

# OPERATION MANUAL

No. MN9220E Rev. B - Dec 2012

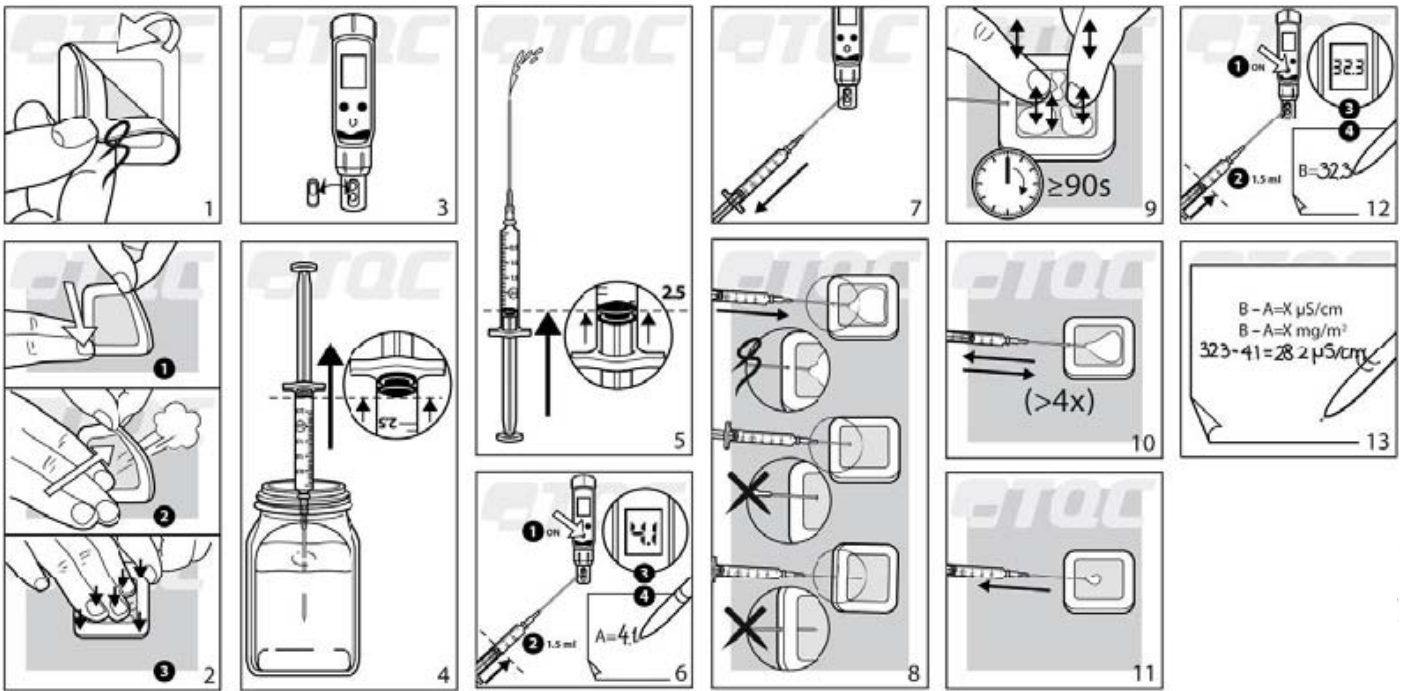
## BTK-220 Bresle Test Kit



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## 1. Determination of soluble contaminants on surface - direct sample procedure



### 1.1 Preparations

The high accuracy method is a special slightly adjusted method, based on the ISO method, but with full use of the capacities of the new conductivity meter. This increases the accuracy significantly. Just like with the old method, it's very important to keep all the material used for this test as clean as possible. NEVER touch the measuring cell, or the needle with bare hands.

- Remove the white plastic cap from the measuring cell.

This method is the safest way to perform the Bresle test. All parts that may affect the measurements are included in determining the Zero-reference.

### 1.2 Operation

- A. Select the section on the steel surface to be used as the test area for assessment of the total surface density of salts. It should preferably be dry and with no loosely adherent rust, dirt or moisture (dampness), so that the patch frame can properly adhere to the surface. The Bresle patch can be placed in almost every position, vertical, horizontal, slanting or on surfaces that are not completely flat.

It is recommended to test more than one spot to catch the variations of the contamination level!

- B. Remove the square protective backing of the Bresle patch with its inner protective paper and dispose. Place the Bresle patch with the adhesive side to the test surface and press firmly in order to create a tight seal. When placing the patch take care to trap as less air as possible in the patch.
- C. Use the syringe to draw 2,5 ml out of the large deionised water bottle. Take care that there are no air bubbles in the syringe.
- D. Inject 1,5 ml of the deionised water in the measuring cell and note the blank value. **(Write the value down as blank value)**
- E. Draw the 1,5ml from the measuring cell back into the syringe to have again 2,5ml of water in the syringe.
- F. Insert the 2,5 ml of deionised water into the Bresle patch by injecting it through the latex membrane and the foam at an angle of 30° from the surface. **(Inserting through the transparent part of the Patch or from the bottom side could cause leakage!)**



- G. Dissolve the salts by tapping the latex membrane for several minutes. In between suck water from the patch and reinject into the patch several times. This operation should go on for about 3 to 5 minutes with 2-4 pumping strokes per minute.
- H. When finished, suck up the entire volume of water into the syringe, remove the syringe from the Bresle Patch. Inject 1,5ml of this water into the measuring cell of the conductivity gauge.
- I. Measure the conductivity of the solution in the measuring cell and note down the value. This is the "Measured Value".
- J. Calculate the difference between the measured value (measured at "I") and the blank value which has been determined earlier ( $\mu\text{S}$  **Measured Value** -  $\mu\text{S}$  **blank value**).

The total surface density of soluble salts/contaminants (S) in mg/m<sup>2</sup> soluble salts measured as Sodium Chloride is

$S \text{ mg/m}^2 \text{ soluble salts measured as Sodium Chloride} = 1 \times (\text{Measured Value} - \text{blank value})$
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(all salts are considered as NaCl or Sodium Chloride)

"Sample Value" and "Zero Reference" are in microSiemens ( $\mu\text{S}$ ) per centimeter. **If an interpretation of just the Chlorides or Cl<sup>-</sup> is required the multiplier will be 0.6 instead of 1!**

- K. Dispose all the contaminated water in the supplied bottle and clean all critical parts by rinsing with clean distilled water.

**CLEAN COMPONENTS ARE OF MOST IMPORTANCE FOR A RELIABLE TESTRESULT!**

- L. Make sure the Bresle Patch is removed from the surface after the test has been performed.

## 2. Determination of the water soluble salts in mineral abrasives

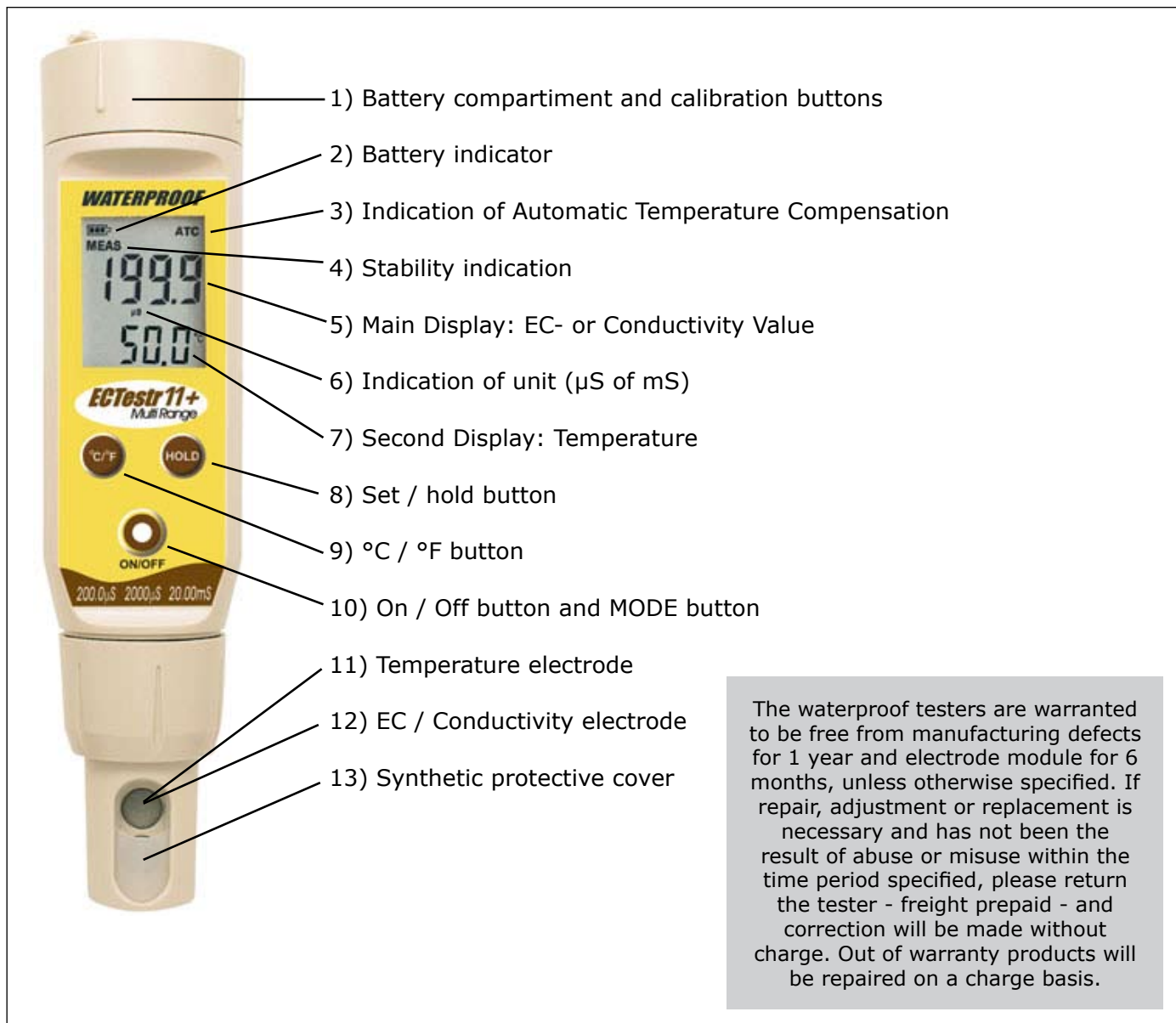
- Collect a number of samples , minimum 5, of the abrasive at random at different places.
- Mix them well and take 50 ml. from this mix into the 50 ml. Beaker.
- Pour 100 ml. distilled water into the large 250 ml. beaker which has been cleaned before with distilled water.
- Take a reading of this water with the conductivity gauge and note the value. This is the "Zero Reference"
- Add the 50 ml. of abrasives to the 100 ml. distilled water in the large beaker.
- Shake the mixture well for about 5 minutes and leave it for one hour.
- Shake again for 5 minutes.
- Decant some of the water into a clean beaker and measure the conductivity.

Contact the paint-manufacturer, abrasive supplier or project-manager for the maximum acceptable conductivity level.

## 3. The Conductivity Meter

### 3.1 How to use

- Remove the grey protective cover (13) and turn on the meter (10)
- Calibrate the instrument (See Calibrations for more info)
- The instrument is now ready to use: Submerge the probe (11 / 12) in the solution to be tested, or pour the fluid to be tested into the measuring cell. The instrument is waterproof, but it's not meant to be left in the solution for a longer period than necessary.
- The left upper corner of the display (5) shows a timer (just under the battery indicator (2)). Keep on stirring slowly until the 'timer'disappears.
- The shown value is the correct conductivity value. Push the hold button (8) once to freeze the display. To save batteries the instrument turns off automatically after about 8 minutes.



### 3.2 Calibrate and test

- Before calibration place the meter with the probe for about half an hour in rinsing solution and rinse with demineralized water
- Make sure the meter is in measuring mode. Remove the battery cover (1)
- Place the gauge into the calibration standard solution
- Push one of the two white buttons (1)
- Pour the supplied calibration liquid in the instrument. The instrument automatically recognizes the calibration standard
- Wait until the measurement is stabilized and the instrument indicates the measured value. Press Hold to confirm the calibration. The instrument now returns to the measuring mode automatically

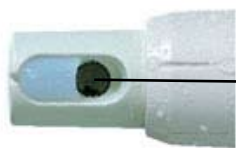
### 3.3 Maintenance

- Maintenance of the ECTestr11+ is minimal, because it's quite easy to perform a measurement. Nevertheless the technology inside the instrument is very advanced.
- Depending on the frequency of use, a thin film may occur on the probe. Use a damp cloth to remove this.
- After each use the instrument should be rinsed with tap water and demineralized liquid. Make sure the probe stays clean.
- As long as the instrument is being maintained as described above, calibration is necessary every six months.
- A blinking battery indicator (2) indicates the batteries need to be replaced. Open the battery compartment cover. Note polarity facing up and remove the old batteries by pulling plastic ribbon. Replace with fresh ones with the same polarity facing up as the old ones.

### 3.4 When something goes wrong

When the instruments doesn't perform the way you expected, usually you can solve it yourself easily. Therefore read this part thoroughly before claiming warranty.

<b>Problem</b>	<b>Possible cause</b>	<b>Sollution</b>
The value measured is unstable	Pollution?	Clean the measuring cell with a damp soft cloth*
Display fails	Insufficient battery power	Replace batteries
Calibration fails	Dirty measuring cell or old / polluted calibration standard.	Always use a 'fresh ' calibration standard. Once opened the calibration standard will not keep.
Display shows UR instead of temperature	The electrode or connection is damaged.	Turn the measuring cell loose and tight. If URL is displayed, please contact your distributor.



\*Carefully replace the synthetic protection cover en clean the measuring cell with a soft cloth. Rinse the measuring cell thoroughly with demiwater afterwards.



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