

Quality check of pH electrodes

How to check the quality of a pH-electrode

1. Optical check of the electrode

in order to answer the following questions:

What is the serial number of the electrode?

A serial number starting with the figures 1425 means that the electrode was produced 2014 in week 25.

In which condition is the electrode?

In case the electrode looks pretty much used, e.g. dirt inside/outside of the electrode or a blocked diaphragm. Please check also the glass membrane of not used looking electrodes very well, e.g. with a magnifying glass. In case users abused the electrode as a stirrer, you will find scratches on the glass membrane which results in a short circuit. In case it is an electrode with liquid electrolyte, check if there is enough electrolyte (in most cases 3 mol/l KCl) inside. In case not, refill it before measuring.

2. Calibration of the electrode

Needed accessories:

- pH-meter
- fresh pH-buffer solutions 4.01 and 6.87 in vials (never opened before)
- distilled/de-ionized water
- really clean beakers for the buffers
- soft cloth and ethanol or acetone
- electrolyte solution, in most cases 3 mol/l KCl

- ✦ Start the calibration of the electrode in the way it is described in the manual of the meter. Don't forget to rinse the electrode with distilled water and to dry it carefully with the soft cloth before putting the electrode in the first and second buffer.
- ✦ In case the slope of the electrode is within the range of 57 - 60,5 mV/pH and the zero point is within the range of ± 20 mV (new and unused electrode) or 56- 61 mV/pH and ± 25 mV (for a used electrode) everything is fine.
- ✦ In case the electrode is out of that range, take the soft cloth and moisten it



with ethanol or acetone. Clean the membrane glass with this cloth. Rinse the electrode with distilled water and store it afterwards for at least one hour in the electrolyte solution which is also inside of the electrode.

- ✦ Try the calibration once again.
- ✦ In case the electrode is still out of the range please be so kind to send us the electrode and the filled out reclamation form.

SI Analytics GmbH

Hattenbergstr. 10
55122 Mainz
Germany

Phone: +49 6131 66 5111
Fax: +49 6131 66 5001
E-Mail: si-analytics@xyleminc.com
Internet: www.si-analytics.com