

# pH Technical Calibration Solutions



## Technical Solutions ( $\pm 0.01$ pH) for Each Point of the pH Scale

To obtain precise and valid pH measurements, the pH meter and electrode must be calibrated at a minimum of two different points, close to the value of the sample to be tested. For this type of calibration, Hanna offers technical solutions for each point of the pH scale.

This complete scale of buffer solutions offers a higher degree of accuracy for pH measurements in specific areas of application, as in monitoring the pH of must and wine. This line includes twenty solutions starting from a value of pH 1.00 up to pH 13.00 with an accuracy of  $\pm 0.01$  pH, thus covering every point of the pH scale.

These solutions are dedicated to applications that require extremely accurate pH monitoring, and come with a certificate of analysis prepared by comparison against NIST standards.

Also available are solution bottles that are colored according to a given standard calibration value: HI5004-R (Red), HI5007-G (Green) and HI5010-V (Violet).

## Easy to Use Single Dose Sachets

For the highest level of reliability of field instrumentation, technical solutions are available in convenient single dose sachets in 10 or 25 pack quantities.

## Hanna Combination Kits in Bottles

Use our combination kits for easy ordering and reordering.

Code	Solutions (pH Value @25°C)	Bottle
HI54710	pH 4.01, pH 7.01, pH 10.01	500 mL (3)
HI54710-10	pH 4.01, pH 7.01, pH 10.01, HI70300L	500 mL (4)
HI54710-11	pH 4.01, pH 7.01, pH 10.01, HI70300L, HI7061L	500 mL (5)

## Bottles

pH Value @25°C	Code	Package
1.00	HI5001	500 mL
1.68	HI5016	500 mL
2.00	HI5002	500 mL
2.00	HI5002-01	1 L
3.00	HI5003	500 mL
4.01	HI5004	500 mL
4.01	HI5004-01	1 L
4.01	HI5004-R	500 mL (color coded bottle)
4.01	HI5004-R08	1 G (3.78 L) (2) (color coded bottle)
5.00	HI5005	500 mL
5.00	HI5005-01	1 L
6.00	HI5006	500 mL
6.86	HI5068	500 mL
7.01	HI5007	500 mL
7.01	HI5007-01	1 L
7.01	HI5007-G	500 mL (color coded bottle)
7.01	HI5007-G08	1 G (3.78 L) (2) (color coded bottle)
7.41	HI5074	500 mL
8.00	HI5008	500 mL
8.00	HI5008-01	1 L
9.00	HI5009	500 mL
9.18	HI5091	500 mL
10.01	HI5010	500 mL
10.01	HI5010-01	1 L
10.01	HI5010-V	500 mL (color coded bottle)
10.01	HI5010-V08	1 G (3.78 L) (2) (color coded bottle)
11.00	HI5011	500 mL
12.00	HI5012	500 mL
12.45	HI5124	500 mL
13.00	HI5013	500 mL

## Sachets

pH Value @25°C	Code	Package
1.00	HI50001-02	20 mL (25)
1.68	HI50016-01	20 mL (10)
1.68	HI50016-02	20 mL (25)
2.00	HI50002-02	20 mL (25)
3.00	HI50003-02	20 mL (25)
4.01	HI50004-01	20 mL (10)
4.01	HI50004-02	20 mL (25)
5.00	HI50005-02	20 mL (25)
6.86	HI50068-02	20 mL (25)
7.01	HI50007-01	20 mL (10)
7.01	HI50007-02	20 mL (25)
9.00	HI50009-02	20 mL (25)
9.18	HI50091-02	20 mL (25)
10.01	HI50010-01	20 mL (10)
10.01	HI50010-02	20 mL (25)
11.00	HI50011-02	20 mL (25)
12.00	HI50012-01	20 mL (10)
12.00	HI50012-02	20 mL (25)
12.45	HI50124-02	20 mL (25)
13.00	HI50013-02	20 mL (25)

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## Bottles

pH Value @25°C	Code	Package
1.000	HI6001	500 mL
1.679	HI6016	500 mL
2.000	HI6002	500 mL
3.000	HI6003	500 mL
4.010	HI6004	500 mL
4.010	HI6004-01	1L
6.000	HI6006	500 mL
6.862	HI6068	500 mL
7.010	HI6007	500 mL
7.010	HI6007-01	1L
7.413	HI6074	500 mL
8.000	HI6008	500 mL
9.000	HI6009	500 mL
9.177	HI6091	500 mL
10.010	HI6010	500 mL
10.010	HI6010-01	1L
12.000	HI6012	500 mL
12.450	HI6124	500 mL
13.000	HI6013	500 mL

## Sachets

pH Value @25°C	Code	Package
1.000	HI60001-02	20 mL (25)
1.679	HI60016-02	20 mL (25)
2.000	HI60002-02	20 mL (25)
4.010	HI60004-02	20 mL (25)
7.010	HI60007-02	20 mL (25)
10.010	HI60010-02	20 mL (25)

## HI6000 Series

## ±0.002 pH Millesimal Calibration Solutions

## Millesimal Calibration Solutions

The HI60XX line of buffers with millesimal accuracy ( $\pm 0.002$  pH) has been prepared to meet the increasing need for assured accuracy in pH measurements. Each bottle of the series HI60XX is provided with a certificate of analysis, prepared by comparison with NIST standards.

## Easy Range Identification

The colors on the HI60XX series packaging correspond to a given standard pH value. They make it easy and safe to identify the buffers to be used.

## Millesimal Calibration Solution Sachets

This series is also available in handy sachets to perform accurate calibrations on-site or in the field. Single dose sachet solutions are safe, easy to carry and always fresh.



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# pH Standard Calibration Solutions

## 1.68 pH Buffer Solution

Plating bath samples, food samples and waste samples are often acidic in nature. To increase accuracy of your measurement at lower pH values, it is important to calibrate your electrode and meter at the appropriate pH also. Hanna pH 1.68 buffer is available to fulfill this requirement. pH 1.68 buffer solution allows you to calibrate your measurement system in the acidic pH range and bracket your samples by using a second value at 4.01 pH or near 7.01 pH.

Our millesimal series offers  $\pm 0.002$  certified accuracy and our HI5016 technical grade solution offers  $\pm 0.01$  pH certified accuracy. Standard NIST traceable (no certification included) 1.68 pH buffer with  $\pm 0.01$  pH accuracy is available in two sizes.

## 4.01 pH Buffer Solution

Hanna buffer solutions are prepared according to precise formulas and are standardized with a pH electrode and meter calibrated with NIST standards. This buffer value is widely used in water purification plants, in the food industry and wherever the pH is expected to be slightly acidic.

All pH 4.01 solutions show batch number, expiration date and the correlation table between pH and temperature.

## 6.86 pH Buffer Solution

Many of our portable and benchtop instruments may now be calibrated with both pH 6.86 or pH 7.01 buffers.

The Hanna range of pH 6.86 buffer solutions has been expanded and stability has been improved to match the stability of pH 7.01.

## 1.68 pH @ 25°C - Bottles

Code	Size	Certificate of Analysis
HI7001L	500 mL	on request
HI7001M	230 mL	on request

## 4.01 pH @ 25°C - Bottles

Code	Size	FDA Bottle	Certificate of Analysis
HI7004/1G	1 G (3.78 L) (color coded bottle)		on request
HI7004/1L	1 L (color coded bottle)		on request
HI7004L	500 mL		on request
HI7004L/C	500 mL		•
HI7004M	230 mL		on request
HI8004L	500 mL	•	•
HI8004L/C	500 mL	•	•

## 4.01 pH @ 25°C - Sachets

Code	Size	Package	Certificate of Analysis
HI70004C	20 mL	25 pcs.	•
HI70004P	20 mL	25 pcs.	
HI7004P/5	20 mL	500 pcs.	

## 4.01 and 7.01 pH @ 25°C - Sachets

Code	Size	Package	Certificate of Analysis
HI77400C	20 mL	10 pcs., 5 ea	•
HI77400P	20 mL	10 pcs., 5 ea	

## 6.86 pH @ 25°C - Bottles

Code	Size	FDA Bottle	Certificate of Analysis
HI7006/1G	1 G (3.78 L)		on request
HI7006/1L	1 L		on request
HI7006L	500 mL		on request
HI7006L/C	500 mL		•
HI7006M	230 mL		on request
HI8006L	500 mL	•	•
HI8006L/C	500 mL	•	•

## 6.86 pH @ 25°C - Sachets

Code	Size	Package	Certificate of Analysis
HI70006C	20 mL	25 pcs.	•
HI70006P	20 mL	25 pcs.	



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## 7.01 pH @ 25°C - Bottles

Code	Size	FDA Bottle	Certificate of Analysis
HI7007/1G	1 G (3.78 L) (color coded bottle)		on request
HI7007/1L	1 L (color coded bottle)		on request
HI7007L	500 mL		on request
HI7007L/C	500 mL	•	•
HI7007M	230 mL		on request
HI8007L	500 mL	•	•
HI8007L/C	500 mL	•	•

## 7.01 pH @ 25°C, and Combination Packs - Sachets

Code	Value	Size	Package	Certificate of Analysis
HI70007C	7.01 pH	20 mL	25 pcs.	•
HI70007P	7.01 pH	20 mL	25 pcs.	
HI77700P	7.01 pH	20 mL	10 pcs.	
HI770710C	10.01 & 7.01 pH	20 mL	10 pcs., 5 ea	•
HI770710P	10.01 & 7.01 pH	20 mL	10 pcs., 5 ea	
HI77100C	1413 µS/cm & 7.01 pH	20 mL	20 pcs., 10 ea	•
HI77100P	1413 µS/cm & 7.01 pH	20 mL	20 pcs., 10 ea	
HI77200P	1500 mg/L (ppm) & 7.01 pH	20 mL	20 pcs., 10 ea	
HI77300C	1382 mg/L (ppm) & 7.01 pH	20 mL	20 pcs., 10 ea	•
HI77400P	4.01 & 7.01 pH	20 mL	10 pcs., 5 ea	

## 8.20 pH @ 25°C - Bottle

Code	Size	Package
HI70082M	230 mL	bottle

## 9.18 pH @ 25°C - Bottles

Code	Size	FDA Bottle	Certificate of Analysis
HI7009/1G	1 G (3.78 L)		on request
HI7009/1L	1 L		on request
HI7009L	500 mL		on request
HI7009L/C	500 mL	•	•
HI7009M	230 mL		on request
HI8009L/C	500 mL	•	•
HI8009L	500 mL	•	•

## 9.18 pH @ 25°C - Sachets

Code	Size	Package	Certificate of Analysis
HI70009C	20 mL	25 pcs.	•
HI70009P	20 mL	25 pcs.	

## pH Standard Calibration Solutions

## 7.01 pH Buffer Solution

pH 7.01 is the most widely used among all buffer solutions. For this reason we have prepared it in a wider variety of sizes to meet application demand.

## 8.20 pH Buffer Solution

To increase accuracy of your measurement, Hanna offers the 8.20 pH buffer solution. The label indicates the batch code, expiration data and pH/temperature correlation table.

## 9.18 pH Buffer Solution

To increase accuracy of your measurement in an alkaline environment, it is important to calibrate your electrode and meter in that pH range and to preferably bracket your sample values. Hanna offers both pH 9.18 buffer and pH 10.01 buffer to fulfill this requirement.

## FDA approved bottle

For maximum reliability choose our solutions in bottles that meet FDA standards (US Food & Drug Administration) which protect the solutions from extended exposure to light.

## Traceability with NIST Standard Reference

Hanna pH buffers are carefully prepared using the highest quality ingredients available and are standardized with high precision meters calibrated to NIST references.



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# pH Standard Calibration Solutions

## 10.01 pH Buffer Solution

pH 10.01 solution is commonly used to calibrate equipment used for analyzing basic samples. pH 10.01 buffer solution is available in various sizes to best fit your needs



## 10.01 pH @ 25°C - Bottles

Code	Size	FDA Bottle	Certificate of Analysis
HI7010/1G	1G (3.78 L) (color coded bottle)		on request
HI7010/1L	1L (color coded bottle)		on request
HI7010L	500 mL		on request
HI7010L/C	500 mL		•
HI7010M	230 mL		on request
HI8010L	500 mL	•	•
HI8010L/C	500 mL	•	•

## 10.01 pH @ 25°C, and Combination Packs - Sachets

Code	pH Value	Size	Package	Certificate of Analysis
HI70010C	10.01	20 mL	25 pcs.	•
HI70010P	10.01	20 mL	25 pcs.	
HI70010P/5	10.01	20 mL	500 pcs.	
HI770710C	10.01 & 7.01	20 mL	10 pcs., 5 ea	•
HI770710P	10.01 & 7.01	20 mL	10 pcs., 5 ea	

## ORP and Sample Preparation Solutions

ORP standard solutions allows users to test the precision of ORP electrodes. For example, by immersing the electrode in HI7020 solution, readings should fall within the 200 to 275 mV range (@25°C/77°F).

If the reading is outside the indicated interval, clean and condition your ORP electrode in Hanna pretreatment solution.

Use HI7092 for oxidizing or HI7091 for reducing pretreatment.

## ORP Test and Pretreatment Solution Bottles

Code	Description	Size	Certificate of Analysis
HI7020L	ORP test solution @200 to 275 mV (@25°C)	500 mL	on request
HI7020M	ORP test solution @200 to 275 mV (@25°C)	230 mL	on request
HI7021L	ORP test solution @240 mV (@25°C)	500 mL	on request
HI7021M	ORP test solution @240 mV (@25°C)	230 mL	on request
HI7022L	ORP test solution @470 mV (@25°C)	500 mL	on request
HI7022M	ORP test solution @470 mV (@25°C)	230 mL	on request
HI7091L	reducing pretreatment solution	500 mL + 14g (set)	
HI7092L	oxidizing pretreatment solution	500 mL	
HI7092M	oxidizing pretreatment solution	230 mL	

## Sample Preparation Solution Bottles

Code	Description	Size
HI7051M	soil sample preparation solution	230 mL
HI7051L	soil sample preparation solution	500 mL
HI70960	preparation solution for solid or semi-solid samples	30 mL

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