



1 Metal electrodes

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.

Pt and Au electrodes

These electrodes are suitable for redox measurements and redox titrations. Double Pt electrodes are also suitable as polarizable electrodes.

Coated Ag electrodes

The electrolytic coating with AgCl, AgBr, AgI or Ag₂S is described in the Metrohm Application Bulletin no. 25. Already coated electrodes can be obtained directly from Metrohm.

1.2 Measuring

Rinse the electrode after measuring. The electrode's surface must be kept clean and free from grease at all times (do not touch).

Combined electrodes with diaphragm

The filler opening (1) must be open during measurements. If necessary, refill reference electrolyte (2) up to the filler opening. Use the reference electrolyte indicated on the electrode.

1.3 Cleaning



CAUTION

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

Rinse the electrode with water after each measurement. If the contamination is particularly persistent, the metal ring may be cautiously cleaned with a moist paper towel and toothpaste or the polishing set (6.2802.000). Frequent abrasive cleaning is not recommended. Trichloroethylene can be used for degreasing.

Titrodes

Take care not to damage the glass membrane (4) while cleaning the metal ring (5).

Combined Pt and Au electrodes with diaphragm

To clean diaphragms (3) that are blocked with silver chloride precipitate, immerse the electrode with closed filler opening (1) in concentrated ammonia solution for approx. two hours, rinse with distilled water and immerse in KCl 3 mol/L for several hours. Subsequently, replace the KCl 3 mol/L reference electrolyte.

1.4 Storage

Titrodes

Store in distilled water.

Combined electrodes

Store in reference electrolyte with closed filler opening (1). Combined Ag electrodes must be stored in potassium nitrate.

Separate metal electrodes

Store dry and protected in the storage vessel.

iTrode models

The memory chip integrated in the electrode head (6) enables the storage of important sensor data such as article number, serial number, calibration data and calibration history.

When the electrode is not in use, screw the protective cap (7) onto the electrode head to prevent contamination (water, solvent, dust, etc.) of the electrode head as well as exposure of the contact pins.

1.5 Troubleshooting

Double Pt sheet electrode

If the potential jumps are low, the adjustment times long and the titration curves flat, use one of the following two regeneration procedures:

- Dissolve a spatula tip of sodium sulfite in 50 mL of deionized water and immerse the electrode in this solution for an hour.
or
- Electrolytic hydrogen deposition on the surface:
 - Connect the double Pt sheet electrode to be treated to the negative terminal (cathode) of a DC source providing 4.5 to 6 V (e.g. a battery). Connect another Pt (wire) electrode or an iron nail to the positive terminal (anode). Do not use copper, as this would result in copper deposits on the platinum.
 - With the potential applied, immerse both electrodes in a stirred H₂SO₄ solution (approx. 2 mol/L). Hydrogen should form on the cathode (and oxygen on the anode, accordingly). This is indicated by bubble formation.
 - After approx. five minutes, remove the electrodes from the solution while the potential is still applied and thoroughly rinse with deionized water.