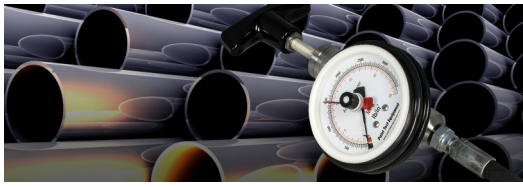
Data Sheet / Instructions

Bresle Test



Paint Test Equipment

Coating Thickness **Porosity** **Adhesion** **Inspection Kit** **Surface Roughness** **SURFACE CLEANLINESS** **Gloss**

International Standards

ISO 8502-6 **ISO 8502-9**

Bresle Test

ISO 8502-6: Preparation of steel substrates before application of paints and related products. Tests for the assessment of surface cleanliness. Part 6: Extraction of soluble contaminants for analysis. The Bresle method.

ISO 8502-9: Preparation of steel substrates before application of paints and related products. Tests for the assessment of surface cleanliness. Part 9: Field method for the conductometric determination of water-soluble salts.

The Bresle Test will measure contamination of 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.

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.

Supplied in an industrial foam-filled Carrying Case with Bresle Patches (pack of 50 Standard Adhesion), Bresle Patches Plus (pack of 50 High Adhesion), Conductivity Meter, 500ml Deionised Water, 3 x 5ml Syringes, Calibration Solution, Moistening Solution and 25ml Beaker.

Bresle Test Specifications and Spares

Part No	Patches Supplied	Conductivity Meter Range	Conductivity Meter Resolution	Conductivity Meter Accuracy	Conductivity Solution Cal Cert Part No	Bresle Patch Conformance Cert Part No
P2005	50 Standard Adhesion 50 High Adhesion	0–199µS/cm 0.20–1.99mS/cm	1µS/cm 0.01mS/cm	±2%	NP001	NPC04
PS001	Spare Bresle Patches (pack of 50) Standard Adhesion					NPC04
PS002	Spare Bresle Patches Plus (pack of 50) High Adhesion					NPC04
PS003	Spare Deionised Water (500ml)					
PS004	Spare Syringes (pack of 3)					
PS005	Spare Conductivity Meter Calibration Solution				NP001	
PS006	Spare 25ml Beaker					
PS007	Spare Conductivity Meter Sensor					

Operation

Safety

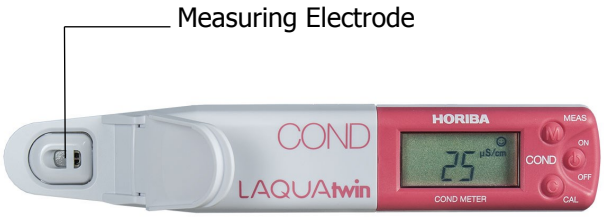
The needles on the Syringes in the Bresle Test are blunt. Care must still be taken when carrying out the test.

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.

Moistening Procedure

For first use on a new Conductivity Meter, moisten the Measuring Electrode with 3 to 4 droplets of the Moistening Solution and allow to sit for approximately 10 minutes, then the Measuring Electrode should be rinsed in tap water and dried.



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 moistening procedure.

Conductivity Meter Calibration

Place 3 to 4 droplets of the 1.41mS/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 1.41 then calibrate as follows:

Press and hold the Cal button until a CAL indicator and smiley face flashes – the Conductivity Meter will now auto calibrate. When the CAL indicator and smiley face stop flashing, calibration is complete.

When you have finished calibrating the Conductivity Meter, the Measuring Electrode should be rinsed in tap water before taking any readings.

Taking Measurements

Pour approximately 10ml of Deionized Water into the Beaker.

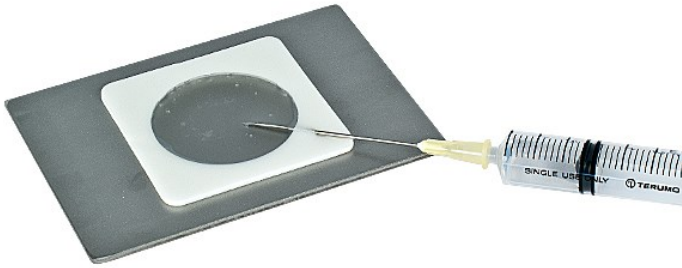
Completely fill the Syringe with the Deionized Water from the Beaker, and then empty the Syringe back into the Beaker.

Using the Syringe, withdraw approximately 1ml of Deionized Water from the Beaker and place 3 to 4 droplets into the Measuring Electrode on the Conductivity Meter, ensuring that the Deionized 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.

Take a Bresle Patch and remove the protective paper and the punched-out centre foam.
Press the adhesive side of the patch against the test surface in such a way that the minimum amount of air is trapped in the circular test chamber.

Fill the Syringe with 2.5ml of Deionized 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.



If the Patch is in a position which makes access to the Patch test chamber difficult, bend the Syringe needle as required.

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 Deionized 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.
For results in µg/cm^2 multiply the µS/cm value by 0.1 or use the conversion table on the following page.
If results in mg/m^2 are required the µS/cm value is the same in mg/m^2.

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 Deionized 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.
Multiply the difference (50µS/cm) by 0.1 and the result is 5.0µg/cm^2.

The Conductivity Meter will automatically take measurements when a solution is placed in the Measuring Electrode.
If a further measurement is required press the Measure button and a MEAS indicator flashes.
When the MEAS indicator stops flashing and a smiley face appears the measurement is complete.

Care

When you have finished using the Conductivity Meter, the Measuring Electrode should be rinsed in tap water and dried.
Then place a small amount of Deionized Water in the Electrode and replace the sensor cap.
Also ensure the Syringe is cleaned to remove any contamination.

Replacing Batteries

To replace the batteries on the Conductivity Meter, slide off the sensor while lifting the catch located on the rear of the instrument.
Replace with 2 lithium CR-2032 batteries, ensuring correct polarity.

When high adhesion strength Patches are required for testing on very corroded or coarse-grade blasted steel, use the Bresle Patches Plus as an alternative to the Standard Bresle Patches.

Patch Shelf Life

The only degeneration on the Bresle Patches is the adhesive if exposed to extremes of temperature.
It is recommended that the Patches are used within a 12-month period from date of purchase.

Testing Abrasives

ISO 11127-6: Preparation of steel substrates before application of paints and related products. Test methods for non-metallic blast-cleaning abrasives.
Part 6: Determination of water-soluble contaminants by conductivity measurement.

The Bresle Test can also be used for testing non-metallic abrasives for water-soluble salts and corrosion products.

Record the conductivity of the Deionized Water using the same procedure under the section Taking Measurements.

Place 100gm of abrasive into a flask and add 100ml of the Deionized Water that you have recorded the conductivity of.
Shake for 5 minutes and allow to stand for 1 hour.
If the liquid does not clear, filter by any suitable method.

Using the Syringe, withdraw approximately 1ml of contaminated water from the flask and place 3 to 4 droplets into the Measuring Electrode on the Conductivity Meter, ensuring that the contaminated 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.

Subtract the initial Deionized Water conductivity reading from the contaminated water conductivity reading.
Record the results as shown in µS/cm.

Bresle Test Conversion Table

Results µS/cm	Conversion into µg/cm²	Results µS/cm	Conversion into µg/cm²	Results µS/cm	Conversion into µg/cm²
1µS/cm	0.1µg/cm²	41µS/cm	4.1µg/cm²	81µS/cm	8.1µg/cm²
2µS/cm	0.2µg/cm²	42µS/cm	4.2µg/cm²	82µS/cm	8.2µg/cm²
3µS/cm	0.3µg/cm²	43µS/cm	4.3µg/cm²	83µS/cm	8.3µg/cm²
4µS/cm	0.4µg/cm²	44µS/cm	4.4µg/cm²	84µS/cm	8.4µg/cm²
5µS/cm	0.5µg/cm²	45µS/cm	4.5µg/cm²	85µS/cm	8.5µg/cm²
6µS/cm	0.6µg/cm²	46µS/cm	4.6µg/cm²	86µS/cm	8.6µg/cm²
7µS/cm	0.7µg/cm²	47µS/cm	4.7µg/cm²	87µS/cm	8.7µg/cm²
8µS/cm	0.8µg/cm²	48µS/cm	4.8µg/cm²	88µS/cm	8.8µg/cm²
9µS/cm	0.9µg/cm²	49µS/cm	4.9µg/cm²	89µS/cm	8.9µg/cm²
10µS/cm	1.0µg/cm²	50µS/cm	5.0µg/cm²	90µS/cm	9.0µg/cm²
11µS/cm	1.1µg/cm²	51µS/cm	5.1µg/cm²	91µS/cm	9.1µg/cm²
12µS/cm	1.2µg/cm²	52µS/cm	5.2µg/cm²	92µS/cm	9.2µg/cm²
13µS/cm	1.3µg/cm²	53µS/cm	5.3µg/cm²	93µS/cm	9.3µg/cm²
14µS/cm	1.4µg/cm²	54µS/cm	5.4µg/cm²	94µS/cm	9.4µg/cm²
15µS/cm	1.5µg/cm²	55µS/cm	5.5µg/cm²	95µS/cm	9.5µg/cm²
16µS/cm	1.6µg/cm²	56µS/cm	5.6µg/cm²	96µS/cm	9.6µg/cm²
17µS/cm	1.7µg/cm²	57µS/cm	5.7µg/cm²	97µS/cm	9.7µg/cm²
18µS/cm	1.8µg/cm²	58µS/cm	5.8µg/cm²	98µS/cm	9.8µg/cm²
19µS/cm	1.9µg/cm²	59µS/cm	5.9µg/cm²	99µS/cm	9.9µg/cm²
20µS/cm	2.0µg/cm²	60µS/cm	6.0µg/cm²	100µS/cm	10.0
21µS/cm	2.1µg/cm²	61µS/cm	6.1µg/cm²	101µS/cm	10.1
22µS/cm	2.2µg/cm²	62µS/cm	6.2µg/cm²	102µS/cm	10.2
23µS/cm	2.3µg/cm²	63µS/cm	6.3µg/cm²	103µS/cm	10.3
24µS/cm	2.4µg/cm²	64µS/cm	6.4µg/cm²	104µS/cm	10.4
25µS/cm	2.5µg/cm²	65µS/cm	6.5µg/cm²	105µS/cm	10.5
26µS/cm	2.6µg/cm²	66µS/cm	6.6µg/cm²	106µS/cm	10.6
27µS/cm	2.7µg/cm²	67µS/cm	6.7µg/cm²	107µS/cm	10.7
28µS/cm	2.8µg/cm²	68µS/cm	6.8µg/cm²	108µS/cm	10.8
29µS/cm	2.9µg/cm²	69µS/cm	6.9µg/cm²	109µS/cm	10.9
30µS/cm	3.0µg/cm²	70µS/cm	7.0µg/cm²	110µS/cm	11.0
31µS/cm	3.1µg/cm²	71µS/cm	7.1µg/cm²	111µS/cm	11.1
32µS/cm	3.2µg/cm²	72µS/cm	7.2µg/cm²	112µS/cm	11.2
33µS/cm	3.3µg/cm²	73µS/cm	7.3µg/cm²	113µS/cm	11.3
34µS/cm	3.4µg/cm²	74µS/cm	7.4µg/cm²	114µS/cm	11.4
35µS/cm	3.5µg/cm²	75µS/cm	7.5µg/cm²	115µS/cm	11.5
36µS/cm	3.6µg/cm²	76µS/cm	7.6µg/cm²	116µS/cm	11.6
37µS/cm	3.7µg/cm²	77µS/cm	7.7µg/cm²	117µS/cm	
38µS/cm	3.8µg/cm²	78µS/cm	7.8µg/cm²	118µS/cm	
39µS/cm	3.9µg/cm²	79µS/cm	7.9µg/cm²	119µS/cm	
40µS/cm	4.0µg/cm²	80µS/cm	8.0µg/cm²	120µS/cm	

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. With over 30 years experience and extensive knowledge in delivering practical and cost effective 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 Equipments technologies and innovations in our unrivalled portfolio of products ensures that industrial coatings are applied to the highest achievable quality standards of ISO compliance.

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