Paint Test Equipment



Surface Cleanliness

Bresle Patch Test

The Bresle Test will measure water-soluble salts and corrosion products on blast-cleaned steel. These compounds are almost colourless and are localized at the lowest point of the rust pits.



Information

If they are not removed prior to painting, chemical reactions can result in blister formation and accumulations of rust that destroy the adhesion between the substrate and the applied protective coating.

Specification

Conductivity Meter Accuracy: ±2.

Conductivity Meter range: 0–1999µS/cm.

Conductivity Meter resolution: 1µS/cm.

Storage: Do not expose the Bresle Patches to any extremes of temperature or daylight.

Shelf Life: The only degeneration on the Bresle Patches is the adhesive if exposed to extremes of temperature.
We would recommend that the Bresle Patches are used within a 12-month period from date of purchase.

Compliance

ISO 8502-6 and ISO 8502-9.

Paint Test Equipment



Supply

Supplied in an industrial foam-filled Carrying Case with Bresle Patches (pack of 25), Conductivity Meter, 500ml Deionised Water 500ml, 5ml Syringe with Needle, Calibration Solution (14ml) Conditioning Solution (14ml) and 25ml Beaker.

The Conductivity Meter Calibration Certificate with traceability to UKAS is an optional extra.

Part No	Product
P2005	Bresle Patch Test. Includes 25 Bresle Patches
PS002	Bresle Patches (pack of 25)
PS003	Spare Deionised Water (500ml)
PS004	Spare Syringes with Needles (pack of 20)
PS005	Spare Conductivity Meter Calibration Solution (pack of 6)
PS006	Spare 25ml Beakers (pack of 5)
PS007	Spare Conductivity Meter Sensor Measurement Head
PS008	Spare Conductivity Meter Conditioning Solution ((pack of 6)
NP001	Conductivity Meter Calibration Certificate
NPC01	Conductivity Meter Calibration Solution Conformance Certificate
NPC04	Bresle Patches Conformance Certificate

Conductivity Meter Conditioning

For first use on a new Conductivity Meter, condition the measuring electrode with 3 to 4 droplets of the Conditioning Solution, ensuring that the Solution is in both sections of the electrode with no air bubbles and allow to sit for approximately 10 minutes, then the measuring electrode should be rinsed using the Syringe with Deionised Water and shaken dry.

If the measuring electrode has not been used for a long period of time, or if the electrode has been left extremely dry, then use this conditioning procedure.



Conductivity Meter Cal

Place 3 to 4 droplets of the 1413µS/cm Conductivity Solution into the measuring electrode, ensuring that the solution is in both sections of the electrode with no air bubbles. Check the displayed reading which is shown when the smiley face comes on and if this is not 1413µS/cm then calibrate as follows:

Press the Cal button, the CAL indicator and a smiley face will flash – the Conductivity Meter will now auto calibrate. When the CAL indicator and smiley face stop flashing the calibration is complete and the instrument will revert to normal measurement mode.

When you have finished calibrating the Conductivity Meter, the measuring electrode should be rinsed using the Syringe with Deionised Water and shaken dry.

Replacing Batteries

When the batteries on the Conductivity Meter require replacement, low battery indicator will show on the display.

With the instrument switched off slide the Sensor while lifting the catch located on the rear of the instrument, replace with 2 lithium CR-2032 Batteries, ensuring correct polarity.



Measurements

Pour approximately 10ml of Deionised Water into the Beaker.

Completely fill the Syringe with the Deionised Water from the Beaker, and then empty the Syringe back into the Beaker.

Measurements continued

Using the Syringe, withdraw approximately 1ml of Deionised Water from the Beaker and place 3 to 4 droplets into the measuring electrode on the Conductivity Meter, ensuring that the Deionised Water is in both sections of the electrode with no air bubbles.

Record the conductivity of the Deionised water displayed by the Meter when the smiley face appears.

Take a Bresle Patch and remove the protective paper and the punched-out centre foam. Ensure that you only hold the corner of the Patch away from the adhesive near the test chamber when the protective paper is removed.

Press the adhesive side of the Patch against the test surface by running the flat of your finger across from one side of the Patch in such a way that the air in the test chamber is pushed out and the minimum amount of air is trapped. The elastomer on the Patch should concave inwards and touch the steel in the centre of the test.

Fill the Syringe with 2.5ml of Deionised Water from the Beaker and insert the Syringe needle at an angle of about 30° to the test surface near the outer edge of the Patch so it passes through the adhesive foam body and into the circular test chamber.

Inject the Syringe contents ensuring that it wets the entire test surface, then without removing the Syringe needle from the Patch, suck the contents of the Patch back into the Syringe. Repeat until at least 10 injection–sucking cycles have been completed.

At the end of the 10th cycle retrieve the contaminated water from the Patch with the Syringe and place 3 to 4 droplets into the measuring electrode on the Conductivity Meter, ensuring that the Deionised Water is in both sections of the electrode with no air bubbles.

Record the conductivity of the contaminated water displayed by the Meter when the smiley face appears.

Results

Subtract the initial Deionised Water conductivity reading from the contaminated water conductivity reading. The results are shown in µS/cm.

The Conductivity Meter measurements are shown in µS/cm and no conversion is required for measurements in mg/m^2.

For measurements µg/cm^2 add a decimal point in front of the last digit so 100µS/cm will be 10.0µg/cm^2 or use the conversion table on the following page.

The conversions listed are based on a test area of 1250mm^2 and using a 2.5ml volume of water. Expression of results are based on section 7 of ISO 8502-9.

Example: The Deionised Water measurement taken is 4µS/cm. The contaminated water measurement taken is 54µS/cm. The difference is therefore 50µS/cm which is equivalent to 50mg/m^2 or 5.0µg/cm^2.

The Deionised Water temperature can be measured by pressing the MEAS button when the water is in the Conductivity Meter measuring electrode. Press the MEAS button again for normal conductivity measurement mode.

Safety



The needles on the Syringes in the Bresle Test are blunt. Care must still be taken when carrying out the test.

When using the Syringes ensure the work area is well lit, be aware of people around you and assess any hazards. Ensure the protective cap is placed over the needle after use.

If the Calibration Solution comes into contact with exposed skin, wash with water. If the Solution comes into contact with eyes, rinse the eye immediately and seek medical advice.

Care

When you have finished using the Conductivity Meter, the measuring electrode should be rinsed using the Syringe with Deionised Water and shaken dry. Then place a small amount of Deionised Water in the measuring electrode and replace the sensor cap.

Also ensure the Syringe is cleaned to remove any contamination.

Conversions

Results	µg/cm²	mg/m²
1µS/cm	0.1µg/cm²	1mg/m²
2µS/cm	0.2µg/cm²	2mg/m²
3µS/cm	0.3µg/cm²	3mg/m²
4µS/cm	0.4µg/cm²	4mg/m²
5µS/cm	0.5µg/cm²	5mg/m²
6µS/cm	0.6µg/cm²	6mg/m²
7µS/cm	0.7µg/cm²	7mg/m²
8µS/cm	0.8µg/cm²	8mg/m²
9µS/cm	0.9µg/cm²	9mg/m²
10µS/cm	1.0µg/cm²	10mg/m²
11µS/cm	1.1µg/cm²	11mg/m²
12µS/cm	1.2µg/cm²	12mg/m²
13µS/cm	1.3µg/cm²	13mg/m²
14µS/cm	1.4µg/cm²	14mg/m²
15µS/cm	1.5µg/cm²	15mg/m²
16µS/cm	1.6µg/cm²	16mg/m²
17µS/cm	1.7µg/cm²	17mg/m²
18µS/cm	1.8µg/cm²	18mg/m²
19µS/cm	1.9µg/cm²	19mg/m²
20µS/cm	2.0µg/cm²	20mg/m²
21µS/cm	2.1µg/cm²	21mg/m²
22µS/cm	2.2µg/cm²	22mg/m²
23µS/cm	2.3µg/cm²	23mg/m²
24µS/cm	2.4µg/cm²	24mg/m²
25µS/cm	2.5µg/cm²	25mg/m²
26µS/cm	2.6µg/cm²	26mg/m²

Results	µg/cm²	mg/m²
27µS/cm	2.7µg/cm²	27mg/m²
28µS/cm	2.8µg/cm²	28mg/m²
29µS/cm	2.9µg/cm²	29mg/m²
30µS/cm	3.0µg/cm²	30mg/m²
31µS/cm	3.1µg/cm²	31mg/m²
27µS/cm	2.7µg/cm²	27mg/m²
28µS/cm	2.8µg/cm²	28mg/m²
29µS/cm	2.9µg/cm²	29mg/m²
30µS/cm	3.0µg/cm²	30mg/m²
31µS/cm	3.1µg/cm²	31mg/m²
37µS/cm	3.7µg/cm²	37mg/m²
38µS/cm	3.8µg/cm²	38mg/m²
39µS/cm	3.9µg/cm²	39mg/m²
40µS/cm	4.0µg/cm²	40mg/m²
41µS/cm	4.1µg/cm²	41mg/m²
42µS/cm	4.2µg/cm²	42mg/m²
43µS/cm	4.3µg/cm²	43mg/m²
44µS/cm	4.4µg/cm²	44mg/m²
45µS/cm	4.5µg/cm²	45mg/m²
46µS/cm	4.6µg/cm²	46mg/m²
47µS/cm	4.7µg/cm²	47mg/m²
48µS/cm	4.8µg/cm²	48mg/m²
49µS/cm	4.9µg/cm²	49mg/m²
50µS/cm	5.0µg/cm²	50mg/m²
51µS/cm	5.1µg/cm²	51mg/m²
52µS/cm	5.2µg/cm²	52mg/m²

Conversions

Results	µg/cm²	mg/m²
53µS/cm	5.3µg/cm²	53mg/m²
54µS/cm	5.4µg/cm²	54mg/m²
55µS/cm	5.5µg/cm²	55mg/m²
56µS/cm	5.6µg/cm²	56mg/m²
57µS/cm	5.7µg/cm²	57mg/m²
58µS/cm	5.8µg/cm²	58mg/m²
59µS/cm	5.9µg/cm²	59mg/m²
60µS/cm	6.0µg/cm²	60mg/m²
61µS/cm	6.1µg/cm²	61mg/m²
62µS/cm	6.2µg/cm²	62mg/m²
63µS/cm	6.3µg/cm²	63mg/m²
64µS/cm	6.4µg/cm²	64mg/m²
65µS/cm	6.5µg/cm²	65mg/m²
66µS/cm	6.6µg/cm²	66mg/m²
67µS/cm	6.7µg/cm²	67mg/m²
68µS/cm	6.8µg/cm²	68mg/m²
69µS/cm	6.9µg/cm²	69mg/m²
70µS/cm	7.0µg/cm²	70mg/m²
71µS/cm	7.1µg/cm²	71mg/m²
72µS/cm	7.2µg/cm²	72mg/m²
73µS/cm	7.3µg/cm²	73mg/m²
74µS/cm	7.4µg/cm²	74mg/m²
75µS/cm	7.5µg/cm²	75mg/m²
76µS/cm	7.6µg/cm²	76mg/m²
77µS/cm	7.7µg/cm²	77mg/m²
78µS/cm	7.8µg/cm²	78mg/m²

Results	µg/cm²	mg/m²
79µS/cm	7.9µg/cm²	79mg/m²
80µS/cm	8.0µg/cm²	80mg/m²
81µS/cm	8.1µg/cm²	81mg/m²
82µS/cm	8.2µg/cm²	82mg/m²
83µS/cm	8.3µg/cm²	83mg/m²
84µS/cm	8.4µg/cm²	84mg/m²
85µS/cm	8.5µg/cm²	85mg/m²
86µS/cm	8.6µg/cm²	86mg/m²
87µS/cm	8.7µg/cm²	87mg/m²
88µS/cm	8.8µg/cm²	88mg/m²
89µS/cm	8.9µg/cm²	89mg/m²
90µS/cm	9.0µg/cm²	90mg/m²
91µS/cm	9.1µg/cm²	91mg/m²
92µS/cm	9.2µg/cm²	92mg/m²
93µS/cm	9.3µg/cm²	93mg/m²
94µS/cm	9.4µg/cm²	94mg/m²
95µS/cm	9.5µg/cm²	95mg/m²
96µS/cm	9.6µg/cm²	96mg/m²
97µS/cm	9.7µg/cm²	97mg/m²
98µS/cm	9.8µg/cm²	98mg/m²
99µS/cm	9.9µg/cm²	99mg/m²
100µS/cm	10.0µg/cm²	100mg/m²
101µS/cm	10.1µg/cm²	101mg/m²
102µS/cm	10.2µg/cm²	102mg/m²
103µS/cm	10.3µg/cm²	103mg/m²
104µS/cm	10.4µg/cm²	104mg/m²

Paint Test Equipment

Dust Tape Test

Assess the quantity and size of dust particles on steel surfaces prepared for painting. Dust particles on blast-cleaned steel surfaces may reduce the adhesion of applied coatings, and by absorbing moisture may promote the corrosion of the steel surface.



Information

Accumulation of dust particles occurs more naturally on horizontal surfaces, the interior of pipes and in structural cavities. Inspection should be carried out to ensure that such areas are adequately cleaned and free from dust particles before painting.

The Dust Test Comparator shows 5 classifications of dust particles and 4 sections of contrasting backgrounds where the Tape can be applied.

Specification

Tape adhesion strength: 190nN/metre.

Tape width / length: 25mm (1”). 60 metres.

Compliance

ISO 8502-3.

Supply

Supplied in an industrial foam-filled Carrying Case with Dust Test Tape (60m Roll), Dust Test Comparator and X10 Illuminated Magnifier.

Part No	Product
P4001	Dust Tape Test. Includes Dust Test Tape & Dust Test Comparator
PS201	Spare Dust Test Tape 25mm (1″). 60m Roll
PS202	Spare Dust Test Comparator
NPC05	Dust Test Tape Conformance Certificate
NPC06	Dust Test Comparator Conformance Certificate

Application

At the beginning of each series of tests, remove and discard the first three turns of the Dust Test Tape from the roll.

Remove a piece of Tape about 250mm long. Holding the Tape only at the ends, press approximately 200mm of the freshly exposed Tape onto the blast-cleaned surface.

Place your thumb across one end of the Tape and move the thumb along the Tape whilst maintaining a firm pressure and constant speed along the Tape. Carry out this procedure three times in each direction.

Evaluation

Remove the Tape from the blast-cleaned surface and place it on the Dust Test Comparator in a section which contrasts to the colour of the dust (adhere the Tape with thumb pressure).

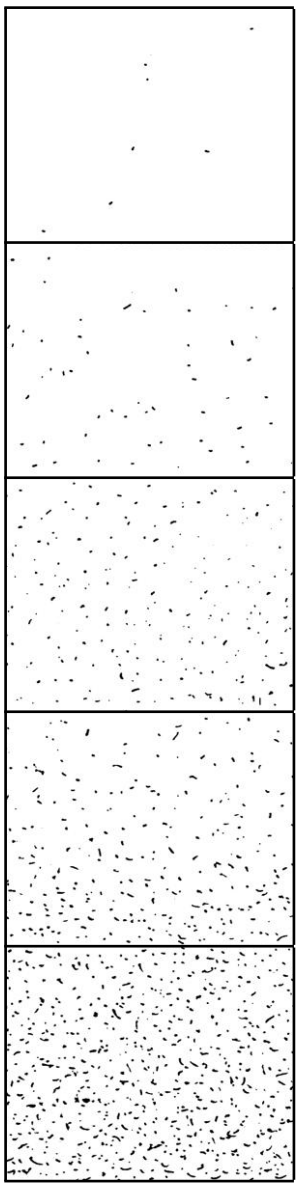
Assess the quantity and size of dust particles on the Tape by visually comparing an area of the Tape with equivalent-sized areas of the pictorial references shown on the Comparator. Record the rating corresponding to the reference that is the closest match.

It is not unusual after carrying out the test to find that the Tape displays an overall discolouration, usually reddish-brown or black, sometimes with the presence of discrete visible particles, depending on the abrasive used.

The discolouration is caused by microscopic dust particles from the blast-cleaned surface (particles less than 50µm) that can cause low paint adhesion.

Report any overall discolouration as quantity rating 5, size class 1.

Dust Size Classes



1. Particles not visible under X10 magnification.

2. Particles visible under X10 magnification but not with normal vision (usually particles less than 50µm in diameter).

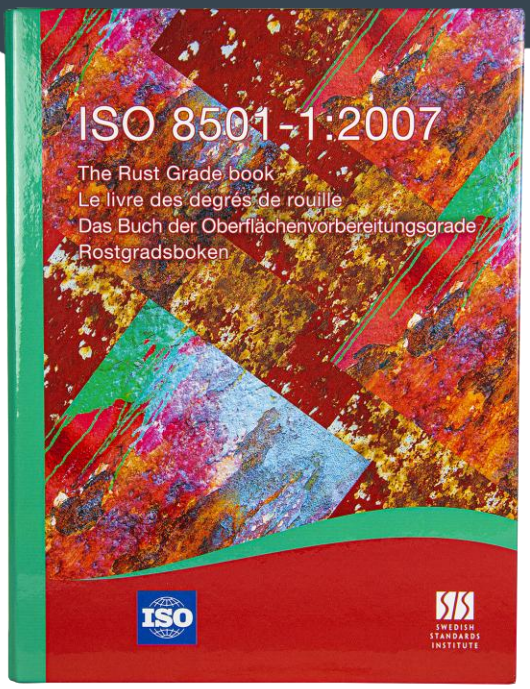
3. Particles just visible with normal vision (usually particles between 50µm and 100µm in diameter).

4. Particles between 0.5mm and 2.5mm in diameter.

5. Particles larger than 2.5mm in diameter.

Rust Grade Book

The Rust Grade Book specifies a series of Rust Grades and Preparation Grades of blast-cleaned steel surfaces. The various Grades are defined by written descriptions together with photographs.



Information

The Book identifies four levels (designated as Rust Grades) of mill scale and rust that are commonly found on surfaces of uncoated erected steel and steel held in stock. It also identifies certain degrees of visual cleanliness (designated as Preparation Grades) after surface preparation of uncoated steel surfaces and of steel surfaces after overall removal of any previous coating.

Four Rust Grades, designated A, B, C, and D respectively are specified.
There are also fourteen Preparation Grades by blast-cleaning, indicating the degree of cleaning, together with detailed descriptions of the surface appearance.

Specification

Sa Grades:
Grade Sa 1. Light blast-cleaning.
Grade Sa 2. Thorough blast-cleaning.
Grade Sa 2½. Very thorough blast-cleaning.
Grade Sa 3. Blast-cleaning to visually clean steel.

Edition: Second. 2007-05-01.

Translation: English, French, German and Swedish.

Compliance

ISO 8501-1

Part No	Product
U1007	Rust Grade Book (ISO 8501-1)
NPC08	Rust Grade Book Conformance Certificate

Paint Test Equipment reserves the right to alter specifications without prior notice

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Paint Test Equipment is a global leader in the manufacture of specialist test equipment specifically for the industrial painting and coating industries for the protection of steel assets from corrosion, mainly in the oil, renewables and steel construction sectors. We have over 30 years experience and extensive knowledge in delivering practical solutions in supporting our customers with world class products for corrosion prevention.

Prevention of corrosion on steel is essential to extend the asset lifetime, optimise performance and minimise downtime for expensive maintenance work. Using Paint Test Equipment products ensures that industrial coatings are applied to the highest achievable quality standards of ISO compliance.

We supply small, medium and multinational companies with the full range of technologies and innovations in our unrivalled portfolio of products for our customers to grow their business and enhance profits through cost effective corrosion management equipment.

Paint Test Equipment is committed to providing proactive and innovative solutions to meet customer requirements for the highest quality, user friendly inspection equipment. Paint Test Equipment is the partner of choice.

Paint Test Equipment

www.paint-test-equipment.com

Tel: +44 (0)1260 275614
e-mail: sales@paint-test-equipment.com