FAQ pH MEASUREMENT

How do I calibrate my pH electrode?

pH Electrode Calibration Procedure

All pH electrodes require calibration from time to time. A two point calibration characterizes an electrode with a specific pH meter. Once an electrode is characterized, the electrode/meter pair can be used to determine the pH of a solution. Please follow the step-by-step procedure outlined below to perform a two point calibration. A 7.00 pH buffer solution and a 4.01 pH buffer solution are required.

1. Rinse the electrode thoroughly with DI water to remove all traces of storage solution, process medium, or previous test solution. Thoroughly rinse the electrode after each buffer test to prevent carry over contamination of the pH buffer solutions. Gently blot the electrode on a soft tissue to remove the excess rinse water. Do not rub the bulb since it can cause a static charge build-up.

2. Insert the electrode and the automatic temperature compensator (ATC) in 7.00 pH buffer solution. Allow 30 seconds for the electrode/ATC to reach thermal equilibrium with the buffer solution. Adjust the pH meter with the standardize/zero control for a pH indication equal to 7.00.Note: If the meter does not have an ATC, place a thermometer along with the electrode in the 7.00 pH buffer solution. Allow 30 seconds for the pair to reach thermal equilibrium with the buffer. Adjust the temperature dial on the meter to correspond with the thermometer reading. Then adjust the pH meter with the standardize/zero control for a pH indication equal to 7.00.

3. Repeat Step 1, and insert the electrode and the ATC in a 4.01 buffer solution. Allow 30 seconds before adjusting the pH meter with the slope/span control for a pH indication equal to 4.01.

4. Repeat Steps 2 and 3 to maximize the precision of the calibration.

Notes:

- *Always use fresh pH buffer solutions for the most accurate results.*
- *A 10.00 pH buffer solution may be substituted for the 4.01 pH buffer solution in Step 3. All pH buffer solutions above 7.00 pH are less stable and have a limited life. These high pH buffers will more readily absorb CO2 from the atmosphere and will typically change to a lower pH value when left open. For this reason, a 4.01 buffer solution is recommended to perform a reliable two point calibration. Also, the buffers should bracket the desired pH range.*
- *When a pH electrode is calibrated with an autocalibration meter, consult the meter's operation manual for the required calibration procedure.*

TMP-BF-102101

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