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Conductivity measuring cells

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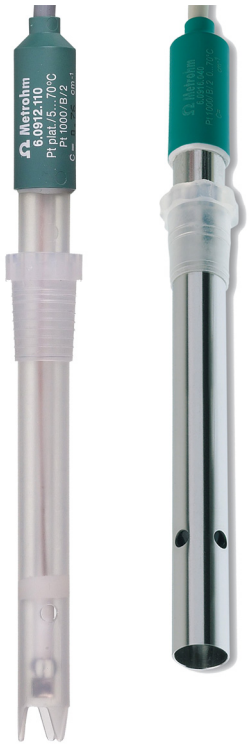

1 Conductivity measuring cells

1.1 General

Immediately after receiving the electrode, check to make sure that it works properly. Electrodes that do not work properly must be sent back for warranty processing within two months (starting from the day of delivery). If the defect is proven to be due to a material or manufacturing defect, the electrode will be replaced at no charge. The transport costs are to the customer's account.

1.2 Measuring

Ensure that no air bubbles adhere to the electrodes during the measurement. Each conductivity measurement must be carried out at constant temperature. Write down the temperature of the sample along with the measured value.

1.3 Storage

Platinized measuring cells have a black coating of finely dispersed platinum (platinum black). They should be stored in a mixture of distilled water and ethanol (70:30). Nonplatinized measuring cells and measuring cells made of stainless steel should be stored dry and conditioned in distilled water for one to two hours before use. All measuring cells should be rinsed well with distilled water before use. Conductivity measuring cells which are used frequently should be stored in fresh distilled water.

1.4 Cleaning

CAUTION

Do not use the ultrasonic bath for electrodes, as they may be damaged by such a treatment.

CAUTION

Avoid any mechanical contact with the surface, particularly in the case of platinized measuring cells. Do not touch or damage the platinum black coating.

Clean the measuring cell by rinsing with distilled water or with a 20% ethanol solution.

1.5 Calibration

The cell constant may change over time under certain circumstances (as a result of damaged or contaminated Pt surfaces or dry storage of platinized measuring cells). The cell constant should therefore be redetermined at regular intervals.

To do this, use standard solutions of defined conductivity in accordance with the required measuring range *(see Table 1)*, e.g. Metrohm 6.2301.060 conductivity standard (12.88 mS/cm at 25 °C) and 6.2324.x10 (100 µS/cm at 25 °C). Carry out this calibration at 25 °C or at the usual measuring temperature for which you know the conductivity of the standard solution being used. As the conductivity of a solution is strongly temperature-dependent, the temperature must be held constant to within ±0.1 °C.

The cell constant can be calculated as follows from the measured conductance:

$$c = \frac{\kappa}{L}$$

c: Cell constant [1/cm]
κ: Conductivity [S/cm]
L: Conductance [S]

Calibration and measurement at very low conductivities (< 20 µS/cm) should be carried out using a flow-through cell.

Table 1 Standards to be used for different measuring ranges

Measuring range [µS/cm]	Conductivity 25 °C [µS/cm]	Order number
1 - 1,000	100	6.2324.x10
> 1,000	12,880	6.2301.060

1.6 Additional information

Additional information about conductivity measurement can be found in the Metrohm monograph "Conductometry – Conductivity Measurement", which is available free of charge.