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 WW PW IW E FB

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

HACH®

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 **1479210** **1417442**	Aluminum as Al (NIST)	10 mg/L 50 mg/L 100 mg/L	100 mL 100 mL	 10 mL/16 		DW, WM, WI, BC
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 **1486610**	BOD (NIST) (Glucose plus Glutamic Acid)	300 mg/L 3000 mg/L		10 mL/16 10 mL/16		DW, WM, WI, E
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 **4457649** **2240342** **2240349**	Calcium as Ca (NIST) (for Hardness)	10 mg/L 100 mg/L 1000 mg/L 1000 mg/L	100 mL 500 mL 100 mL 500 mL			DW, BC, E
232516 **2058116** **235616** **2127716** **12153** **218710**	Calcium (NIST) as $CaCO_3$ ($CaCl_2$) (for Hardness)	1 mg/L 2 mg/L 5 mg/L 50 mg/L 1000 mg/L 10,000 mg/L	946 mL 946 mL 946 mL 946 mL 1 L 	 10 mL/16		DW, BC, E
1427510	Carbon Dioxide as CO_2	10,000 mg/L		10 mL/16		DW, E
2370853 **18349** **1425010**	Chloride as Cl^- (NIST)	100 mg/L 1000 mg/L 12,500 mg/L	1 L 500 mL 	 10 mL/16		DW, WM, WI, BC, E
2630020 **1426820** **1426810**	Chlorine as Cl_2 (NIST)	25 to 30 mg/L 50 to 75 mg/L 50 to 75 mg/L		 10 mL/16	2 mL/20 2 mL/20 	DW, WM, WI, BC, E
2605620 **1425610** **81042H** **1466442**	Chromium Hexavalent as Cr^{6+} (NIST)	5 mg/L 12.5 mg/L 50 mg/L 1000 mg/L	 100 mL 100 mL	 10 mL/16 	2 mL/20 	DW, WM, WI, BC, E
1415142	Chromium Trivalent as Cr^{3+} (NIST)	50 mg/L	100 mL			DW, WM, E
2150342	Cobalt as Co (NIST)	1000 mg/L	100 mL			WM, WI, E
1218629 **1218649** **2672629** **2253929**	COD (NIST)	300 mg/L 300 mg/L 800 mg/L 1000 mg/L	200 mL 500 mL 200 mL 200 mL			DW, WM, WI, E
2602853 **141410** **141453**	Color as PtCo Units	15 units 500 units 500 units	1 L 1 L	 10 mL/16 		DW
2605720 **12932** **1424710** **12842** **259342**	Copper as Cu (NIST)	4 mg/L 10 mg/L 75 mg/L 100 mg/L 1000 mg/L	 100 mL MDB 100 mL 100 mL	 10 mL/16 	2 mL/ 20 	DW, WM, WI, BC, E
1427110	Detergent as LAS	60 mg/L		10 mL/16		WM, WI
40502 **40505** **40508** **29149** **29153** **40512** **40515** **40520** **35949** **2126249** **23249**	Fluoride as F^- (NIST)	0.2 mg/L 0.5 mg/L 0.8 mg/L 1.0 mg/L 1.0 mg/L 1.2 mg/L 1.5 mg/L 2.0 mg/L 10 mg/L 19 mg/L 100 mg/L	500 mL 500 mL 500 mL 500 mL 1 L 500 mL 500 mL 500 mL 500 mL 500 mL 500 mL			DW, WI
2257310	Formaldehyde as CH_2O	4000 mg/L		10 mL/16		WI, E
2058016 **2058116** **47949** **218710**	Hardness as $CaCO_3$ (NIST) also see Calcium	0.50 mg/L 2.0 mg/L 20 gpg (340 mg/L) 10,000 mg/L	946 mL 946 mL 500 mL 	 10 mL/16		DW, WM, WI, BC, E

** 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	Iron as Fe (NIST)	1 mg/L	500 mL			DW, WM, WI, BC, E
14049		10 mg/L	500 mL			
1425310		25 mg/L		10 mL/16		
1425410		50 mg/L		10 mL/16		
1417542		100 mg/L	100 mL			
227142		1000 mg/L	100 mL			
2374820	Lead as Pb (NIST)	10 mg/L	25 mL			DW, WM, WI, E
1261742		100 mg/L	100 mL			
1279642		1000 mg/L	100 mL			
2605820	Manganese as Mn (NIST)	10 mg/L			2 mL/20	DW, WI
2112820		25 mg/L			2 mL/20	
1425810		250 mg/L		10 mL/16		
1279142		1000 mg/L	100 mL			
1419542	Mercury as Hg (NIST)	1000 mg/L	100 mL			DW, WM, WI
1418742	Molybdenum as Mo (NIST)	10 mg/L	100 mL			WI, BC, E
1418642		1000 mg/L	100 mL			
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	Nitrogen-Ammonia as NH_3-N	1 mg/L	500 mL			DW, WM, BC, E
15349		10 mg/L	500 mL			
1479120		50 mg/L			2 mL/20	
1479110		50 mg/L		10 mL/16		
2406549		100 mg/L	500 mL			
2128410		150 mg/L		10 mL/16		
2109110		160 mg/L		10 mL/16		
2354153		1000 mg/L	1 L			
204649	Nitrogen-Nitrate as NO_3-N (NIST)	1 mg/L	500 mL			DW, WM, WI, BC, E
2557810		5 mg/L		10 mL/16		
30749		10 mg/L	500 mL			
2415132		15 mg/L	100 mL			
194749		100 mg/L	500 mL			
1426010		500 mg/L		10 mL/16		
1279249		1000 mg/L	500 mL			
2664842	Oil & Grease	Hexadecane (99%)	100 mL			WM, WI
2664934		Stearic Acid	500 gm			
256949	Phosphate as PO_4^{3-} (NIST)	1 mg/L	500 mL			DW, WM, WI, BC, E
2059716		3 mg/L	946 mL			
2059703		3 mg/L	2.9 L			
1420416		10 mg/L	946 mL			
1424342		15 mg/L	100 mL			
1436716		30 mg/L	946 mL			
17110		50 mg/L		10 mL/16		
17149		50 mg/L	500 mL			
1436832		100 mg/L	100 mL MDB			
1424210		500 mg/L		10 mL/16		
1424232		500 mg/L	100 mL MDB			
2109210	Phosphorus as P (NIST)	25 mg/L		10 mL/16		DW, WM, WI, BC, E
2321142		1000 mg/L	100 mL			
2351749	Potassium as K (NIST)	100 mg/L	500 mL			DW, E
1479010		250 mg/L		10 mL/16		
2100817	Silica as SiO_2 (NIST)	0.5 mg/L	3.78 L			DW, BC, E
110649		1 mg/L	500 mL			
140349		10 mg/L	500 mL			
2122531		25 mg/L	236 mL			
111729		50 mg/L	200 mL			
19449		1000 mg/L	500 mL			
1461342	Silver as Ag (NIST)	1000 mg/L	100 mL			DW, WM, WI, E
257849	Sulfate as SO_4^{2-} (NIST)	50 mg/L	500 mL			DW, WI, E
89149		100 mg/L	500 mL			
2175749		1000 mg/L	500 mL			
1425210		2500 mg/L		10 mL/16		
1425249		2500 mg/L	500 mL			
2408449	Sulfite as SO_3^{2-}	15 mg/L	500 mL			DW, WM, WI, BC, E
2267410		5000 mg/L		10 mL/16		
	Turbidity (request Lit. #2498)					DW, WM, WI, BC, E
1427010	Volatile Acids as HOAC	62,500 mg/L		10 mL/16		WM
1424610	Zinc as Zn (NIST)	25 mg/L		10 mL/16		DW, WM, WI, BC, E
237842		100 mg/L	100 mL			
1417742		1000 mg/L	100 mL			

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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_2	Set of 4 Vials
2893300	Chlorine, DPD HR	0 to 6.5 mg/L Cl_2	Set of 4 Vials
2712500	Fluoride	0 to 2.00 mg/L F^-	Set of 4 Vials
2507500	Monochloramine/ Free Ammonia	0 to 4.5 mg/L Cl_2 and 0 to 0.50 mg/L NH_3-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^- 2 mg/L NO_3^--N 2 mg/L PO_4^{3-} 50 mg/L SO_4^{2-}	500 mL
2833449	Low Range Hardness	Total Hardness Calcium Hardness	100 mg/L as $CaCO_3$ 50 mg/L as $CaCO_3$	500 mL
2833349	High Range Hardness	Total Hardness Calcium Hardness	1000 mg/L as $CaCO_3$ 500 mg/L as $CaCO_3$	500 mL
2833149	Wastewater Influent**	Ammonia Nitrate Phosphate COD Sulfate TOC*	15 mg/L NH_3-N 10 mg/L NO_3^--N 10 mg/L PO_4^{3-} 500 mg/L COD 400 mg/L SO_4^{2-} 161 mg/L TOC	500 mL
2833249	Wastewater Effluent**	Ammonia Nitrate Phosphate COD Sulfate TOC*	2 mg/L NH_3-N 4 mg/L NO_3^--N 2 mg/L PO_4^{3-} 25 mg/L COD 50 mg/L SO_4^{2-} 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 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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