

Conductivity Standards and More

It's all About Correct Handling

Depending on the type of sensor, conductivity standards are used for calibration or verification. Low conductivity standards require special handling and are mostly used for verification purposes. In this case the cell constant has been determined with a standard of higher conductivity or is stated on the sensor certificate. Conductivity standards are available in sachets to guarantee fresh solution for every calibration as well as maximum ease of use.



Low conductivity standards – the influence of air

Conductivity standards are directly affected by the influence of carbon dioxide (CO₂) when in contact with air. Thus, especially the lower conductivity standards have a limited lifespan. Measurements of samples with conductivity lower than 10 µS/cm need a special procedure, such as protection with inert gas or the usage of a flow cell. These standards are only intended for verification and not for calibration.



Temperature dependence

A slight change in temperature usually has a big impact on the conductivity value of a standard solution. A table on every bottle label indicates the conductivity values at the most common measurement temperatures. During calibration the meter automatically references to this table for temperature compensation. If possible, calibration and measurements should be performed at the same temperature.

| Conductivity standards | Order number 250 mL | Order number 6 x 250 mL | Order number 30 sachets 20 mL |
|--|------------------------|----------------------------|----------------------------------|
| 1.3 µS/cm (single-use check solution)* | 30090847 | | |
| 5 µS/cm** | 30094617 | | |
| 10 µS/cm | 51300169 | | |
| 84 µS/cm | 51302153 | | |
| 500 µS/cm | 51300170 | | |
| 1413 µS/cm | 51350092 | 51350096 | 51302049 |
| 12.88 mS/cm | 51350094 | 51350098 | 51302050 |

* Maximum storage: 1 month

**Maximum storage: 3 months



Redox Buffer Solutions and Tablets for Dissolved Oxygen Sensors



Redox buffer solutions for verification purposes

Redox buffer solutions are used for verification of all common redox sensors. They are not used for calibration purposes. Similar to other solutions they are temperature dependent. It is therefore important to know the measurement temperature of the buffer. A table on every bottle label indicates redox values at different temperatures.



Zero oxygen tablets

Zero oxygen tablets make the preparation of a solution with zero oxygen content very easy. This solution can be used for calibration, verification or conditioning purposes if measurements are performed at low dissolved oxygen levels.

| Redox buffer solutions | E (Ag/AgCl) 25 °C | Order number | Order number | Order number |
|------------------------|----------------------------------|--------------|--------------|--------------|
| | | 250 mL | 6 x 250 mL | 6 x 30 mL |
| | 220 mV, pH 7 ($U_H = 427$ mV) | 51350060 | 51350062 | |
| | 468 mV, pH 0.1 ($U_H = 675$ mV) | | | 51350064 |

| DO Accessories | Order number |
|-------------------------------|--------------|
| Zero oxygen tablets (20 pcs.) | 51300140 |

Solutions for Ion-Selective Electrodes

The Proper Mix for Accurate Results

Measuring with ion-selective electrodes (ISE) is the easiest and most affordable way to determine ion concentration. However, ISEs require careful handling and the use of the correct solutions. METTLER TOLEDO offers all solutions that are needed for successful ion measurements.

Ready to use ion calibration standards



High precision ion calibration standards can be ordered at concentrations of 1000, 100 and 10 mg/L (ppm). In case a lower concentration is needed it can easily be prepared with serial dilution that is explained in the electrode manual.

Ionic Strength Adjustors for high repeatability



In all analytical procedures using an ISE, the correct amount of ISA (Ionic Strength Adjustor) must be added to all samples and standards prior to measurement or calibration. This solution ensures that samples and standards have similar and constant ionic strength. Instructions for type and amount of ISA can be found in the manual of every ISE.

Electrolytes for any application



It is important to fill the reference electrode of every ISE with the recommended electrolyte solution. The correct electrolyte will minimize junction potentials and provide optimum temperature and time response. The electrolyte must be refilled or replaced regularly in order to achieve good electrode performance. For more information please refer to the electrode manual.



Solutions for perfectION™ combined ISE

| Reference electrolyte solutions | Order number 5 x 60 mL |
|---|---------------------------|
| Ion Electrolyte A (calcium, fluoride, sulfide) | 51344750 |
| Ion Electrolyte B (chloride, cyanide, lead, silver/sulfide) | 51344751 |
| Ion Electrolyte C (silver) | 51344752 |
| Ion Electrolyte D (copper, iodide) | 51344753 |
| Ion Electrolyte E (potassium) | 51344754 |
| Ion Electrolyte F (nitrate) | 51344755 |

| ISA solutions | Order number 475 mL | Order number 3790 mL |
|--|------------------------|-------------------------|
| ISA solid state ISE (chloride, copper, iodide, silver) | 51344760 | |
| Calcium ISA | 51344761 | |
| Potassium ISA | 51344762 | |
| Nitrate ISA | 51344763 | |
| Nitrate ISS (for suppressing interference) | 51344764 | |
| Fluoride TISAB II with CDTA | | 51344765 |
| Fluoride TISAB III with CDTA (concentrate) | 51344766 | |

Solutions for DX series ISE half-cells

| Bridge electrolyte | Order number 25 mL | Order number 250 mL | Order number 6 x 250 mL |
|--------------------------|-----------------------|------------------------|----------------------------|
| 1 mol/L KNO ₃ | 51343182 | 51350078 | 51350086 |
| 3 mol/L KCl | 51343180 | 51350072 | 51350080 |
| 1 mol/L KCl | 51343181 | | |

ISA solutions

| | | |
|---|--|----------|
| TISAB 3, for fluoride determinations | | 51350106 |
| 0.9 mol/L Al ₂ (SO ₄) ₃ | | 51350108 |

Ion calibration standards

| | Order number 500 mL | Order number 500 mL | Order number 500 mL |
|---------------------------------|------------------------|------------------------|------------------------|
| | 1000 mg/L | 100 mg/L | 10 mg/L |
| Silver ISE standard solution | 51344770 | | |
| Calcium ISE standard solution | 51344771 | 30090855 | 30090856 |
| Chloride ISE standard solution | 51344772 | 30090853 | 30090854 |
| Cyanide ISE standard solution | 51344773 | | |
| Copper ISE standard solution | 51344774 | | |
| Fluoride ISE standard solution | 51344775 | 30090851 | 30090852 |
| Iodide ISE standard solution | 51344776 | | |
| Potassium ISE standard solution | 51344777 | | |
| Sodium ISE standard solution | 51344778 | 30090857 | 30090858 |
| Ammonium ISE standard solution | 30090859 | 30090860 | |
| Nitrate ISE standard solution | 51344779 | | |
| Lead ISE standard solution | 51344780 | | |
| Sulfide ISE standard solution | 51344781 | | |