

pH Measurement and Troubleshooting Tips

General Information

- Most meters come with a shorting plug or clip that fits to the pH electrode input on the meter. With the plug in place and the meter reading in the mV mode, the potential should read ± 0 mV. A different potential may indicate a meter problem.
- Ensure there are no visible electrode defects, and that the electrodes are plugged into proper terminals and seated firmly.
- Ensure the calibration of the meter is being performed properly.
- Check that the electrode has been filled with the correct fill solution.
- Check that the wetting cap and fill solution aperture covering have been removed, and rinse electrodes before measuring different buffers or samples.

Electrode

With the meter set to read mV, place the electrode in pH 7.0 buffer. The reading should be 0 mV \pm 30 mV. Next, read a pH 4.0 buffer- the solution should be greater than 160mV (absolute value) different than the pH 7.0 potential, and reach end-point in a short amount of time, normally within 30 seconds. If not (for refillable electrodes)....

- ✓ Is the filling solution above the internal elements?
- ✓ Is the electrolyte fill port open?

Try these tips:

1. Empty, rinse, and refill the electrode reference chamber.
2. Soak the electrode in hot (50C - 60C) reference electrolyte, storage solution, or hand-soap for a few minutes. Check electrode.
3. Soak electrode junction overnight in pH 4.0 buffer.
4. Rinse with distilled water (do not store in water). Pat dry with soft wipe. Check electrode.
5. Suspend electrode (for refillable electrodes) in air for approximately 30 min. (KCL should creep out and crystallize on refillable electrode). Repeat from step two if needed and check electrode again.
6. For removal of fats and oils, use a 50/50 solution of acetone and distilled water. Swirl electrode in solution for up to 30 seconds. Rinse completely with distilled water and check electrode. A second application may be needed.

(continued)



7. For removal of proteins, submerge pH membrane and electrode junction in electrode cleaner for proteins following instructions included with the cleaner.
8. For heavier coatings, submerge and gently swirl electrode in a small amount of Electrode Cleaner following instructions included with the cleaner. Rinse completely with distilled water and check electrode. A second application may be needed.
9. Always 'pat' electrodes dry using soft wipes. Avoid wiping electrodes or the use of hard wipes.
10. If these procedures fail, the electrode should be replaced.

Buffers

- Check for aged or contaminated buffers and substitute with fresh.
- Never use buffers more than once. Dispose and substitute with fresh.
- Do not leave buffers exposed to open air.
- Keep buffers refrigerated when not in use.

pH Electrode Storage

Always

A pH electrode may always be stored in its filling reference solution for either short or long-term storage. This solution is specific for each electrode. Electrodes may also be stored in electrode storage solution. Insure that the electrode remains hydrated after initial use. Store electrodes in an upright position when not in use.

Sometimes

pH 4.0, pH 5.0, or pH 7.0 buffer solution may be used for short-term storage only. This will help keep the glass membrane hydrated.

Never

Never store a pH electrode in water as the water will deplete the ion-rich reference electrolyte from the reference chamber and increase electrical resistance.

If you require further assistance with pH measurement, please contact our technical support staff, 800-826-8302.



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