



# ***Paint Test Equipment***





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**Bresle Patch Test**



## Paint Test Equipment

### 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.



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:  $\pm 2$ .

Conductivity Meter range: 0–1999  $\mu\text{S}/\text{cm}$ .

Conductivity Meter resolution: 1  $\mu\text{S}/\text{cm}$ .

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  $35 \pm 1$ ), 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.



### Ordering

P2005	Bresle Test. Includes 35 Bresle Patches
PS002	Bresle Patches (pack of $35 \pm 1$ )
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





# Paint Test Equipment

## Instructions

### 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.

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 center 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.

The adhesive on the Patch is more adherent in warmer temperatures and this can cause the protective paper stick more. If this is the case remove the backing paper by push the punched-out centre foam from the elastomer side. The centre foam will push off the backing paper when pressure is applied.

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 center 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.

**Continued next page**



# Paint Test Equipment

## Measurements Continued

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  $\mu\text{S}/\text{cm}$ .

The Conductivity Meter measurements are shown in  $\mu\text{S}/\text{cm}$  and no conversion is required for measurements in  $\text{mg}/\text{m}^2$ .

For measurements  $\mu\text{g}/\text{cm}^2$  add a decimal point in front of the last digit so  $100\mu\text{S}/\text{cm}$  will be  $10.0\mu\text{g}/\text{cm}^2$  or use the conversion table on the following page.

The conversions listed are based on a test area of  $1250\text{mm}^2$  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  $4\mu\text{S}/\text{cm}$ . The contaminated water measurement taken is  $54\mu\text{S}/\text{cm}$ . The difference is therefore  $50\mu\text{S}/\text{cm}$  which is equivalent to  $50\text{mg}/\text{m}^2$  or  $5.0\mu\text{g}/\text{cm}^2$ .

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.

## 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.



# Paint Test Equipment

## 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 Deionised 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  $\mu\text{S}/\text{cm}$ .



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.



# 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.



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.

The Dust Tape Test is suitable for the assessment of dust particles retained after blast-cleaning on rust grades A, B and C.

Because of the limited elasticity of the Tape, it is not possible to penetrate into the deep pits present on blast-cleaned steel rust grade D.

### Specification

Tape adhesion strength: 190nN/metre.

Tape width: 25mm (1").

Tape length: 60 metres.

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

Tape Shelf Life: We would recommend that the Tape is used within a 12-month period from date of purchase.

### Compliance

ISO 8502-3.





# Paint Test Equipment

## Instructions

### Evaluation

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.

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.

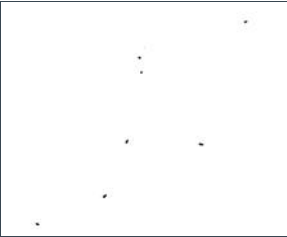
Report any overall discolouration as quantity rating 5, size class 1.

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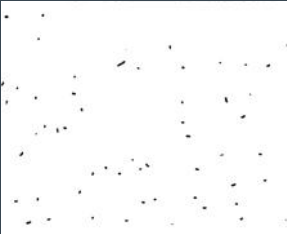


# Paint Test Equipment

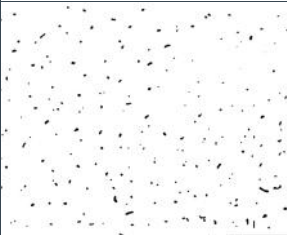
## Dust Size Classes



1. Particles not visible under X10 magnification.



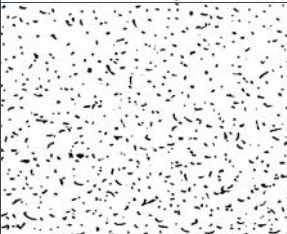
2. Particles visible under X10 magnification but not with normal or corrected vision (usually particles less than 50µm in diameter).



3. Particles just visible with normal or corrected 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.



# ***Paint Test Equipment***



## **Blast Profile Comparator**



## Paint Test Equipment

### Blast Profile Comparator

A precision nickel Comparator plate for grit and shot-blast surface roughness comparison measurement.



When steel has been blast-cleaned, the surface consists of random irregularities with peaks and valleys that are not easily characterised. Because of this random nature, experts have recommended that the profile should be identified as either angular (where grit abrasives have been used) or dimpled (where shot abrasives have been used) and that they should be graded as fine, medium or coarse with each grade being defined by limits specified in ISO 8503.

The Blast Profile Comparator method is applicable to steel surfaces that have been blast-cleaned with either metallic or non-metallic abrasives to grades Sa 2½ and Sa 3.

When a mixture of shot and grit abrasives are used to blast-clean a substrate, the Grit Surface Blast Profile Comparator should be used.

#### Specification

Profile Segment 1: Grit 25µm. Shot 25µm.

Profile Segment 2: Grit 60µm. Shot 40µm.

Profile Segment 3: Grit 100µm. Shot 70µm.

Profile Segment 4: Grit 150µm. Shot 100µm.

#### Compliance

ISO 8503-1, ISO 8503-2 and ASTM D4417.





## ***Paint Test Equipment***

### **Supply**

The Roughness Comparator is supplied in a protective Wallet.

A X5 Illuminated Magnifier for viewing the Comparator is available as an optional extra.



### **Ordering**

R2006	Blast Profile Comparator Grit
R2007	Blast Profile Comparator Shot
NRC01	Blast Profile Comparator Conformance Certificate

# About Us

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

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# ***Paint Test Equipment***



**Adhesion Tester**

## Adhesion Tester

The Adhesion Tester is one of the most accurate and versatile adhesion testers currently available. It measures the adhesion bond strength of applied coatings with ease and precision.



The adhesion is measured by the tensile pull on a Dolly glued to the coating surface. The force is applied through the centre of the Dolly by a hydraulically loaded pin. This ensures an exactly central point-loading of the force.

The maximum value achieved at pull-off is recorded by a reset needle that is easily read on the large scale of the pressure gauge.

Ensures effective quality control with a non-destructive capability. To allow the specification minimum to be proven, the dolly can be removed using the heated dolly remover supplied. If necessary, the dolly can be left in place for testing during service as part of a planned maintenance programme.

### Specification

Pressure Gauge resolution: psi 20, Mpa 0.2.

Accuracy:  $\pm 1\%$ FSD.

### Compliance

ISO 4624 and ISO 16276-1 and ASTM D4541.

The Right Angle version of the Adhesion Tester enables the user to test the adhesion of coatings inside pipes with a minimum diameter of 150mm (6").







## Supply

Supplied in an industrial foam-filled Carrying Case with 5 Flat Dollies, Adhesive, Heated Dolly Remover, Dolly Cleaning Tool and Dolly Plug.

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



## Ordering

X1003	Analogue Adhesion Tester (Standard) 0–3500psi (0–25MPa)
X1004	Analogue Adhesion Tester (Right angle) 0–3500psi (0–25MPa)
NX001	Adhesion Tester Calibration Certificate
XS101	Spare Flat Dolly
XS102	Spare Turbo Fuse Adhesive
XS103	Spare Dolly Plug (pack of 5)



## Concave Dollies

The Adhesion Tester can test external surfaces of pipes. Because the load reacts internally within the dolly, curved surfaces of pipes can be easily tested.

To obtain a uniform tensile load, Concave Dollies machined to match the diameter under test need to be used. External diameters as small as 51mm (2").



## Ordering

XA201	Concave Dolly 2" (51mm)
XA202	Concave Dolly 3" (76mm)
XA203	Concave Dolly 4" (102mm)
XA204	Concave Dolly 6" (152mm)
XA205	Concave Dolly 8" (203mm)
XA206	Concave Dolly 10" (254mm)
XA207	Concave Dolly 12" (305mm)
XA208	Concave Dolly 14" (356mm)
XA209	Concave Dolly 16" (406mm)
XA210	Concave Dolly 18" (457mm)
XA211	Concave Dolly 20" (508mm)
XA212	Concave Dolly 24" (610mm)
XA213	Concave Dolly 30" (762mm)
XA214	Concave Dolly 36" (914mm)



## Convex Dollies

The Adhesion Tester can test internal surfaces of pipes. Because the load reacts internally within the dolly, curved surfaces of pipes can be easily tested.

To obtain a uniform tensile load, Concave Dollies machined to match the diameter under test need to be used. Internal diameters as small as 152mm (6") can be tested.



## Ordering

XA215	Convex Dolly 6" (152mm)
XA216	Convex Dolly 8" (203mm)
XA217	Convex Dolly 10" (254mm)
XA218	Convex Dolly 12" (305mm)
XA219	Convex Dolly 14" (356mm)
XA220	Convex Dolly 16" (406mm)
XA221	Convex Dolly 18" (457mm)
XA222	Convex Dolly 20" (508mm)
XA223	Convex Dolly 24" (610mm)
XA224	Convex Dolly 30" (762mm)
XA225	Convex Dolly 36" (914mm)

## Instructions

### Dolly Attachment

To reduce the likelihood of adhesive failure, abrade the face of the Dolly and the surface of the protective coating with fine emery paper. Clean the surface of the Dolly and protective coating. The cleaning process should include thorough degreasing.



Check that no adhesive has been left in the dolly hole by trial fitting the Dolly Plug.

Insert the Dolly Plug into the Dolly until the tip protrudes from the surface. Apply the Adhesive thinly and evenly to the whole end surface of the Dolly in sufficient quantity to ensure a good bond to the protective coating. Ensure that no Adhesive is on the Plastic Plug.

Press the Dolly onto the surface using thumb pressure for approximately 10 seconds and then remove the Dolly Plug. Do not twist the dolly as this could introduce air bubbles. Allow the adhesive to dry for approximately 15 minutes.

If you are testing a pipe using curved Dollies, ensure that the aligning mark is lined up with the longitudinal axis of the pipe.

### Measurement

Connect the Adhesion Tester to the Dolly by pulling back the coupling socket, pushing the head and releasing the coupling. Ensure the Adhesion Tester is held so that the rubber hose is straight.

To pressurise the Adhesion Tester, turn the handle clockwise at a uniform rate, not greater than 1MPa/s. To decrease the pressure, turn anticlockwise at a uniform rate. Set the red needle to zero before pressurising.

To destructively test the coating, increase the pressure slowly until the Dolly pulls off.

To non-destructively test the coating, increase the pressure slowly until the specified minimum value has been reached – you can then decrease the pressure to zero and remove the head.

The Dolly can be removed by using the heated Dolly remover. The pressure is recorded from the red needle.

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## Information

In the absence of manufacturer's recommendations, the coating should be dried/cured for at least 10 days.

Pull-off tests are destructive test methods. Repair work will be necessary when they are used on coated structures. To avoid damage to the coated structure, test panels can be used.

The cyanoacrylate Adhesive should not be used with thermoplastic, non-convertible paint systems due to chemical reactions that could affect adhesion results. These paint systems include cellulosics, vinyls, chlorinated rubbers and some acrylics. For these paint systems a two-pack epoxy adhesive should be used.

## Dolly Cleaning

After use, clean the Dolly with the Dolly Remover. A duration of 3–5 minutes per Dolly should normally be sufficient to degrade the adhesive, which can then be scraped off.

Ensure the work area is well ventilated.

The hole can be cleaned using the Dolly Cleaning Tool.

## Care and Maintenance

Always store the Adhesion Tester with a Dolly fitted to the head. This will prevent any damage to the pin.

Do not hold the Adhesion Tester under pressure for longer than is required.

If the Adhesion Tester is not used on a regular basis, you will need to pressurise once a month to 2500psi, then immediately release the pressure. This will ensure that the seals are kept working to their maximum potential. Always pressurise with the Dolly fitted.



When using the cyanoacrylate Adhesive – ensure the work area is well ventilated, wear gloves and do not let any Adhesive come into contact with your skin.

When using the Dolly Remover – do not touch the elements or heads after switching on. Allow approximately 15 minutes for the elements and heads to cool to ambient temperature after switching off.

# About Us

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.

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# ***Paint Test Equipment***



**Bresle Patch Test**



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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.

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:  $\pm 2$ .

Conductivity Meter range: 0–1999 $\mu$ S/cm.

Conductivity Meter resolution: 1 $\mu$ S/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.





## Supply

Supplied in an industrial foam-filled Carrying Case with Bresle Patches (pack of 35), 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.



## Ordering

P2005	Bresle Test. Includes 35 Bresle Patches
PS002	Bresle Patches (pack of 35)
PS003	Spare Deionised Water (500ml)
PS004	Spare Syringes with Needles (pack of 10)
PS005	Spare Conductivity Meter Calibration Solution (14ml)
PS006	Spare 25ml Beakers (pack of 5)
PS007	Spare Conductivity Meter Sensor Measurement Head
PS008	Spare Conductivity Meter Conditioning Solution (14ml)
NP001	Conductivity Meter Calibration Certificate
NPC01	Conductivity Meter Calibration Solution Conformance Certificate
NPC04	Bresle Patches Conformance Certificate



## Paint Inspection Kit

The Bresle Patch Test is also supplied in the Paint Inspection Kit. The Paint Inspection Kit contains all the equipment for the testing of blast-cleaned steel and coating inspection using the following equipment.



Testex Replica Tape / Replica Tape Gauge. Surface Profile measurement of blast-cleaned steel.

Bresle Test. Measurement of salts and corrosion products on blast-cleaned steel.

Dust Tape Test. Assessment of the quantity and size of dust particles on blast-cleaned steel.

Dewpoint Meter. Testing for the probability of condensation on blast-cleaned steel.

Wet Film Gauge. Wet film thickness measurement of the coating.

Coating Thickness Meter. Dry film thickness measurement of the coating.

## Ordering Information

K3001. Paint Inspection Kit

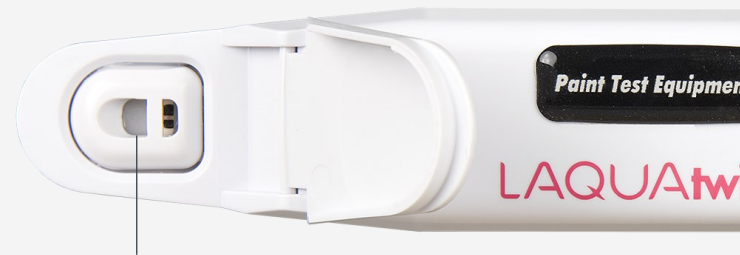
NK002. Paint Inspection Kit Calibration Certificates



## Instructions

### 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.



Measuring Electrode

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 Cal

Place 3 to 4 droplets of the 1413 $\mu$ S/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 1413 $\mu$ S/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.

## Instructions

### Measurements

Pour approximately 10ml of Deionised Water into the Beaker.

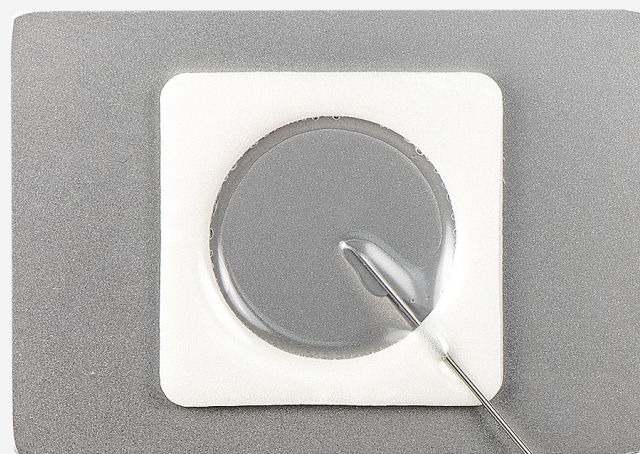
Completely fill the Syringe with the Deionised Water from the Beaker, and then empty the Syringe back into the Beaker.

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 center 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.

Take a Bresle Patch and remove the protective paper and the punched-out center 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.



The adhesive on the Patch is more adherent in warmer temperatures and this can cause the protective paper stick more. If this is the case remove the backing paper by push the punched-out centre foam from the elastomer side. The centre foam will push off the backing paper when pressure is applied.

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 center 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.

**Continued next page**





## **Measurements Continued**

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.



## Instructions

### Results

Subtract the initial Deionised Water conductivity reading from the contaminated water conductivity reading. The results are shown in  $\mu\text{S}/\text{cm}$ .



The Conductivity Meter measurements are shown in  $\mu\text{S}/\text{cm}$  and no conversion is required for measurements in  $\text{mg}/\text{m}^2$ .

For measurements  $\mu\text{g}/\text{cm}^2$  add a decimal point in front of the last digit so  $100\mu\text{S}/\text{cm}$  will be  $10.0\mu\text{g}/\text{cm}^2$  or use the conversion table on the following page.

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Example. The Deionised Water measurement taken is  $4\mu\text{S}/\text{cm}$ . The contaminated water measurement taken is  $54\mu\text{S}/\text{cm}$ . The difference is therefore  $50\mu\text{S}/\text{cm}$  which is equivalent to  $50\text{mg}/\text{m}^2$  or  $5.0\mu\text{g}/\text{cm}^2$ .

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.

### 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.

### 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.



## 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 Deionised 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  $\mu\text{S}/\text{cm}$ .



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.



Results	Conversion µg/cm <sup>2</sup>	Conversion mg/m <sup>2</sup>	Results	Conversion µg/cm <sup>2</sup>	Conversion mg/m <sup>2</sup>
1µS/cm	0.1µg/cm <sup>2</sup>	1mg/m <sup>2</sup>	32µS/cm	3.2µg/cm <sup>2</sup>	32mg/m <sup>2</sup>
2µS/cm	0.2µg/cm <sup>2</sup>	2mg/m <sup>2</sup>	33µS/cm	3.3µg/cm <sup>2</sup>	33mg/m <sup>2</sup>
3µS/cm	0.3µg/cm <sup>2</sup>	3mg/m <sup>2</sup>	34µS/cm	3.4µg/cm <sup>2</sup>	34mg/m <sup>2</sup>
4µS/cm	0.4µg/cm <sup>2</sup>	4mg/m <sup>2</sup>	35µS/cm	3.5µg/cm <sup>2</sup>	35mg/m <sup>2</sup>
5µS/cm	0.5µg/cm <sup>2</sup>	5mg/m <sup>2</sup>	36µS/cm	3.6µg/cm <sup>2</sup>	36mg/m <sup>2</sup>
6µS/cm	0.6µg/cm <sup>2</sup>	6mg/m <sup>2</sup>	37µS/cm	3.7µg/cm <sup>2</sup>	37mg/m <sup>2</sup>
7µS/cm	0.7µg/cm <sup>2</sup>	7mg/m <sup>2</sup>	38µS/cm	3.8µg/cm <sup>2</sup>	38mg/m <sup>2</sup>
8µS/cm	0.8µg/cm <sup>2</sup>	8mg/m <sup>2</sup>	39µS/cm	3.9µg/cm <sup>2</sup>	39mg/m <sup>2</sup>
9µS/cm	0.9µg/cm <sup>2</sup>	9mg/m <sup>2</sup>	40µS/cm	4.0µg/cm <sup>2</sup>	40mg/m <sup>2</sup>
10µS/cm	1.0µg/cm <sup>2</sup>	10mg/m <sup>2</sup>	41µS/cm	4.1µg/cm <sup>2</sup>	41mg/m <sup>2</sup>
11µS/cm	1.1µg/cm <sup>2</sup>	11mg/m <sup>2</sup>	42µS/cm	4.2µg/cm <sup>2</sup>	42mg/m <sup>2</sup>
12µS/cm	1.2µg/cm <sup>2</sup>	12mg/m <sup>2</sup>	43µS/cm	4.3µg/cm <sup>2</sup>	43mg/m <sup>2</sup>
13µS/cm	1.3µg/cm <sup>2</sup>	13mg/m <sup>2</sup>	44µS/cm	4.4µg/cm <sup>2</sup>	44mg/m <sup>2</sup>
14µS/cm	1.4µg/cm <sup>2</sup>	14mg/m <sup>2</sup>	45µS/cm	4.5µg/cm <sup>2</sup>	45mg/m <sup>2</sup>
15µS/cm	1.5µg/cm <sup>2</sup>	15mg/m <sup>2</sup>	46µS/cm	4.6µg/cm <sup>2</sup>	46mg/m <sup>2</sup>
16µS/cm	1.6µg/cm <sup>2</sup>	16mg/m <sup>2</sup>	47µS/cm	4.7µg/cm <sup>2</sup>	47mg/m <sup>2</sup>
17µS/cm	1.7µg/cm <sup>2</sup>	17mg/m <sup>2</sup>	48µS/cm	4.8µg/cm <sup>2</sup>	48mg/m <sup>2</sup>
18µS/cm	1.8µg/cm <sup>2</sup>	18mg/m <sup>2</sup>	49µS/cm	4.9µg/cm <sup>2</sup>	49mg/m <sup>2</sup>
19µS/cm	1.9µg/cm <sup>2</sup>	19mg/m <sup>2</sup>	50µS/cm	5.0µg/cm <sup>2</sup>	50mg/m <sup>2</sup>
20µS/cm	2.0µg/cm <sup>2</sup>	20mg/m <sup>2</sup>	51µS/cm	5.1µg/cm <sup>2</sup>	51mg/m <sup>2</sup>
21µS/cm	2.1µg/cm <sup>2</sup>	21mg/m <sup>2</sup>	52µS/cm	5.2µg/cm <sup>2</sup>	52mg/m <sup>2</sup>
22µS/cm	2.2µg/cm <sup>2</sup>	22mg/m <sup>2</sup>	53µS/cm	5.3µg/cm <sup>2</sup>	53mg/m <sup>2</sup>
23µS/cm	2.3µg/cm <sup>2</sup>	23mg/m <sup>2</sup>	54µS/cm	5.4µg/cm <sup>2</sup>	54mg/m <sup>2</sup>
24µS/cm	2.4µg/cm <sup>2</sup>	24mg/m <sup>2</sup>	55µS/cm	5.5µg/cm <sup>2</sup>	55mg/m <sup>2</sup>
25µS/cm	2.5µg/cm <sup>2</sup>	25mg/m <sup>2</sup>	56µS/cm	5.6µg/cm <sup>2</sup>	56mg/m <sup>2</sup>
26µS/cm	2.6µg/cm <sup>2</sup>	26mg/m <sup>2</sup>	57µS/cm	5.7µg/cm <sup>2</sup>	57mg/m <sup>2</sup>
27µS/cm	2.7µg/cm <sup>2</sup>	27mg/m <sup>2</sup>	58µS/cm	5.8µg/cm <sup>2</sup>	58mg/m <sup>2</sup>
28µS/cm	2.8µg/cm <sup>2</sup>	28mg/m <sup>2</sup>	59µS/cm	5.9µg/cm <sup>2</sup>	59mg/m <sup>2</sup>
29µS/cm	2.9µg/cm <sup>2</sup>	29mg/m <sup>2</sup>	60µS/cm	6.0µg/cm <sup>2</sup>	60mg/m <sup>2</sup>
30µS/cm	3.0µg/cm <sup>2</sup>	30mg/m <sup>2</sup>	61µS/cm	6.1µg/cm <sup>2</sup>	61mg/m <sup>2</sup>
31µS/cm	3.1µg/cm <sup>2</sup>	31mg/m <sup>2</sup>	62µS/cm	6.2µg/cm <sup>2</sup>	62mg/m <sup>2</sup>





Results	Conversion µg/cm <sup>2</sup>	Conversion mg/m <sup>2</sup>	Results	Conversion µg/cm <sup>2</sup>	Conversion mg/m <sup>2</sup>
63µS/cm	6.3µg/cm <sup>2</sup>	63mg/m <sup>2</sup>	94µS/cm	9.4µg/cm <sup>2</sup>	94mg/m <sup>2</sup>
64µS/cm	6.4µg/cm <sup>2</sup>	64mg/m <sup>2</sup>	95µS/cm	9.5µg/cm <sup>2</sup>	95mg/m <sup>2</sup>
65µS/cm	6.5µg/cm <sup>2</sup>	65mg/m <sup>2</sup>	96µS/cm	9.6µg/cm <sup>2</sup>	96mg/m <sup>2</sup>
66µS/cm	6.6µg/cm <sup>2</sup>	66mg/m <sup>2</sup>	97µS/cm	9.7µg/cm <sup>2</sup>	97mg/m <sup>2</sup>
67µS/cm	6.7µg/cm <sup>2</sup>	67mg/m <sup>2</sup>	98µS/cm	9.8µg/cm <sup>2</sup>	98mg/m <sup>2</sup>
68µS/cm	6.8µg/cm <sup>2</sup>	68mg/m <sup>2</sup>	99µS/cm	9.9µg/cm <sup>2</sup>	99mg/m <sup>2</sup>
69µS/cm	6.9µg/cm <sup>2</sup>	69mg/m <sup>2</sup>	100µS/cm	10.0µg/cm <sup>2</sup>	100mg/m <sup>2</sup>
70µS/cm	7.0µg/cm <sup>2</sup>	70mg/m <sup>2</sup>	101µS/cm	10.1µg/cm <sup>2</sup>	101mg/m <sup>2</sup>
71µS/cm	7.1µg/cm <sup>2</sup>	71mg/m <sup>2</sup>	102µS/cm	10.2µg/cm <sup>2</sup>	102mg/m <sup>2</sup>
72µS/cm	7.2µg/cm <sup>2</sup>	72mg/m <sup>2</sup>	103µS/cm	10.3µg/cm <sup>2</sup>	103mg/m <sup>2</sup>
73µS/cm	7.3µg/cm <sup>2</sup>	73mg/m <sup>2</sup>	104µS/cm	10.4µg/cm <sup>2</sup>	104mg/m <sup>2</sup>
74µS/cm	7.4µg/cm <sup>2</sup>	74mg/m <sup>2</sup>	105µS/cm	10.5µg/cm <sup>2</sup>	105mg/m <sup>2</sup>
75µS/cm	7.5µg/cm <sup>2</sup>	75mg/m <sup>2</sup>	106µS/cm	10.6µg/cm <sup>2</sup>	106mg/m <sup>2</sup>
76µS/cm	7.6µg/cm <sup>2</sup>	76mg/m <sup>2</sup>	107µS/cm	10.7µg/cm <sup>2</sup>	107mg/m <sup>2</sup>
77µS/cm	7.7µg/cm <sup>2</sup>	77mg/m <sup>2</sup>	108µS/cm	10.8µg/cm <sup>2</sup>	108mg/m <sup>2</sup>
78µS/cm	7.8µg/cm <sup>2</sup>	78mg/m <sup>2</sup>	109µS/cm	10.9µg/cm <sup>2</sup>	109mg/m <sup>2</sup>
79µS/cm	7.9µg/cm <sup>2</sup>	79mg/m <sup>2</sup>	110µS/cm	11.0µg/cm <sup>2</sup>	110mg/m <sup>2</sup>
80µS/cm	8.0µg/cm <sup>2</sup>	80mg/m <sup>2</sup>	111µS/cm	11.1µg/cm <sup>2</sup>	111mg/m <sup>2</sup>
81µS/cm	8.1µg/cm <sup>2</sup>	81mg/m <sup>2</sup>	112µS/cm	11.2µg/cm <sup>2</sup>	112mg/m <sup>2</sup>
82µS/cm	8.2µg/cm <sup>2</sup>	82mg/m <sup>2</sup>	113µS/cm	11.3µg/cm <sup>2</sup>	113mg/m <sup>2</sup>
83µS/cm	8.3µg/cm <sup>2</sup>	83mg/m <sup>2</sup>	114µS/cm	11.4µg/cm <sup>2</sup>	114mg/m <sup>2</sup>
84µS/cm	8.4µg/cm <sup>2</sup>	84mg/m <sup>2</sup>	115µS/cm	11.5µg/cm <sup>2</sup>	115mg/m <sup>2</sup>
85µS/cm	8.5µg/cm <sup>2</sup>	85mg/m <sup>2</sup>	116µS/cm	11.6µg/cm <sup>2</sup>	116mg/m <sup>2</sup>
86µS/cm	8.6µg/cm <sup>2</sup>	86mg/m <sup>2</sup>	117µS/cm	11.7µg/cm <sup>2</sup>	117mg/m <sup>2</sup>
87µS/cm	8.7µg/cm <sup>2</sup>	87mg/m <sup>2</sup>	118µS/cm	11.8µg/cm <sup>2</sup>	118mg/m <sup>2</sup>
88µS/cm	8.8µg/cm <sup>2</sup>	88mg/m <sup>2</sup>	119µS/cm	11.9µg/cm <sup>2</sup>	119mg/m <sup>2</sup>
89µS/cm	8.9µg/cm <sup>2</sup>	89mg/m <sup>2</sup>	120µS/cm	12.0µg/cm <sup>2</sup>	120mg/m <sup>2</sup>
90µS/cm	9.0µg/cm <sup>2</sup>	90mg/m <sup>2</sup>	121µS/cm	12.1µg/cm <sup>2</sup>	121mg/m <sup>2</sup>
91µS/cm	9.1µg/cm <sup>2</sup>	91mg/m <sup>2</sup>	122µS/cm	12.2µg/cm <sup>2</sup>	122mg/m <sup>2</sup>
92µS/cm	9.2µg/cm <sup>2</sup>	92mg/m <sup>2</sup>	123µS/cm	12.3µg/cm <sup>2</sup>	123mg/m <sup>2</sup>
93µS/cm	9.3µg/cm <sup>2</sup>	93mg/m <sup>2</sup>	124µS/cm	12.4µg/cm <sup>2</sup>	124mg/m <sup>2</sup>



Results	Conversion µg/cm <sup>2</sup>	Conversion mg/m <sup>2</sup>	Results	Conversion µg/cm <sup>2</sup>	Conversion mg/m <sup>2</sup>
125µS/cm	12.5µg/cm <sup>2</sup>	125mg/m <sup>2</sup>	156µS/cm	15.6µg/cm <sup>2</sup>	156mg/m <sup>2</sup>
126µS/cm	12.6µg/cm <sup>2</sup>	126mg/m <sup>2</sup>	157µS/cm	15.7µg/cm <sup>2</sup>	157mg/m <sup>2</sup>
127µS/cm	12.7µg/cm <sup>2</sup>	127mg/m <sup>2</sup>	158µS/cm	15.8µg/cm <sup>2</sup>	158mg/m <sup>2</sup>
128µS/cm	12.8µg/cm <sup>2</sup>	128mg/m <sup>2</sup>	159µS/cm	15.9µg/cm <sup>2</sup>	159mg/m <sup>2</sup>
129µS/cm	12.9µg/cm <sup>2</sup>	129mg/m <sup>2</sup>	160µS/cm	16.0µg/cm <sup>2</sup>	160mg/m <sup>2</sup>
130µS/cm	13.0µg/cm <sup>2</sup>	130mg/m <sup>2</sup>	161µS/cm	16.1µg/cm <sup>2</sup>	161mg/m <sup>2</sup>
131µS/cm	13.1µg/cm <sup>2</sup>	131mg/m <sup>2</sup>	162µS/cm	16.2µg/cm <sup>2</sup>	162mg/m <sup>2</sup>
132µS/cm	13.2µg/cm <sup>2</sup>	132mg/m <sup>2</sup>	163µS/cm	16.3µg/cm <sup>2</sup>	163mg/m <sup>2</sup>
133µS/cm	13.3µg/cm <sup>2</sup>	133mg/m <sup>2</sup>	164µS/cm	16.4µg/cm <sup>2</sup>	164mg/m <sup>2</sup>
134µS/cm	13.4µg/cm <sup>2</sup>	134mg/m <sup>2</sup>	165µS/cm	16.5µg/cm <sup>2</sup>	165mg/m <sup>2</sup>
135µS/cm	13.5µg/cm <sup>2</sup>	135mg/m <sup>2</sup>	166µS/cm	16.6µg/cm <sup>2</sup>	166mg/m <sup>2</sup>
136µS/cm	13.6µg/cm <sup>2</sup>	136mg/m <sup>2</sup>	167µS/cm	16.7µg/cm <sup>2</sup>	167mg/m <sup>2</sup>
137µS/cm	13.7µg/cm <sup>2</sup>	137mg/m <sup>2</sup>	168µS/cm	16.8µg/cm <sup>2</sup>	168mg/m <sup>2</sup>
138µS/cm	13.8µg/cm <sup>2</sup>	138mg/m <sup>2</sup>	169µS/cm	16.9µg/cm <sup>2</sup>	169mg/m <sup>2</sup>
139µS/cm	13.9µg/cm <sup>2</sup>	139mg/m <sup>2</sup>	170µS/cm	17.0µg/cm <sup>2</sup>	170mg/m <sup>2</sup>
140µS/cm	14.0µg/cm <sup>2</sup>	140mg/m <sup>2</sup>	171µS/cm	17.1µg/cm <sup>2</sup>	171mg/m <sup>2</sup>
141µS/cm	14.1µg/cm <sup>2</sup>	141mg/m <sup>2</sup>	172µS/cm	17.2µg/cm <sup>2</sup>	172mg/m <sup>2</sup>
142µS/cm	14.2µg/cm <sup>2</sup>	142mg/m <sup>2</sup>	173µS/cm	17.3µg/cm <sup>2</sup>	173mg/m <sup>2</sup>
143µS/cm	14.3µg/cm <sup>2</sup>	143mg/m <sup>2</sup>	174µS/cm	17.4µg/cm <sup>2</sup>	174mg/m <sup>2</sup>
144µS/cm	14.4µg/cm <sup>2</sup>	144mg/m <sup>2</sup>	175µS/cm	17.5µg/cm <sup>2</sup>	175mg/m <sup>2</sup>
145µS/cm	14.5µg/cm <sup>2</sup>	145mg/m <sup>2</sup>	176µS/cm	17.6µg/cm <sup>2</sup>	176mg/m <sup>2</sup>
146µS/cm	14.6µg/cm <sup>2</sup>	146mg/m <sup>2</sup>	177µS/cm	17.7µg/cm <sup>2</sup>	177mg/m <sup>2</sup>
147µS/cm	14.7µg/cm <sup>2</sup>	147mg/m <sup>2</sup>	178µS/cm	17.8µg/cm <sup>2</sup>	178mg/m <sup>2</sup>
148µS/cm	14.8µg/cm <sup>2</sup>	148mg/m <sup>2</sup>	179µS/cm	17.9µg/cm <sup>2</sup>	179mg/m <sup>2</sup>
149µS/cm	14.9µg/cm <sup>2</sup>	149mg/m <sup>2</sup>	180µS/cm	18.0µg/cm <sup>2</sup>	180mg/m <sup>2</sup>
150µS/cm	15.0µg/cm <sup>2</sup>	150mg/m <sup>2</sup>	181µS/cm	18.1µg/cm <sup>2</sup>	181mg/m <sup>2</sup>
151µS/cm	15.1µg/cm <sup>2</sup>	151mg/m <sup>2</sup>	182µS/cm	18.2µg/cm <sup>2</sup>	182mg/m <sup>2</sup>
152µS/cm	15.2µg/cm <sup>2</sup>	152mg/m <sup>2</sup>	183µS/cm	18.3µg/cm <sup>2</sup>	183mg/m <sup>2</sup>
153µS/cm	15.3µg/cm <sup>2</sup>	153mg/m <sup>2</sup>	184µS/cm	18.4µg/cm <sup>2</sup>	184mg/m <sup>2</sup>
154µS/cm	15.4µg/cm <sup>2</sup>	154mg/m <sup>2</sup>	185µS/cm	18.5µg/cm <sup>2</sup>	185mg/m <sup>2</sup>
155µS/cm	15.5µg/cm <sup>2</sup>	155mg/m <sup>2</sup>	186µS/cm	18.6µg/cm <sup>2</sup>	186mg/m <sup>2</sup>



Results	Conversion µg/cm <sup>2</sup>	Conversion mg/m <sup>2</sup>	Results	Conversion µg/cm <sup>2</sup>	Conversion mg/m <sup>2</sup>
187µS/cm	18.7µg/cm <sup>2</sup>	187mg/m <sup>2</sup>	218µS/cm	21.8µg/cm <sup>2</sup>	218mg/m <sup>2</sup>
188µS/cm	18.8µg/cm <sup>2</sup>	188mg/m <sup>2</sup>	219µS/cm	21.9µg/cm <sup>2</sup>	219mg/m <sup>2</sup>
189µS/cm	18.9µg/cm <sup>2</sup>	189mg/m <sup>2</sup>	220µS/cm	22.0µg/cm <sup>2</sup>	220mg/m <sup>2</sup>
190µS/cm	19.0µg/cm <sup>2</sup>	190mg/m <sup>2</sup>	221µS/cm	22.1µg/cm <sup>2</sup>	221mg/m <sup>2</sup>
191µS/cm	19.1µg/cm <sup>2</sup>	191mg/m <sup>2</sup>	222µS/cm	22.2µg/cm <sup>2</sup>	222mg/m <sup>2</sup>
192µS/cm	19.2µg/cm <sup>2</sup>	192mg/m <sup>2</sup>	223µS/cm	22.3µg/cm <sup>2</sup>	223mg/m <sup>2</sup>
193µS/cm	19.3µg/cm <sup>2</sup>	193mg/m <sup>2</sup>	224µS/cm	22.4µg/cm <sup>2</sup>	224mg/m <sup>2</sup>
194µS/cm	19.4µg/cm <sup>2</sup>	194mg/m <sup>2</sup>	225µS/cm	22.5µg/cm <sup>2</sup>	225mg/m <sup>2</sup>
195µS/cm	19.5µg/cm <sup>2</sup>	195mg/m <sup>2</sup>	226µS/cm	22.6µg/cm <sup>2</sup>	226mg/m <sup>2</sup>
196µS/cm	19.6µg/cm <sup>2</sup>	196mg/m <sup>2</sup>	227µS/cm	22.7µg/cm <sup>2</sup>	227mg/m <sup>2</sup>
197µS/cm	19.7µg/cm <sup>2</sup>	197mg/m <sup>2</sup>	228µS/cm	22.8µg/cm <sup>2</sup>	228mg/m <sup>2</sup>
198µS/cm	19.8µg/cm <sup>2</sup>	198mg/m <sup>2</sup>	229µS/cm	22.9µg/cm <sup>2</sup>	229mg/m <sup>2</sup>
199µS/cm	19.9µg/cm <sup>2</sup>	199mg/m <sup>2</sup>	230µS/cm	23.0µg/cm <sup>2</sup>	230mg/m <sup>2</sup>
200µS/cm	20.0µg/cm <sup>2</sup>	200mg/m <sup>2</sup>	231µS/cm	23.1µg/cm <sup>2</sup>	231mg/m <sup>2</sup>
201µS/cm	20.1µg/cm <sup>2</sup>	201mg/m <sup>2</sup>	232µS/cm	23.2µg/cm <sup>2</sup>	232mg/m <sup>2</sup>
202µS/cm	20.2µg/cm <sup>2</sup>	202mg/m <sup>2</sup>	233µS/cm	23.3µg/cm <sup>2</sup>	233mg/m <sup>2</sup>
203µS/cm	20.3µg/cm <sup>2</sup>	203mg/m <sup>2</sup>	234µS/cm	23.4µg/cm <sup>2</sup>	234mg/m <sup>2</sup>
204µS/cm	20.4µg/cm <sup>2</sup>	204mg/m <sup>2</sup>	235µS/cm	23.5µg/cm <sup>2</sup>	235mg/m <sup>2</sup>
205µS/cm	20.5µg/cm <sup>2</sup>	205mg/m <sup>2</sup>	236µS/cm	23.6µg/cm <sup>2</sup>	236mg/m <sup>2</sup>
206µS/cm	20.6µg/cm <sup>2</sup>	206mg/m <sup>2</sup>	237µS/cm	23.7µg/cm <sup>2</sup>	237mg/m <sup>2</sup>
207µS/cm	20.7µg/cm <sup>2</sup>	207mg/m <sup>2</sup>	238µS/cm	23.8µg/cm <sup>2</sup>	238mg/m <sup>2</sup>
208µS/cm	20.8µg/cm <sup>2</sup>	208mg/m <sup>2</sup>	239µS/cm	23.9µg/cm <sup>2</sup>	239mg/m <sup>2</sup>
209µS/cm	20.9µg/cm <sup>2</sup>	209mg/m <sup>2</sup>	240µS/cm	24.0µg/cm <sup>2</sup>	240mg/m <sup>2</sup>
210µS/cm	21.0µg/cm <sup>2</sup>	210mg/m <sup>2</sup>	241µS/cm	24.1µg/cm <sup>2</sup>	241mg/m <sup>2</sup>
211µS/cm	21.1µg/cm <sup>2</sup>	211mg/m <sup>2</sup>	242µS/cm	24.2µg/cm <sup>2</sup>	242mg/m <sup>2</sup>
212µS/cm	21.2µg/cm <sup>2</sup>	212mg/m <sup>2</sup>	243µS/cm	24.3µg/cm <sup>2</sup>	243mg/m <sup>2</sup>
213µS/cm	21.3µg/cm <sup>2</sup>	213mg/m <sup>2</sup>	244µS/cm	24.4µg/cm <sup>2</sup>	244mg/m <sup>2</sup>
214µS/cm	21.4µg/cm <sup>2</sup>	214mg/m <sup>2</sup>	245µS/cm	24.5µg/cm <sup>2</sup>	245mg/m <sup>2</sup>
215µS/cm	21.5µg/cm <sup>2</sup>	215mg/m <sup>2</sup>	246µS/cm	24.6µg/cm <sup>2</sup>	246mg/m <sup>2</sup>
216µS/cm	21.6µg/cm <sup>2</sup>	216mg/m <sup>2</sup>	247µS/cm	24.7µg/cm <sup>2</sup>	247mg/m <sup>2</sup>
217µS/cm	21.7µg/cm <sup>2</sup>	217mg/m <sup>2</sup>	248µS/cm	24.8µg/cm <sup>2</sup>	248mg/m <sup>2</sup>

# About Us

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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.

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# ***Paint Test Equipment***



**Cross Hatch Cutter**

## Cross Hatch Cutter

The Cross Hatch Cutter is a multi-blade cutting tool which enables an assessment to be made of the adhesion resistance of coatings to separation from substrates when a right-angled lattice pattern is cut into the coating and penetrates through to the substrate.



The coating thickness determines the Cutter size used.

The 1mm Cutter is suitable for coatings under 60 microns.

The 2mm Cutter is suitable for coatings over 60 microns.

Multiple coatings can be tested for the assessment of the resistance to separation of individual layers of the coating from each other.

The hardened tool steel cutting blades are precision-ground with 6 cutting sides, so that when one cutting side becomes blunt there are a further 5 cutting sides to use.

The Adhesion Test Tape has an adhesive strength of 9.5N per 25mm width and is transparent to ensure correct adhesion to the coating.

### Specification

Number of cutting edges: 6.

Coating Thickness: Under 60µm (2.4mils) use 1mm Cutter, over 60µm (2.4mils) use 2mm Cutter.

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

Tape Shelf Life: We would recommend that the Tape is used within a 12-month period from date of purchase.

### Compliance

ISO 2409 and ISO 16276-2.



## Supply

Supplied in an industrial foam-filled Carrying Case with Adhesion Test Tape 25mm and a x3 Illuminated Magnifier.



## Ordering

X2001	Cross Hatch Cutter 1mm (40mils) Blade. Includes Adhesion Test Tape & Magnifier
X2002	Cross Hatch Cutter 2mm (80mils) Blade. Includes Adhesion Test Tape & Magnifier
XS001	Spare Cutter Head 1mm (40mils)
XS002	Spare Cutter Head 2mm (80mils)
XA001	Spare Adhesion Test Tape 25mm (1"). 60m Roll
NXC01	Cross Hatch Cutter Conformance Certificate
NXC03	Adhesion Test Tape Conformance Certificate



## Instructions

### Evaluation

Hold the Cross Hatch Cutter so the blade is normal to the test surface. With uniform pressure draw the cutting edge across the coating at a uniform cutting rate. All cuts should penetrate to the substrate.



Repeat this operation making further parallel cuts, crossing the original cuts at 90° so that a lattice pattern is formed.

The Cutter Head will make 8 cuts in the surface: the 2 fine cuts each side are to steady the Cutter Head, and the 6 cuts in the centre create the lattice pattern that is the test area.

Brush the test area lightly several times along the diagonals of the lattice pattern with a soft brush.

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

Remove a piece of Tape about 75mm long. Holding the Tape only at the ends, press the freshly exposed Tape onto the lattice pattern in a direction parallel to one set of cuts and smooth into place over the lattice pattern and 20mm beyond. To ensure good contact with the coating, rub the Tape firmly with a finger. The colour of the coating seen through the tape is a useful indication of overall contact.

Within 5 minutes of applying the Tape, remove by pulling the free end steadily within 1 second at an angle as close as possible to 60°.

For powder coatings or coatings made up of more than one layer it is recommended that the Tape application and removal is carried out at least once in each direction of the lattice pattern.

The Adhesion Test Tape can be kept as a permanent record for the inspection carried out by attaching to a sheet of transparent film.

Carefully examine the cut area of the coating using the x3 Illuminated Magnifier.

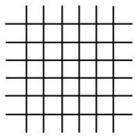
Classify the cut area according to the Classification Guide on the following page. If possible rotate the area under test so that the viewing and lighting of the test area is not confined to one direction. It can be useful to examine the Tape in a similar manner.

**Continued next page**

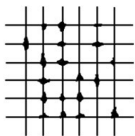


## Classification Guide

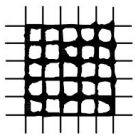
The first three steps of the Classification Guide are satisfactory for general purposes and are to be used when a general pass/fail is required.



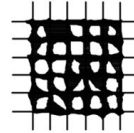
0. The edges of the cuts are completely smooth; none of the squares of the lattice is detached.



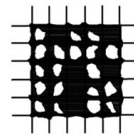
1. Detachment of small flakes of the coating at the intersections of the cuts. A cross-cut area not greater than 5% is affected.



2. The coating has flaked along the edges and at the intersections of the cuts. A cross-cut area greater than 5% but not greater than 15% is affected.



3. The coating has flaked along the edges of the cuts partly or wholly in large ribbons, and it has flaked partly or wholly on different parts of the squares. A cross-cut area greater than 15%, but not greater than 35% is affected.



4. The coating has flaked along the edges of the cuts in large ribbons and some squares have detached partly or wholly. A cross-cut area greater than 35% but not greater than 65% is affected.

5. Any greater degree of flaking that cannot even be classified by classification 4.

The first three steps of the Classification Guide are satisfactory for general purposes and are to be used when a general pass/fail is required.

The Classification Guide is given as an approximate information guide only (refer to the appropriate International Standard for the precise classification).

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# Paint Test Equipment



Dust Tape Test



## 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.



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.

The Dust Tape Test is suitable for the assessment of dust particles retained after blast-cleaning on rust grades A, B and C.

Because of the limited elasticity of the Tape, it is not possible to penetrate into the deep pits present on blast-cleaned steel rust grade D.

### Specification

Tape adhesion strength: 190nN/metre.

Tape width: 25mm (1").

Tape length: 60 metres.

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

Tape Shelf Life: We would recommend that the Tape is used within a 12-month period from date of purchase.

### 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.



## Ordering

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





## Paint Inspection Kit

The Dust Tape Test is also supplied in the Paint Inspection Kit. The Paint Inspection Kit contains all the equipment for the testing of blast-cleaned steel and coating inspection using the following equipment.



Testex Replica Tape / Replica Tape Gauge. Surface Profile measurement of blast-cleaned steel.

Bresle Test. Measurement of salts and corrosion products on blast-cleaned steel.

Dust Tape Test. Assessment of the quantity and size of dust particles on blast-cleaned steel.

Dewpoint Meter. Testing for the probability of condensation on blast-cleaned steel.

Wet Film Gauge. Wet film thickness measurement of the coating.

Coating Thickness Meter. Dry film thickness measurement of the coating.

## Ordering Information

K3001. Paint Inspection Kit

NK002. Paint Inspection Kit Calibration Certificates



## Instructions

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.

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.

**Continued next page**

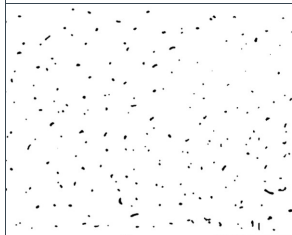
## Dust Size Classes



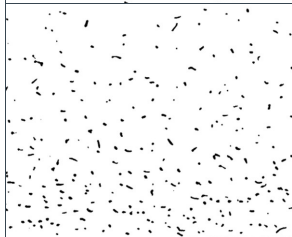
**1.** Particles not visible under X10 magnification.



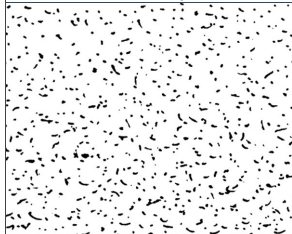
**2.** Particles visible under X10 magnification but not with normal or corrected vision (usually particles less than 50µm in diameter).



**3.** Particles just visible with normal or corrected 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.

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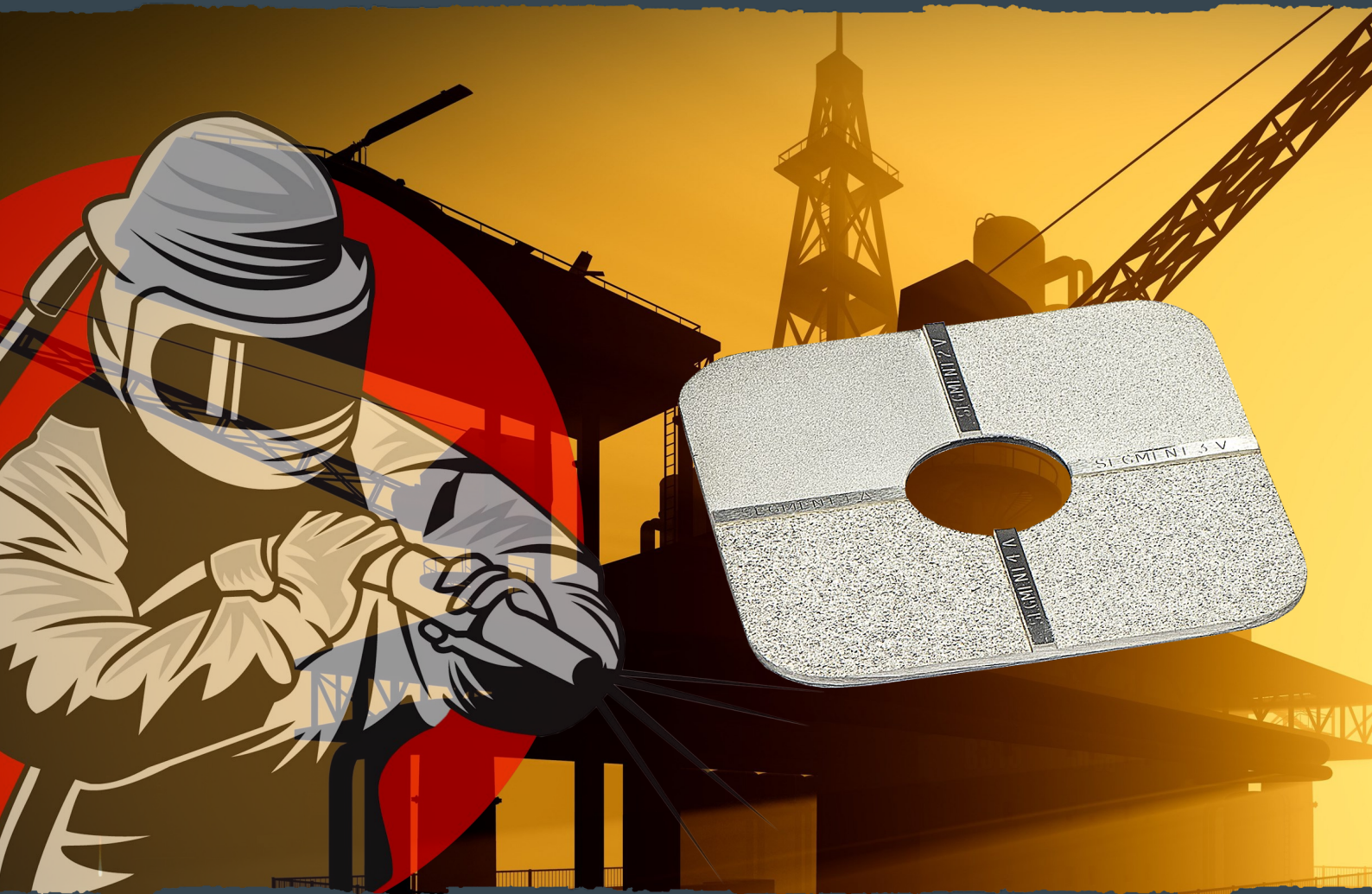
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# ***Paint Test Equipment***



**Surface Roughness Comparator**



## Roughness Comparator

A precision nickel Comparator plate for grit and shot-blast surface roughness comparison measurement.



When steel has been blast-cleaned, the surface consists of random irregularities with peaks and valleys that are not easily characterised. Because of this random nature, experts have recommended that the profile should be identified as either angular (where grit abrasives have been used) or dimpled (where shot abrasives have been used) and that they should be graded as fine, medium or coarse with each grade being defined by limits specified in ISO 8503.

The Roughness Comparator method is applicable to steel surfaces that have been blast-cleaned with either metallic or non-metallic abrasives to grades Sa 2½ and Sa 3.

When a mixture of shot and grit abrasives are used to blast-clean a substrate, the Grit Surface Roughness Comparator should be used.

### Specification

Profile Segment 1: Grit 25µm. Shot 25µm.

Profile Segment 2: Grit 60µm. Shot 40µm.

Profile Segment 3: Grit 100µm. Shot 70µm.

Profile Segment 4: Grit 150µm. Shot 100µm.

### Compliance

ISO 8503-1, ISO 8503-2 and ASTM D4417.



## Supply

The Roughness Comparator is supplied in a protective Wallet.

A X5 Illuminated Magnifier for viewing the Comparator is available as an optional extra.



## Ordering

R2006	Roughness Comparator Grit
R2007	Roughness Comparator Shot
RA001	Illuminated Magnifier X5. Includes Carrying Case
NRC01	Roughness Comparator Conformance Certificate



## Instructions

### Evaluation

Remove all loose dirt and debris from the test surface.

Select the appropriate surface profile reference Comparator. The Grit Comparator is for Comparing profiles after blast-cleaning with grit abrasives, and the Shot Comparator is for comparing profiles after blast-cleaning with shot abrasives.



Place the selected Comparator against an area of the test surface. Compare in turn the test surface with the four segments of the Comparator, using the Illuminated Magnifier if necessary. If the Illuminated Magnifier is used, place it so that the test surface is viewed simultaneously with a segment of the Comparator.

Assess the profiles on the Comparator that are nearest to the profile of the test surface and determine its grade from the following:

Fine-grade profiles equal to segment 1 and up to but excluding segment 2

Medium-grade profiles equal to segment 2 and up to but excluding segment 3.

Coarse-grade profiles equal to segment 3 and up to but excluding segment 4.

If any profile is assessed as below the lower limit for the fine grading, assess this grading as finer than fine.

If any profile is assessed as greater than the upper limit for the coarse grading, assess this grading as coarser than coarse.

### Care

Never place the Comparator face down on a rough surface. Keep the Comparator in the protective Wallet provided when not in use.

If the Comparator becomes tarnished, wash with a Dilute detergent solution and soft brush and dry with soft tissue.

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