	220	230	240
C	°C	121	127	132	138	143	149	154	160
	°F	250	260	270	280	290	300	310	320
D	°C	166	171	177	182	188	193	199	204
	°F	330	340	350	360	370	380	390	400
E	°C	210	216	224	232	241	249	254	260
	°F	410	420	435	450	466	480	490	500

Specifications

Size: 51 x 18mm (2.00" x 0.7")

Type: Vertical, Self adhesive

Scale: °C and °F

Range: (Sold in units of 10)



Five Level Strips

1	°C	40	43	46	49	54
	°F	105	110	115	120	130
2	°C	60	66	71	77	82
	°F	140	150	160	170	180
3	°C	88	93	99	104	110
	°F	190	200	210	220	230
4	°C	116	121	127	132	138
	°F	240	250	260	270	280
5	°C	143	149	154	160	166
	°F	290	300	310	320	330
6	°C	171	177	182	188	193
	°F	340	350	360	370	380
7	°C	199	204	210	216	224
	°F	390	400	410	420	435
8	°C	232	241	249	254	260
	°F	450	466	480	490	500

Specifications

Size: 18 x 34mm (0.7" x 1.26")

Type: Vertical, Self adhesive

Scale: °C and °F

Range: (Sold in units of 10)



T.D.I. Three Level

A	°C	65	71	82
	°F	150	160	180

Specifications

Size: 20 x 28mm (0.8" x 1.11")

Type: Horizontal, Self adhesive

Scale: °C and °F

Range: (Sold in units)



T.D.I. Three Level

A	°C	60	65	71	77	82	88
	°F	140	150	160	170	180	190

Specifications

Size: 39 x 18mm (1.53" x 0.7")

Type: Vertical, Self adhesive

Scale: °C and °F

Range: (Sold in units of 10)



Colour Change Thermometry

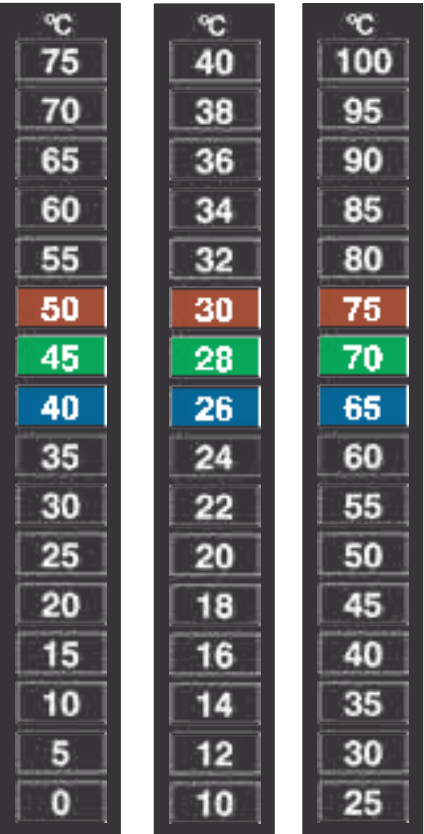
Digitemp® LC Thermometers

Continuous Temperature Monitoring

A comprehensive system of thermometers based on proprietary Liquid Crystal formulations that change colour at designated temperatures

- Instant Response
- Continuous Readout
- No Batteries or Glass –
- Non Toxic
- Temperature Range - 0 to 100°C (32 to 212°C)
- Accurate +/- 1°C
- Self Adhesive
- Cost Effective

16 Level Thermometer

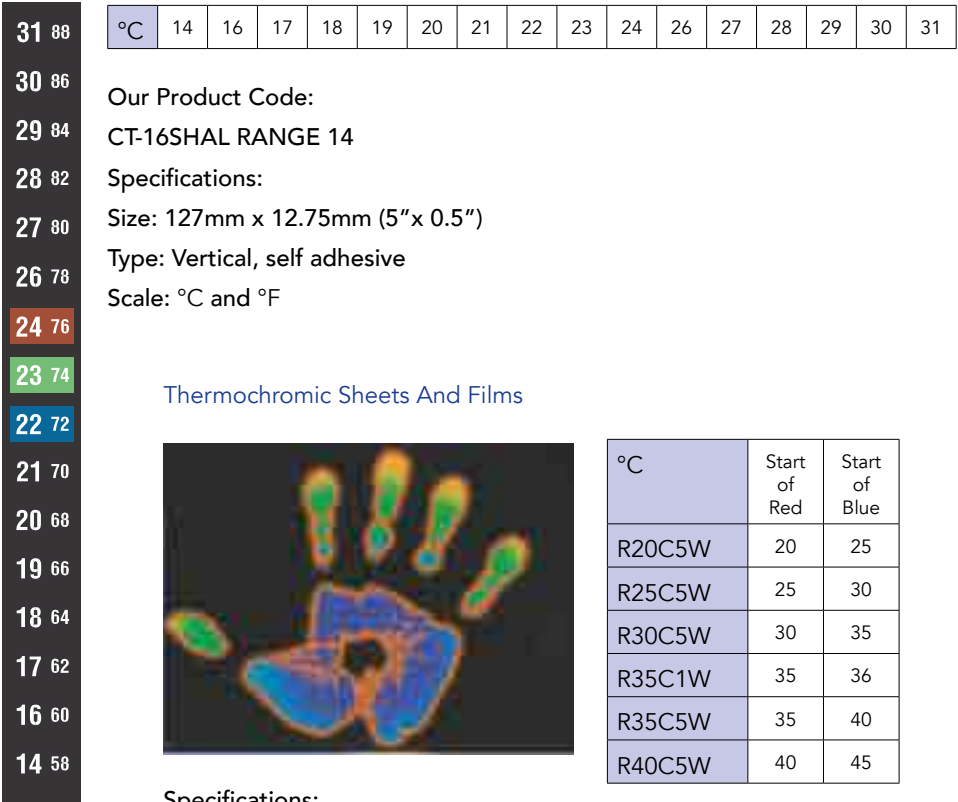


°C	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
°C	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
°C	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100

Our Product Code:
CT-16SHAL RANGE

Specifications:
Size: 132mm x 19mm (5.2" x 0.75")
Type: Vertical, self adhesive
Scale: °C

16 Level Thermometer



Our Product Code:
CT-16SHAL RANGE 14

Specifications:
Size: 127mm x 12.75mm (5"x 0.5")
Type: Vertical, self adhesive
Scale: °C and °F

7 Level Thermometer

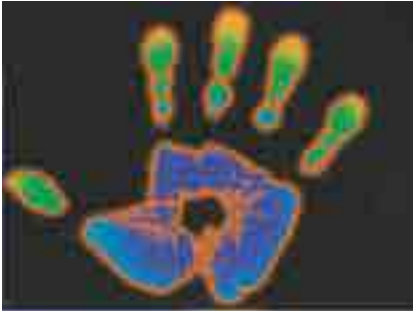


°C	0	5	10	15	20	25	30
°C	30	35	40	45	50	55	60
°C	60	65	70	75	80	85	90

Our Product Code:
CT-07SHAL HORIZONTAL

Specifications:
Size: 12.75mm x 45mm (0.5"x1.77")
Type: Horizontal, self adhesive
Scale: °C and °F

Thermochromic Sheets And Films



°C	Start of Red	Start of Blue
R20C5W	20	25
R25C5W	25	30
R30C5W	30	35
R35C1W	35	36
R35C5W	35	40
R40C5W	40	45

Specifications:
Size: 300mm x 450mm (11.8" x 17.7")
Type: Rectangle, self adhesive or non adhesive available
Scale: °C



Developer & Manufacturer of Technology
Coatings to support the lifetime of Aviation,
Defence, Maritime and General Industry.

The information in this brochure is correct at the time of publication. However, as we are continually revising our product range, specifications are subject to change. The information herein should not be relied upon by an individual customer unless specifically confirmed by us before an order is placed. None of the products featured are manufactured for or held out as suitable for use in any application unless specifically agreed in writing by ourselves.

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