

Calibration Buffers, pH 4.01, 7.00, 10.00 - Technical Memo

SOLUTIONS:

	500 ml	1 Gallon
Calibration Buffer, pH 4.01	Part 1026A	Part 1026C
Calibration Buffer, pH 7.00	Part 1027A	Part 1027C
Calibration Buffer, pH 10.00	Part 1028A	Part 1028C

For storage requirements and expiration date refer to individual bottle labels.

APPLICATION:

Newcomer Supply Calibration Buffers, pH 4.01, 7.00 and 10.00 are ready-to-use buffer solutions for pH meter/electrode calibration. Accurate pH values of solutions cannot be determined unless a pH meter/electrode has been calibrated against referenced standardized buffers. Newcomer Supply standardized calibration buffers resist changes in pH and are color coded for ease of use.

- Calibration Buffer, pH 4.01; color coded red solution for pH measurement of acidic samples.
- Calibration Buffer, pH 7.00; color coded yellow solution for pH measurement of neutral samples.
- Calibration Buffer, pH 10.00; color coded blue solution for pH measurement of basic samples.

METHOD:

Solutions: All solutions are manufactured by Newcomer Supply, Inc.

Storage: Store all calibration buffers out of direct sunlight.

PROCEDURE:

1. Refer to pH meter/electrode manufacturer's procedure manual(s) for detailed operational and maintenance instructions.
2. For consistently accurate and repeatable readings, always ensure that the pH electrode is stored correctly (either dry or in specified solution), the appropriate electrode fill solution is used and recommended solution levels are maintained.
3. Ensure calibration buffers and test sample(s) are at the same temperature. If not, allow time for solution temperatures to equalize.
4. Select pH buffers that frame the projected pH of the sample(s) to be measured.
 - a. Use pH 7.00 buffer plus at least one other pH value close to the expected measurement range.
5. Pour a sufficient amount of fresh calibration buffer solutions into individual clean beakers.
 - a. Once decanted, do not pour calibration buffers back into original containers.
 - b. Do not perform calibration readings directly from the original calibration buffer container.
 - c. Promptly close calibration buffer containers after use to avoid carbon dioxide absorption.
6. Rinse/clean electrode with distilled water before use, decanting water into a separate waste container.
 - a. Repeat electrode rinsing between each calibration and sample measurement.
7. Gently blot electrode with lint-free wipes to remove excess moisture.
 - a. Repeat gentle blotting of electrode with lint-free wipes between each calibration and sample measurement.
 - b. See Procedure Note #1.
8. Place electrode into initial calibration buffer solution and follow manufacturer's instructions for measuring and reading pH level.

9. Repeat with second and third calibration buffer measurements and readings if necessary.
10. Verify and document calibration of pH standards according to laboratory protocol.
11. Proceed with pH reading of samples once calibration has been successfully completed.
12. Verify and document pH reading of samples according to laboratory protocol.
13. Rinse and store electrode in recommended storage solution after completion of sample pH readings.
14. Discard calibration buffers after use.

PROCEDURE NOTES:

1. Only lint-free wipes such as Kimwipes® should be used to blot electrode. The use of cloth or paper towels to blot/wipe electrode may produce a static charge that could interfere or alter the electrode voltage reading; resulting in incorrect pH values.

REFERENCES:

1. Carson, Freida L., and Christa Hladik Cappellano. *Histotechnology: A Self-instructional Text*. 4th ed. Chicago: ASCP Press, 2015. 78-79.
2. "How to Perform a pH Meter Calibration". Accessed March 30, 2018. <https://www.all-about-ph.com/ph-meter-calibration.html>
3. Modifications developed by Newcomer Supply Laboratory.