

Easy Ways to Keep Your pH Electrode Clean And Working Properly

pH electrodes often come into contact with samples that contaminate the diaphragm, the pH-sensitive membrane glass, or both at the same time. If one or more of the following indicators appear, the electrode should be cleaned.

- Zero point shift (offset > ±20 mV)
- Reduced slope (slope < 95%)
- Long response time, unstable readings

The best method to clean a pH electrode depends on its level of contamination. Always try first to clean the electrode with mild detergent. If this fails, the cleaning methods described below are typically effective. The cleaning interval strongly depends on the sample type measured and use.

For refillable electrodes, please note that the refill hole plug should be open when the electrode is soaked in the cleaning agent.

| Type of contamination | Cleaning agent | Time | Remarks |
|------------------------|---|--|--|
| Inorganic | Standard glass cleaning solutions | 5 minutes | Soak the electrode in the cleaning agent |
| Hydrophobic (fat, oil) | Organic solvents such as ethanol or acetone | Rinse the electrode with the organic solvent | Consider the chemical resistance of plastic shafts when choosing a cleaning agent |
| Calcium deposits | 0.1 M hydrochloric or acetic acid | 5 to 30 minutes | Calcium deposits are recognizable as white layer |
| Proteins | Pepsin-HCl solution, order no. 51350100 (250 mL) or 30045061 (6 x 250 mL) | > 1 hour | Soak the electrode in the cleaning agent |
| Sulfide | Thiourea solution, order no. 51350102 (250 mL) or 30045062 (6 x 250 mL) | 5 to 60 minutes | - For electrodes with ceramic junctions only - Soak the electrode in the cleaning solution until the blackish discoloration completely disappears |
| Other | 1. Recommendation Hot electrolyte (50–60 °C) | 5 minutes | - For electrodes with ceramic junctions only - Soak the electrode in the cleaning agent |
| | 2. Recommendation HCl 0.1 M | Approx. 12 hours | - Soak the electrode in the cleaning agent |

Regenerating the membrane can compensate changes in the gel layer

Even electrodes that have been well maintained and properly stored may start performing poorly after some time. In such cases it may be possible to regenerate the pH-sensitive glass membrane and restore the electrode to its previous level of performance using a regeneration solution (order no. 51350104).

- Use a small acid-resistant vessel to keep the volume of solution to a minimum.
- Immerse in the solution for 1 to 5 minutes.
- Rinse the electrode thoroughly with water and condition it for an hour in pH 7 buffer solution.
- Place the electrode in a reference electrolyte specific to the sensor type overnight and recalibrate before the next use.



Remark: After cleaning, the electrode should be stored for 12 to 24 hours in its respective reference electrolyte or storage solution and must be recalibrated.

