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## Apera Instruments AI1107

# Apera Instruments pH 4.00 Calibration Buffer Solution User Manual

## PRODUCT OVERVIEW

The Apera Instruments pH 4.00 Calibration Buffer Solution is a high-quality standard designed for accurate pH meter calibration. This 16 oz. bottle contains a solution traceable to NIST Standard Reference Materials (SRMs), ensuring reliability and precision in your measurements.

Key features include:

- **Accuracy:** Reported values are accurate to +/- 0.01 pH at 25 °C.
- **Quality Manufacturing:** Produced in an ISO 9001:2015 certified facility using high-purity reagents, deionized water, and certified analytical balances in a temperature-controlled environment.
- **Identification:** Color-coded for quick and easy identification.
- **Shelf Life:** Double-sealed with a 2-year expiration from manufacture for an unopened bottle.

## SETUP AND PREPARATION

Before using the pH 4.00 calibration buffer solution, ensure your workspace is clean and free from contaminants. Follow these steps for optimal preparation:

1. **Inspect the Bottle:** Verify the bottle is sealed and undamaged upon receipt. The solution is double-sealed for protection.
2. **Check Expiration Date:** Locate the expiration date on the bottle label. Do not use the solution past its expiration date.
3. **Temperature Acclimation:** Allow the buffer solution to reach the ambient temperature of your calibration environment before use. This is crucial for accurate calibration, as pH values are temperature-dependent.
4. **Gentle Mixing:** Gently invert the bottle a few times to ensure homogeneity before opening. Avoid vigorous shaking, which can introduce air bubbles.





Image 1: Front view of the Apera Instruments pH 4.00 Calibration Buffer Solution bottle, showing the label with product name, pH value, and volume.

## OPERATING INSTRUCTIONS (CALIBRATION PROCEDURE)

This pH 4.00 buffer solution is used to calibrate pH meters. Always refer to your specific pH meter's instruction manual for detailed calibration steps. General steps for using this buffer are:

- 1. Rinse Electrode:** Before immersing the electrode in the buffer solution, rinse it thoroughly with distilled or deionized water.
- 2. Immerse Electrode:** Submerge the pH electrode into a sufficient amount of pH 4.00 buffer solution. Ensure the electrode's sensing bulb and reference junction are fully immersed.
- 3. Stabilize Reading:** Allow the pH meter reading to stabilize. This may take a few moments.
- 4. Perform Calibration:** Initiate the calibration process on your pH meter according to its specific instructions for a 2-point or 3-point calibration, typically starting with pH 7.00, then pH 4.00, and optionally pH 10.00.
- 5. Rinse After Use:** After calibration with pH 4.00, rinse the electrode again with distilled or deionized water before proceeding to another buffer or sample.





*Image 2: Back view of the Apera Instruments pH 4.00 Calibration Buffer Solution bottle, displaying a pH/Temperature Reference Chart. This chart shows the precise pH value of the solution at various temperatures, which is critical for accurate calibration.*

## MAINTENANCE AND STORAGE

Proper maintenance and storage are essential to preserve the accuracy and shelf life of your pH 4.00 buffer solution:

- **Storage Temperature:** Store the bottle at room temperature, away from direct sunlight and extreme temperature fluctuations.
- **Keep Tightly Closed:** Always recap the bottle tightly immediately after use to prevent evaporation and contamination.
- **Avoid Contamination:** Never return used buffer solution to the original bottle. Pour out only the amount needed for calibration into a separate, clean beaker. Dispose of any unused portion from the beaker.
- **Shelf Life:** The solution has a 2-year expiration from the date of manufacture when unopened. Once opened, its shelf life may be reduced depending on storage conditions and contamination.



*Image 3: Top view of the Apera Instruments pH 4.00 Calibration Buffer Solution bottle, highlighting the double-sealed cap for product integrity and protection.*

## TROUBLESHOOTING

If you encounter issues with your pH meter calibration using this buffer solution, consider the following:

- **Incorrect pH Reading:** Ensure the buffer solution is at the same temperature as your pH meter's temperature compensation setting or the sample. Refer to the pH/Temperature Reference Chart on the bottle for accurate values at different temperatures.
- **Expired Solution:** Check the expiration date. Expired buffer solutions can lead to inaccurate calibrations.
- **Contamination:** Verify that the buffer solution has not been contaminated by returning used solution to the bottle or by using unclean beakers/electrodes.
- **Electrode Issues:** If problems persist, the issue might be with the pH electrode itself (e.g., dirty, dry, or aged). Refer to your pH meter's manual for electrode maintenance and troubleshooting.

## SPECIFICATIONS

Attribute	Detail
Product Name	pH 4.00 Calibration Buffer Solution

<b>Brand</b>	Apera Instruments
<b>Model Number</b>	AI1107
<b>Volume</b>	16 oz. (approximately 473 mL)
<b>pH Value at 25°C</b>	4.00 +/- 0.01
<b>Traceability</b>	NIST Standard Reference Materials (SRMs)
<b>Manufacturing Standard</b>	ISO 9001:2015 certified facility with ISO 17025:2017 accreditation
<b>Form</b>	Liquid
<b>Package Dimensions</b>	7.87 x 2.44 x 2.4 inches
<b>Item Weight</b>	1.17 Pounds
<b>UPC</b>	810214030201

## SUPPORT AND RESOURCES

For additional support, documentation, or inquiries, please refer to the following resources:

- **MSDS Documents:** Material Safety Data Sheets (MSDS) are available for download to provide detailed information on the product's properties and safety precautions.
  - **Certificate of Analysis:** A Certificate of Analysis can be obtained upon request, verifying the quality and specifications of your specific batch.
  - **Manufacturer Website:** Visit the official Apera Instruments website for comprehensive product information, FAQs, and contact details. [www.apera.com](http://www.apera.com)
  - **Amazon Store:** Explore other Apera Instruments products and resources on their Amazon store page. [Apera Instruments Amazon Store](#)

*Note: This product is from a small business brand. Your support is appreciated.*

## Related Documents - AI1107

## APERA Instruments pH 4.00 Buffer Solution Safety Data Sheet

Safety Data Sheet (SDS) for APERA Instruments pH 4.00 Buffer Solution, providing essential information on identification, hazards, first aid, handling, storage, and regulatory compliance.

 <p>APERA High Precision since 1991 PH60Z-HT Smart pH Meter for High Temp. Solutions and Caustic Solutions User Manual ISO9001:2015 CE APERA INSTRUMENTS (Europe) GmbH www.aperainst.de</p>	<p><a href="#"><u>PH60Z-HT Smart pH Meter User Manual - Apera Instruments</u></a> User manual for the Apera Instruments PH60Z-HT Smart pH Meter, detailing its features, operation, calibration, maintenance, and troubleshooting for high temperature and caustic solutions.</p>
 <p>APERA EC20 Pocket Conductivity Tester Instruction Manual ISO9001:2015 CE APERA INSTRUMENTS (Europe) GmbH www.aperainst.de</p>	<p><a href="#"><u>Apera EC20 Pocket Conductivity Tester: Instruction Manual &amp; Guide</u></a> Comprehensive instruction manual for the Apera EC20 Pocket Conductivity Tester. Learn about setup, calibration, conductivity measurement, technical specifications, and warranty information.</p>
 <p>APERA SX811-SS Portable pH Meter for Food Testing Instruction Manual ISO9001:2015 CE APERA INSTRUMENTS (Europe) GmbH www.aperainst.de</p>	<p><a href="#"><u>Apera SX811-SS Portable pH Meter for Food Testing: Instruction Manual &amp; Specifications</u></a> Comprehensive instruction manual and technical specifications for the Apera SX811-SS portable pH meter, designed for accurate food testing. Learn about features, calibration, setup, USB communication, and troubleshooting.</p>
 <p>APERA PH1 Value pH Tester Kit User Manual ISO9001:2015 CE APERA INSTRUMENTS (Europe) GmbH www.aperainst.de</p>	<p><a href="#"><u>Apera Instruments PH1 Value pH Tester Kit User Manual</u></a> User manual for the Apera Instruments PH1 Value pH Tester Kit. Provides detailed instructions on setup, calibration, measurement, parameter settings, technical specifications, probe care, troubleshooting, battery replacement, and warranty information.</p>
 <p>APERA PH60Z-PW Smart pH-Meter für reines Wasser Bedienungsanleitung ISO9001:2015 CE APERA INSTRUMENTS (Europe) GmbH www.aperainst.de</p>	<p><a href="#"><u>PH60Z-PW Smart pH-Meter Bedienungsanleitung für reines Wasser</u></a> Umfassende Bedienungsanleitung für das Apera Instruments PH60Z-PW Smart pH-Meter. Erfahren Sie mehr über Kalibrierung, Messung, Wartung und technische Daten für präzise pH-Messungen in reinem Wasser.</p>