The 7 Most Asked Questions About pH…

METTLER TOLEDO

1. How often should I calibrate my pH electrode?

A general rule is that the more frequently you perform a calibration the higher the accuracy of your results, so the frequency should be adjusted to match the requirements of your application. Some applications might require a calibration before every measurement, but in general it is enough to calibrate every 24 to 48 hours.


METTLER TOLEDO
METTLER TOLEDO InLab® Solutions
Technical Buffer Solution
pH 4.01
Date of production: 02.03.2016
Proposed storage until: 02.03.2018
180620
METTLER TOLEDO InLab® Routine Pro
SevenCompact
pH / Ion
9.21 pH
25.0 °C
ATC
Exit
Cal 1
Read
Cal

2. How do I know that I have a good calibration curve?

The slope of your calibration curve should be –59.1 mV/pH units at 25 °C. However, the actual response is often quoted as a percentage, and a good calibration should lie between 95% and 102% of the theoretical value in mV. Another measure of a good calibration is the offset at the zero point (0 mV at pH 7), which should remain relatively stable and should not exceed ±30 mV.


METTLER TOLEDO
pH 4.01

3. How often do I have to replace my electrode?

Electrodes that are well maintened and used in clean aqueous samples should last one to three years. However, there are other factors such as frequent usage or aggressive and hot samples that can reduce an electrode's lifetime. The clearest indication that your electrode has reached the end of its lifespan is a reduced calibration slope.

4. What should I do if my readings are unstable?

The most common causes of unstable readings are simple factors such as clogged junctions, low electrolyte level, air bubbles inside the electrode or dirty connectors. Clean the electrode with the respective solution and refill the reference electrolyte. If your readings are still unstable go to the troubleshoooting guide (www.electrodes.net) for a more thorough approach.


pH / Ion
21.0°C
ATC
7,890
pH
2.00,4.01,7.00,9.21,11.00
M1110
Menu
Mode
InLab ProISM
Data
Cal
Read

5. How do I store my pH electrode?

Always: A pH electrode can always be stored in its filling reference solution, both short term and long term. This solution is specific for each electrode, so refer to the electrode leaflet to make sure that you are using the correct solution.

Sometimes: pH 4 or pH 7 buffer can be used for short term storage such as in between measurements to keep the membrane hydrated.

Never: Never store an electrode in deionized water as this will deplete the ion rich reference electrolyte from the reference chamber, increasing the electrical resistance. Also never store the electrode dry as this will damage the membrane.

6. Which reference electrolyte do I need?

Depending on your electrode and application, select the correct reference electrolyte:

- 3mol/L KCl for ARGENTHAL™ reference systems.
- FRISCOLYT-B® as a long term storage solution and for use in cold or proteinaceous samples. The glycerin content in the electrolyte prevents freezing of the electrolyte and any precipitation with silver ions.
- 1 mol/L KNO_3 for applications where chloride in the electrolyte causes a precipitate in the sample.
- 1 mol/L LiCl in Ethanol for non-aqueous applications.
- 3 mol/L KCl saturated with AgCl for pH electrodes with a conventional Ag/AgCl reference system. This electrolyte should not be used with sulfide-containing media.


0.5
Order No.

7. How do I clean my pH electrode?

Between every measurement and calibration the electrode should be cleaned with deionized water. The electrode needs a special cleaning if the junction is blocked with:

- Silver sulfide: use junction cleaner containing thiourea.
- Silver chloride: soak the electrode in concentrated ammonia solution.
- Proteins: use electrode cleaner containing pepsin and HCl.
- Other blockages: clean electrode in ultrasonic bath or in 0.1 mol/L HCl solution.

Find further information in the operating manuals or the troubleshooting guide (www.electrodes.net).

www.mt.com/pH

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