Instruction manual for the
SCHOTT® Instruments
Conductivity measuring cells

Picture of an exemplary electrode

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Putting into operation

2 pole measuring cells are delivered platinated. They are immediately ready for use. Please check the cell constant prior to the first use. The interval of the next following verification will depend on the circumstances of use. The conductivity measuring cell has to immerse by a minimum of 65 mm (ring mark) in the solution to be measured. The measurement value may be read off as soon as the signal has stabilised. In case of temperature changes, this may take up to two minutes. The detachable threaded protection cap (only PPO shaft) at the front end of the measurement cell will protect the glass tube with the platinum rings and determines the cell constant
Further information you will find in the operating instruction of the meter.

Storage and maintenance

The storage conditions for conductivity measuring cells may be within the range of a 0-50°C and 5-95% relative humidity. Any conditions leading to condensation of water at the plug ought to be avoided. Prior to any extended period of storage, the electrodes (platinum rings) of the measuring cell should be cleaned, if applicable (please refer below), and the measuring cell should be stored in its original cardboard box.

Cleaning

Thorough cleaning is particularly recommended prior to measuring low conductivities. To clean the device, please detach the sensor. Unscrew and remove the protective cap of the measuring cell.
2 pole measuring cells should only be rinsed with water, if necessary with diluted hydrochloric acid or sodium hydroxide. After mechanical treatment a platination is necessary, therefore the electrode can be sent to Si Analytics.
Contamination on the sensor can be removed with the following procedure:
Grease or **oil**, carefully clean the glass part and the ring electrodes using warm water containing a dishwashing detergent and a sponge. In the case of **serious contamination**, you may also gently remove it with an abrasive powder. In the presence of **lime**, please place the parts shortly (five minutes) in acetic acid (10 Vol%). To clean the protective cap, please use a small bottle brush or a cotton bud. When using acids, leaches and solvents for cleaning, please make sure that they are compatible with the material of the shaft!
An optimum cleaning of the inner glass part of the conductivity measuring cells is achieved with a tobacco pipe cleaner. The use of acids (exception: HF!), leaches and solvents is uncritical for these cells.

Exemplified check and setting of the cell constant

To verify the cell constant, you need test solutions , for instance the SI Analytics ampoules set LF 995. Immerse the measuring cell in a suitable test solution by a minimumof 65 mm, for instance in KCl 0.01 mol/l: Then keep the temperature constant and set the corresponding conductivity value on the conductometer, for instance 1.413 mS/cm at 25°C for KCl 0.01 mol/l. For other solutions or different temperatures, please take the appropriate values from the table. To minimise the measuring incertainly over the entire range of use, calibration should be performed both at low and high conductivities. The appropriate cell constant should be set as a function of the measurement range. Setting and reading off of the cell constant is done according to the operating instructions of the conductometer used.

Electrical conductivity mS/cm of KCl solutions as a function of temperature

Temp.(°C)	0,001	0,01	0,1	1
18	0,127	1,225	11,19	98,2
19	0,13	1,251	11,43	100,2
20	0,133	1,278	11,67	102,1
21	0,136	1,305	11,91	104
22	0,138	1,332	12,15	105,9
23	0,141	1,359	12,39	107,9
24	0,144	1,386	12,64	109,8
25	0,147	1,413	12,88	111,8

Quality

Each electrode must meet the strict quality requirements of final testing. The working life depends mainly on the usage conditions. Hydrofluoric acid, sodium hydroxide and hot phosphoric acid attac glass.

Further informations

Further informations can be found in the laboratory cataloque of SI Analytics GmbH.
Cable configurations can be ordered upon need.

Subject to technical amendment.

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