

Standard solutions



A complete range of standard reference solutions

pH buffer solutions

Redox buffer solutions

Standard conductivity solutions



SOLUTIONS

1 | pH BUFFERS

TO GUARANTEE RELIABLE RESULTS,

it is essential to calibrate the electrode/instrument pairing. The pH buffer solutions are used as reference points during calibration and adjustment of the pH-meter. They make it possible to compensate for ageing and deterioration of the electrode while confirming the traceability of your measurements.



COFRAC-CERTIFIED PH BUFFERS REFERENCE MATERIALS

Linked directly to the LNE French national primary reference standards, Manumasure's certified pH buffers are produced under COFRAC accreditation (no. 1-5650)*.

By using them, you benefit from the best traceability control available on the European market: they are the only buffer solutions accredited according to the NF EN ISO 17034 reference materials producers' guide.

For extremely accurate, traceable calibration, qualification and testing of pH measuring instruments and for testing other buffer solutions. Conditioned in single-dose flasks, these solutions guarantee that users have a fresh buffer for each calibration, thus limiting contamination.



NIST pH BUFFERS REFERENCE MATERIALS

The range of NIST pH buffers ensures:
 → calibration over an extensive measurement range from pH 1.68 to pH 10.01;
 → optimum accuracy due to compliance with the NIST (National Institute of Standards and Technology) and DIN 19266 standards;
 → use of buffer solutions traceable to certified reference standards;

These buffers are delivered with a quality certificate guaranteeing compliance with NIST and DIN 19266, so their metrological traceability ensures that your measurements are linked to the international system.

For quick, effective, certified pH calibration. Conditioned in ready-to-use 125 mL flasks, these solutions offer excellent quality and can be kept for several months after opening.



CONCENTRATED PH BUFFERS REFERENCE MATERIALS

The range of concentrated pH buffers proposes 3 working references with pH values of 4.00, 7.00 and 9.00 respectively. These 125 mL flasks provide 1.25 L of the calibration solution after dilution (pH 4.00 : 0.625 L). Economical and fun, their different colours enable you to identify the acid, basic and neutral buffers unambiguously.

For regular, economical calibration of your pH measuring instruments.



COFRAC*-CERTIFIED PH BUFFERS - REFERENCE MATERIALS

Buffer solution	pH 4.005 COFRAC-certified CRM	pH 6.865 COFRAC-certified CRM	pH 9.180 COFRAC-certified CRM	COFRAC*-certified CRM batch
Type	COFRAC-certified reference materials			
pH value (at 25°C)	4.005	6.865	9.180	4.005 / 6.865 / 9.180
Uncertainty	± 0.010	± 0.015	± 0.050	0.010 / 0.015 / 0.050
Validity (before opening)**	36 months		18 months	Depends on solution
Traceability	Product covered by COFRAC accreditation*			
Use	Single-dose flask (single-use)			
Conditioning	10 flasks of 25 mL			3 x 5 flasks of 25 mL
State at delivery	Flasks delivered with COFRAC certificate*			
Reference	P01700101	P01700102	P01700103	P01700104

*Cofrac accreditation N ° 1-5650 available on www.cofrac.fr



NIST pH BUFFERS - REFERENCE MATERIALS

Buffer solution	pH 1.68 DIN-NIST buffer	pH 4.01 DIN-NIST buffer	pH 7.00 traceable NIST buffer	pH 9.18 DIN-NIST buffer	pH 10.01 DIN-NIST buffer
Type	Certified reference materials				
pH value (at 25°C)	1.68	4.01	7.00	9.18	10.01
Uncertainty	± 0.02				
Validity (before opening)**	18 months	36 months		18 months	
Traceability	Link to the International System				
Use	Ready-to-use solution				
Storage (after opening)	2 months	3 months		2 months	
Conditioning	125 mL flask				
State at delivery	Flask delivered with reference materials certificate (only at the customer's request)				
Reference	P01700105	P01700106	P01700107	P01700108	P01700109

CONCENTRATED pH BUFFERS - REFERENCE MATERIALS

Buffer solution	Concentrated pH 4.00 buffer	Concentrated pH 7.00 buffer	Concentrated pH 9.00 buffer
Type	Reference materials		
pH value (at 25°C)	4.00	7.00	9.00
Uncertainty	± 0.02		
Validity (before opening)**	36 months	18 months	
Use	Solution to be diluted 5 times before use	Solution to be diluted 10 times before use	
Storage (after opening)	6 months	3 months	
Conditioning	125 mL flask		
State at delivery	Flask delivered without certificate		
Reference	P01700111	P01700112	P01700113



SOLUTIONS

2 | REDOX BUFFERS



The potentials of **METAL ELECTRODES** only vary slightly over time, so they are rarely calibrated. However, small deviations in their potentials may occur in certain cases (continuous use of the electrode, alteration of the metal's surface, contamination of the electrode, etc.).

Redox buffer solutions can be used to check that these electrodes are functioning correctly. These buffers help to adjust the millivoltmeter/electrode pairing to the solution's reference value.

Buffer solution	146 mV Michaelis solution	220 mV Redox buffer	468 mV Redox buffer
Type	Reference materials		
ORP value (at 25°C)	146 mV	220 mV	468 mV
Uncertainty	± 2 mV		
Validity (before opening)**	24 months		
Use	Solution to be diluted 10 times before use	Ready-to-use solution	
Storage (after opening)	3 month		
Conditioning	125 mL flask		
Reference	P01700110	P01700114	P01700115

SOLUTIONS

3 | STANDARD CONDUCTIVITY SOLUTIONS

CONDUCTIVITY MEASUREMENT depends significantly on the temperature of the specimen. If the temperature increases, the viscosity decreases. This phenomenon leads to an increase in ion mobility, thus raising the conductivity.

To perform a conductivity measurement, you must know or determine the cell constant.

Each conductivity cell has its own specific cell constant.

However, this may vary over time due to influencing factors such as:

- contamination of the sensor
- a deposit on the sensor
- physico-chemical modification of the measuring cell

To check that the cell constant indicated by the manufacturer remains valid, you must calibrate your conductivity meter with standard reference solutions in the same conditions as those encountered during measurement (temperature, measurement range, agitation, solvent, etc.).



Standard solution	147 µS/cm conductivity	1408 µS/cm conductivity	12.85 mS/cm conductivity
Type	Reference material		
Conductivity value (at 20°C)	133 µS/cm	1274 µS/cm	11.64 mS/cm
Conductivity value (at 25°C)	147 µS/cm	1408 µS/cm	12.85 mS/cm
Uncertainty	± 1%		
Validity (before opening) **	24 months		
Traceability	NIST		OIML
Use	Ready-to-use solution		
Storage (after opening)	3 months		
Conditioning	125 mL flask		
State at delivery	Flask delivered with certificate (only at the customer's request)		
Reference	P01700117	P01700118	P01700119

Standard solution	KCl 1 mol/L standard conductivity solution			
Type	Reference materials			
Dilution factor	1:10	1:50	1:100	1:1000
Conductivity value (at 20°C)	11.67 mS/cm	2510 µS/cm	1280 µS/cm	133 µS/cm
Conductivity value (at 25°C)	12.88 mS/cm	2770 µS/cm	1410 µS/cm	147 µS/cm
Uncertainty	± 1%			
Validity (before opening) **	24 months			
Use	Concentrated standard solution for dilution in pure water before use			
Storage (after opening)	3 months			
Conditioning	125 mL flask			
Reference	P01700116			

** The use-by dates (before opening) run from the date of manufacture, not from the date of sale.