Xylem Analytics Germany GmbH

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Certificate

WTW Conductivity Standard Solution 5 µS/cm

Product number:	300580
Production lot number:	111215464
Actual value:	4.99 µS/cm at 25 °C
Standard deviation on production lot:	< 0.01 µS/cm
Accuracy until expiration:	Actual value ± 0.1 µS/cm at 25 °C
Expiration date:	2023-04-06

Standardization:
Electrolytic conductivity was determined with a certified conductivity measuring system (total system inaccuracy below ± 2%). The reference standards used are traceable to the American Society for Testing and Materials (ASTM) standard D1125-95 and the National Institute of Standards and Technology (NIST).
The actual conductivity value given above represents the average mean and the standard deviation of measurements performed on a representative number of bottles of this production lot.

Passed by
Quality Control: Nicole Kalt 2021-04-16

Made by HAMILTON for

Instructions for Instrument Calibration with Conductivity Standard Solutions

Primary use: The WTW Conductivity Standards are intended for use in electrolytic conductivity measurement as a calibration standard (determination of the conductivity cell constant) or as a control sample.

Storage condition: Closed bottle at 5 to 35 °C. Protected from direct sunlight. Keep the standards away from any kind of fumes.

Instructions for use: Be aware that conductivity standards pickup contaminates from the air/conductivity cell. Evaporation and dilution (water sticking to the cell) have a large effect on conductivity. Open the bottle for the minimum time required (the conductivity does remain within the specifications if the bottle is left open for maximum 1 hour in total).

We recommend measuring directly into the bottle (opening diameter: 30 mm, max. insertion depth: 120 mm):

1) Clean/rinse the conductivity cell thoroughly with distilled/deionized water before use. Shake the cell in order to remove any water droplets.
2) Pour approx. 50 ml of the standard into an appropriate container (e.g. graduated glass cylinder) that has been rinsed with distilled/deionized water.
3) Immerse the conductivity cell into this container, and stir the solution with the cell.
4) Remove the cell and shake the cell to remove any droplets. Put the rinse solution to waste.
5) Immerse the cell directly into the conductivity standard bottle. Immerse the cell to it's minimum immersion depth. Check for air bubbles trapped within the cell. Stir the solution with the cell and move the cell up and down in the center of the solution. Take the reading when the solution is stagnant. Check the temperature reading and wait until temperature and conductivity reading have reached an equilibrium. This may require more than 5 minutes. Cells that were stored dry may require additional time to achieve stable readings. If you use a separate thermometer, be sure that it is clean and dry.

There are two possibilities to perform a calibration:

A) Calibration at 25°C:

It is strongly recommended to calibrate at 25°C. It is the accepted international reference temperature.

1) Switch off the temperature compensation of the instrument.
2) Wait until the temperature is 25 ± 0.1°C and conductivity gives a stable reading.
3) Where appropriate adjust the cell constant to read the conductivity given in the certificate "actual value" (follow instrument instructions).
4) Turn on temperature compensation.

B) Calibration at a temperature other than 25°C:

Note: the table contains the nominal values which may differ slightly from the actual values.

1) Switch off the instrument temperature compensation. *Note:* the temperature coefficient of your unknown solution may differ significantly from the standard solution!
2) Read the temperature (wait for equilibrium).
3) Read the corresponding conductivity at that temperature from the table.
4) Where appropriate adjust the cell constant to read this conductivity (follow instrument instructions).
5) Turn on temperature compensation.

Temperature dependence:

Conductivity is strongly influenced by temperature. To obtain the certified accuracy, temperature must be kept at a constant value ± 0.1°C, preferably with a water bath.

Temperature [°C]	5	10	15	18	20	22	25	30	35	40	45	50
Value [µS/cm]	1.5	2.1	2.9	3.4	3.8	4.3	5.0	6.4	8.0	10.0	12.1	14.7