

# Standard Solutions



Hach Standard Solutions ensure confidence in test results. Choose from Single Parameter Standards, Mixed Parameter Quality Control Standards, or Spec✓ Standards.

## Features and Benefits

### Assure Confidence in Chemical Analysis Results

Stop questioning the results of laboratory tests. Regular use of standard solutions can ensure laboratory process control, increase analyst confidence, and help provide evidence of performance to inspectors, regulators, and clients.

### Three Type of Standards

- **Single Parameter Standards**—Available in a variety of analytes and concentrations, including Voluette Ampule standards to support standard additions procedures for proof of accuracy.
- **Mixed Parameter Quality Control Standards**—Packaged for specific applications and formulated to match the ranges of Hach Methods, so no dilution is necessary.
- **Spec✓ Standards**—Each set of Spec✓ standards contains four vials filled with gels that simulate the test color at various concentrations. These standards provide a quick and easy way to confirm that instruments are operating properly. Standards are available for several popular methods.

### What are Standards?

A standard solution can be used in place of a sample because it contains a known concentration of chemicals or analytes. The analyst can run through a testing process knowing what the final value should be. Standards can be used to establish calibration curves, to determine matrix interferences using standard additions, for control charting, and troubleshooting.

### Why use Standards?

When a value is questioned, troubleshooting with standards can quickly pinpoint if, and where, there is a problem. Whether a problem is suspected in the reagents, procedure, instrument, or the analyst, the cause of an inaccurate value can be determined and resolved—saving time and money. Regular use of standards can verify all aspects of a system, and alert an analyst to small problems before the entire process gets out of control.

Customer Need	Intended Use/Feature of Standard	Single Parameter Standards	Mixed Parameter Quality Control Standards
Laboratory Maintenance	Calibration Curves Minimum Detection Limits (MDL's) Sample Spikes Program Verification	■ ■ ■ ■	■
Confidence Building	Technician Confidence Operator to operator variability In House QC	■ ■ ■	■ ■ ■
Time/Money/Space Savings	No dilutions necessary with Hach Methods Multiple analytes in one bottle improves efficiency		■ ■

DW = drinking water WW = wastewater municipal PW = pure water / power  
IW = industrial water E = environmental C = collections FB = food and beverage

DW

WW

PW

IW

E

FB



Be Right™

## Specifications and Ordering Information

### Hach Single Parameter Standard Solutions

Prod. No.	Standard Solution Parameter	Concentration	Volume			Application*				
			Standard	Voluette Ampule/Qty	PourRite Ampule/Qty					
212132	Acidity	0.500 N	100 mL			DW, E				
1427810	Alkalinity	0.500 N		10 mL/16		DW, WM, BC				
2305842	Aluminum as Al (NIST)	10 mg/L	100 mL	10 mL/16		DW, WM, WI, BC				
1479210		50 mg/L								
1417442		100 mg/L	100 mL							
1457142	Arsenic as As	1000 mg/L	100 mL			DW, WM, WI, E				
1461142	Barium as Ba (NIST)	1000 mg/L	100 mL			WI, E				
1486510	BOD (NIST) (Glucose plus Glutamic Acid)	300 mg/L		10 mL/16		DW, WM, WI, E				
1486610		3000 mg/L		10 mL/16						
191442	Boron as B	1000 mg/L	100 mL			WI, BC, E				
1402442	Cadmium as Cd (NIST)	100 mg/L	100 mL			DW, WM, WI				
2305442	Calcium as Ca (NIST) (for Hardness)	10 mg/L	100 mL			DW, BC, E				
4457649		100 mg/L	500 mL							
2240342		1000 mg/L	100 mL							
2240349		1000 mg/L	500 mL							
232516	Calcium (NIST) as CaCO <sub>3</sub> (CaCl <sub>2</sub> ) (for Hardness)	1 mg/L	946 mL			DW, BC, E				
2058116		2 mg/L	946 mL							
235616		5 mg/L	946 mL							
2127716		50 mg/L	946 mL							
12153		1000 mg/L	1 L							
218710		10,000 mg/L					10 mL/16			
1427510	Carbon Dioxide as CO <sub>2</sub>	10,000 mg/L		10 mL/16		DW, E				
2370853	Chloride as Cl <sup>-</sup> (NIST)	100 mg/L	1 L			DW, WM, WI, BC, E				
18349		1000 mg/L	500 mL							
1425010		12,500 mg/L					10 mL/16			
2630020	Chlorine as Cl <sub>2</sub> (NIST)	25 to 30 mg/L			2 mL/20	DW, WM, WI, BC, E				
1426820		50 to 75 mg/L								
1426810		50 to 75 mg/L					10 mL/16			
2605620	Chromium Hexavalent as Cr <sup>6+</sup> (NIST)	5 mg/L	100 mL	10 mL/16	2 mL/20	DW, WM, WI, BC, E				
1425610		12.5 mg/L								
81042H		50 mg/L								
1466442		1000 mg/L								
1415142	Chromium Trivalent as Cr <sup>3+</sup> (NIST)	50 mg/L	100 mL			DW, WM, E				
2150342	Cobalt as Co (NIST)	1000 mg/L	100 mL			WM, WI, E				
1218629	COD (NIST)	300 mg/L	200 mL			DW, WM, WI, E				
1218649		300 mg/L	500 mL							
2672629		800 mg/L	200 mL							
2253929		1000 mg/L	200 mL							
2602853		15 units	1 L							
141410	500 units	1 L	10 mL/16		DW					
141453	500 units									
2605720	Copper as Cu (NIST)	4 mg/L	100 mL MDB	10 mL/16	2 mL/20	DW, WM, WI, BC, E				
12932		10 mg/L								
1424710		75 mg/L								
12842		100 mg/L	100 mL							
259342		1000 mg/L	100 mL							
1427110		Detergent as LAS	60 mg/L					10 mL/16		WM, WI
40502	Fluoride as F <sup>-</sup> (NIST)	0.2 mg/L	500 mL			DW, WI				
40505		0.5 mg/L	500 mL							
40508		0.8 mg/L	500 mL							
29149		1.0 mg/L	500 mL							
29153		1.0 mg/L	1 L							
40512		1.2 mg/L	500 mL							
40515		1.5 mg/L	500 mL							
40520		2.0 mg/L	500 mL							
35949		10 mg/L	500 mL							
2126249		19 mg/L	500 mL							
23249		100 mg/L	500 mL							
2257310		Formaldehyde as CH <sub>2</sub> O	4000 mg/L					10 mL/16		WI, E
2058016		Hardness as CaCO <sub>3</sub> (NIST) also see Calcium	0.50 mg/L				946 mL			DW, WM, WI, BC, E
2058116			2.0 mg/L				946 mL			
47949	20 gpg (340 mg/L)		500 mL							
218710	10,000 mg/L			10 mL/16						

\* DW = Drinking Water; WM = Wastewater, Municipal; WI = Wastewater, Industrial; BC = Boiler/Cooling Water; E = Environmental  
NOTE: These are only suggested applications. Other applications may apply.

*Continued on next page.*

## Specifications and Ordering Information *continued*

Prod. No.	Standard Solution Parameter	Concentration	Volume			Application*
			Standard	Voluette Ampule/Qty	PourRite Ampule/Qty	
13949 14049 1425310 1425410 1417542 227142	Iron as Fe (NIST)	1 mg/L 10 mg/L 25 mg/L 50 mg/L 100 mg/L 1000 mg/L	500 mL 500 mL  100 mL 100 mL	  10 mL/16 10 mL/16		DW, WM, WI, BC, E
2374820 1261742 1279642	Lead as Pb (NIST)	10 mg/L 100 mg/L 1000 mg/L	25 mL 100 mL 100 mL			DW, WM, WI, E
2605820 2112820 1425810 1279142	Manganese as Mn (NIST)	10 mg/L 25 mg/L 250 mg/L 1000 mg/L	   100 mL	10 mL/16	2 mL/20 2 mL/20	DW, WI
1419542	Mercury as Hg (NIST)	1000 mg/L	100 mL			DW, WM, WI
1418742 1418642	Molybdenum as Mo (NIST)	10 mg/L 1000 mg/L	100 mL 100 mL			WI, BC, E
1417642	Nickel as Ni (NIST)	1000 mg/L	100 mL			DW, WM, WI, E
2340249	Nitrite Solution, Stock as N, APHA	250 µg/mL	500 mL			DW, WM, BC, E
189149 15349 1479120 1479110 2406549 2128410 2109110 2354153	Nitrogen-Ammonia as NH <sub>3</sub> -N	1 mg/L 10 mg/L 50 mg/L 50 mg/L 100 mg/L 150 mg/L 160 mg/L 1000 mg/L	500 mL 500 mL  500 mL  1 L	10 mL/16  10 mL/16 10 mL/16	2 mL/20	DW, WM, BC, E
204649 2557810 30749 2415132 194749 1426010 1279249	Nitrogen-Nitrate as NO <sub>3</sub> -N (NIST)	1 mg/L 5 mg/L 10 mg/L 15 mg/L 100 mg/L 500 mg/L 1000 mg/L	500 mL  500 mL 100 mL 500 mL 500 mL	10 mL/16  10 mL/16		DW, WM, WI, BC, E
2664842 2664934	Oil & Grease	Hexadecane (99%) Stearic Acid	100 mL 500 gm			WM, WI
256949 2059716 2059703 1420416 1424342 1436716 17110 17149 1436832 1424210 1424232	Phosphate as PO <sub>4</sub> <sup>3-</sup> (NIST)	1 mg/L 3 mg/L 3 mg/L 10 mg/L 15 mg/L 30 mg/L 50 mg/L 50 mg/L 100 mg/L 500 mg/L 500 mg/L	500 mL 946 mL 946 mL 946 mL 100 mL 946 mL 500 mL 100 mL MDB 100 mL MDB	10 mL/16  10 mL/16		DW, WM, WI, BC, E
2109210 2321142	Phosphorus as P (NIST)	25 mg/L 1000 mg/L	100 mL	10 mL/16		DW, WM, WI, BC, E
2351749 1479010	Potassium as K (NIST)	100 mg/L 250 mg/L	500 mL	10 mL/16		DW, E
2100817 110649 140349 2122531 111729 19449	Silica as SiO <sub>2</sub> (NIST)	0.5 mg/L 1 mg/L 10 mg/L 25 mg/L 50 mg/L 1000 mg/L	3.78 L 500 mL 500 mL 236 mL 200 mL 500 mL			DW, BC, E
1461342	Silver as Ag (NIST)	1000 mg/L	100 mL			DW, WM, WI, E
257849 89149 2175749 1425210 1425249	Sulfate as SO <sub>4</sub> <sup>2-</sup> (NIST)	50 mg/L 100 mg/L 1000 mg/L 2500 mg/L 2500 mg/L	500 mL 500 mL 500 mL 500 mL	10 mL/16		DW, WI, E
2408449 2267410	Sulfite as SO <sub>3</sub> <sup>2-</sup>	15 mg/L 5000 mg/L	500 mL	10 mL/16		DW, WM, WI, BC, E
	Turbidity (request Lit. #2498)					DW, WM, WI, BC, E
1427010	Volatile Acids as HOAC	62,500 mg/L		10 mL/16		WM
1424610 237842 1417742	Zinc as Zn (NIST)	25 mg/L 100 mg/L 1000 mg/L	100 mL 100 mL	10 mL/16		DW, WM, WI, BC, E

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NOTE: These are only suggested applications. Other applications may apply.

*Continued on next page.*

## Specifications and Ordering Information *continued*

### Spec✓ Gel Secondary Standard Kits

Prod. No.	Description	Concentration	Unit
2635300	Chlorine, DPD LR	0 to 2.0 mg/L Cl <sub>2</sub>	Set of 4 Vials
2893300	Chlorine, DPD HR	0 to 6.5 mg/L Cl <sub>2</sub>	Set of 4 Vials
2712500	Fluoride	0 to 2.00 mg/L F <sup>-</sup>	Set of 4 Vials
2507500	Monochloramine/ Free Ammonia	0 to 4.5 mg/L Cl <sub>2</sub> and 0 to 0.50 mg/L NH <sub>3</sub> -N	Set of 4 Vials
2708000	Ozone, MR	0 to 0.75 mg/L	Set of 4 Vials

### Mixed Parameter Quality Control Standards

Prod. No.	Description	Parameter	Concentration	Volume
2833749	Metals Low Range Drinking Water	Copper Iron Manganese	1 mg/L Cu 0.3 mg/L Fe 0.1 mg/L Mn	500 mL
2833649	Metals High Range Drinking Water	Copper Iron Manganese	2.5 mg/L Cu 1.5 mg/L Fe 5 mg/L Mn	500 mL
2833049	Drinking Water Inorganics	Fluoride Nitrate Phosphate Sulfate	1 mg/L F <sup>-</sup> 2 mg/L NO <sub>3</sub> <sup>-</sup> -N 2 mg/L PO <sub>4</sub> <sup>3-</sup> 50 mg/L SO <sub>4</sub> <sup>2-</sup>	500 mL
2833449	Low Range Hardness	Total Hardness Calcium Hardness	100 mg/L as CaCO <sub>3</sub> 50 mg/L as CaCO <sub>3</sub>	500 mL
2833349	High Range Hardness	Total Hardness Calcium Hardness	1000 mg/L as CaCO <sub>3</sub> 500 mg/L as CaCO <sub>3</sub>	500 mL
2833149	Wastewater Influent**	Ammonia Nitrate Phosphate COD Sulfate TOC*	15 mg/L NH <sub>3</sub> -N 10 mg/L NO <sub>3</sub> <sup>-</sup> -N 10 mg/L PO <sub>4</sub> <sup>3-</sup> 500 mg/L COD 400 mg/L SO <sub>4</sub> <sup>2-</sup> 161 mg/L TOC	500 mL
2833249	Wastewater Effluent**	Ammonia Nitrate Phosphate COD Sulfate TOC*	2 mg/L NH <sub>3</sub> -N 4 mg/L NO <sub>3</sub> <sup>-</sup> -N 2 mg/L PO <sub>4</sub> <sup>3-</sup> 25 mg/L COD 50 mg/L SO <sub>4</sub> <sup>2-</sup> 8 mg/L TOC	500 mL
2833510	Oxygen Demand	BOD COD TOC	396 mg/L BOD 613 mg/L COD 242 mg/L TOC	10 mL ampules

\*TOC concentration values may differ from the stated target.

\*\*Call Hach Company for availability.

### Technical Support

Hach Company offers technical expertise on [www.hach.com](http://www.hach.com) and through our technical consulting team. We will help you understand the best use of standards and how to develop a quality assurance program for your laboratory. Visit our website, order the Water Analysis Handbook CD (Lit. #WA02) or call our technical consulting staff with questions.

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In the interest of improving and updating its equipment, Hach Company reserves the right to alter specifications to equipment at any time.

*At Hach, it's about learning from our customers and providing the right answers. It's more than ensuring the quality of water—it's about ensuring the quality of life. When it comes to the things that touch our lives...*

*Keep it pure.*

*Make it simple.*

*Be right.*

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**Be Right™**