

Test Kits

Description	Method	Platform	Range	# Tests	Product Number
Pocket Colorimeter™ II – Nickel and Cobalt	8150	PCII	0.01-1.00 mg/L Ni; 0.02-2.00 mg/L Co	Kit includes PC II	100 5870020

Accessories Required to Run Tests

Description	Product Number
DRB200 Reactor (For Total Nickel determination with Prod. No. TNT856, requires Metal Prep Set—to order, visit www.hach.com or contact your Hach representative.)	
Metal Prep Set for Total Nickel (Prod. No. TNT856), 25/pk	TNT890
Reaction tubes, 20 mm, 5/pk (for use with Metal Prep Set.)	LZP065

Standards

Description	Volume	Concentration	Product Number
Nickel Standard Solution as Ni (NIST)	100 mL	1,000 mg/L Ni	1417642

Nitrate

• Cadmium reduction method—quick and easy, three ranges available

• Test strips are easy to use, disposable, and inexpensive

• Chromotropic acid method—high range, convenient Test 'N Tube™ platform

Reagents

Description	Method	Platform	Range	Instrument*	# Tests	Product Number
Cd REDUCTION METHOD						
Nitrate Reagent Set, 10 mL, LR	8192	PP	0.01-0.50 mg/L NO ₃ ⁻ -N	All except DR/3000, DR/2010, DR/2000, PC II	100	2429800
Set includes:						
(1) NitraVer 6 Powder Pillows		PP			100	2107249
(1) NitriVer 3 Powder Pillows		PP			100	2107169
Nitrate Reagent Set, 25 mL, LR	8192	PP	0-0.50 mg/L NO ₃ ⁻ -N	DR/3000, DR/2000	100	2245100
Set includes:						
(1) NitriVer 3 Powder Pillows		PP			100	1406599
(1) NitraVer 6 Powder Pillows		PP			100	1411999
NitraVer 5 Reagent, 10 mL, HR, MR†	8039/8171	PP	0.3-30.0 or 0.1-10.0 mg/L NO ₃ ⁻ -N	All except DR/3000, DR/2010, DR/2000	100	2106169
NitraVer 5 Reagent Powder Pillows, 25 mL	8039/8171	PP	0.3-30.0 mg/L NO ₃ ⁻ -N	DR/3000, DR/2000	100	1403499
NitraVer 5 Reagent Powder Pillows, 25 mL	8039/8171	PP	0.3-30.0 mg/L NO ₃ ⁻ -N	DR/3000, DR/2000	1,000	1403428
NitraVer 5 AccuVac, HR, MR†	8039/8171	AV	0.3-30.0 or 0.1-10.0 mg/L NO ₃ ⁻ -N	All	25	2511025
DIMETHYLPHENOL METHOD						
Nitrate, Nitrogen TNTplus™, LR	10206	TNT+	0.2-13.5 mg/L NO ₃ ⁻ -N	DR 5000, DR 2800	25	TNT835
Nitrate, Nitrogen TNTplus™, HR	10206	TNT+	5-35 mg/L NO ₃ ⁻ -N	DR 5000, DR 2800	25	TNT836
CHROMOTROPIC ACID METHOD						
NitraVer X Nitrate Reagent Set, HR	10020	TNT	0.2-30.0 mg/L NO ₃ ⁻ -N	All except DR/850, DR/820, PC II	25-50‡	2605345
Nitrate Pretreatment Reagent Set		S				2438700
Set includes:						
(1) Phenol Solution, 30 g/L, 29 mL		S				211220
(1) Bromine Water, 30 g/L, 29 mL		S				221120
Urea (for nitrite interference removal in Chromotropic Acid method), 100 g						1123726
ION SELECTIVE ELECTRODE METHOD						
Nitrate Ionic Strength Adjuster Powder Pillows		PP	0.05-14,000 mg/L	sensION 2 & sensION 4	100	4456369
Nitrate Ionic Strength Adjuster Solution, 500 mL		S				2488349

†MR method cannot be performed on the DR/850, DR/820, or PC II.

‡Dependent on the number of performed reagent blanks.

Continued on next page.

*Generally, the DR 5000 performs the same methods as the DR/4000. The DR 2800 performs the same methods as the DR 2700, DR/2500, and DR/2400. Some exceptions do exist.

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titration; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

Test Strips

Description	Platform	Range	# Tests	Product Number
Nitrate and Nitrite Test Strips	TS	Nitrate: 0-50 mg/L NO ₃ ⁻ -N Nitrite: 0-3.0 mg/L NO ₂ ⁻ -N	(0, 1, 2, 5, 10, 20, 50 steps) (0, 0.15, 0.3, 1, 1.5, 3 steps)	25 2745425

Test Kits

Description	Method	Platform	Range	# Tests	Product Number
Pocket Colorimeter™ II – Nitrate	8039	PCII, PP	0.4-30.0 mg/L NO ₃ ⁻ -N	Kit includes PC II	100 5870002
Nitrate Test Kit (Model NI-14)		CD	0-1/ 1-10 mg/L NO ₃ ⁻ -N	50	1416100
Nitrate Test Kit (Model NI-11)		CD	1-50 mg/L NO ₃ ⁻ -N	100	146803
Nitrate Test Kit		CC	10-50 mg/L NO ₃ ⁻ -N	50	1403700
Nitrate Test Kit (AccuVac)		CD, AV	1-50 mg/L NO ₃ ⁻ -N	25	2511050
Nitrate/Nitrite Test Kit (Model NI-12)		CD	1-50 mg/L NO ₃ ⁻ -N; 0.01-0.50 NO ₂ ⁻ -N mg/L	100	1408100

Standards

Description	Volume	Concentration	Product Number
Nitrogen-Nitrate Standard Solution as NO ₃ ⁻ -N (NIST)	500 mL	1 mg/L NO ₃ ⁻ -N	204649
Nitrogen-Nitrate Standard Solution as NO ₃ ⁻ -N (NIST)	500 mL	10 mg/L NO ₃ ⁻ -N	30749
Nitrogen-Nitrate Standard Solution as NO ₃ ⁻ -N (NIST)	500 mL	100 mg/L NO ₃ ⁻ -N	194749
Nitrogen-Nitrate Standard Solution as NO ₃ ⁻ -N (NIST)	500 mL	1,000 mg/L NO ₃ ⁻ -N	1279249
Nitrate Standard as NO ₃ ⁻ -N	10 mL/16 Voluette Ampules	5 mg/L NO ₃ ⁻ -N	2557810
Nitrate Standard as NO ₃ ⁻ -N	10 mL/16 Voluette Ampules	500 mg/L NO ₃ ⁻ -N	1426010
Nitrate Standard as NO ₃ ⁻ -N	2 mL/20 Voluette Ampules	500 mg/L NO ₃ ⁻ -N	1426020
Drinking Water Inorganics, Mixed Parameter QC Standard; (Fluoride, Nitrate, Phosphate, Sulfate)	500 mL	Fluoride- 1 mg/L F ⁻ ; Nitrate- 2 mg/L NO ₃ ⁻ -N; Phosphate- 2 mg/L PO ₄ ³⁻ ; Sulfate- 50 mg/L SO ₄ ²⁻	2833049
Wastewater Influent Inorganics, Mixed Parameter QC Standard; (Ammonia, Nitrate, Phosphate, COD, Sulfate, TOC)	500 mL	Ammonia-15 mg/L NH ₃ -N; Nitrate-10 mg/L NO ₃ ⁻ -N; Phosphate-10 mg/L PO ₄ ³⁻ ; COD-500 mg/L COD; Sulfate-400 mg/L SO ₄ ²⁻ ; TOC-161 mg/L TOC	2833149
Wastewater Effluent Inorganics, Mixed Parameter QC Standard; (Ammonia, Nitrate, Phosphate, COD, Sulfate, TOC)	500 mL	Ammonia- 2 mg/L NH ₃ -N; Nitrate- 4 mg/L NO ₃ ⁻ -N; Phosphate- 2 mg/L PO ₄ ³⁻ ; COD- 25 mg/L COD; Sulfate- 50 mg/L SO ₄ ²⁻ ; TOC- 8 mg/L TOC	2833249

See page 431 for on-line measurement with the NITRATAX sc UV Sensors.



Single and Multi-Parameter Standards
See pages 196-199.

- Multiple ranges and methods available for lab or field use
- Ferrous Sulfate (NitraVer 2)—
Hach's highest range Nitrite method, simple one reagent method

- Diazotization (NitraVer 3)—Hach's lowest range Nitrite method, EPA accepted for wastewater analysis, available in three reagent platforms (Powder Pillows, AccuVac® and Test 'N Tube™)



Reagents

Description	Method	Platform	Range	Instrument*	EPA Compliant	# Tests	Product Number
NitriVer 3 TNT Reagent Set	10019	TNT	0.002-0.500 mg/L NO ₂ ⁻ -N	All except PCII		25-50 [†]	2608345
NitriVer 3 Nitrite Reagent, 10 mL	8507	PP	0.002-0.300 mg/L NO ₂ ⁻ -N	All except PCII	Yes	100	2107169
NitriVer 3 AccuVac	8507	AV	0.002-0.300 mg/L NO ₂ ⁻ -N	All except PCII	Yes	25	2512025
Nitrite TNTplus™	10207	TNT+	0.015-0.60 mg/L NO ₂ ⁻ -N	DR 5000, DR 2800	Yes [‡]	25	TNT839
NitriVer 2 Reagent Powder Pillows, 10 mL	8153	PP	2-250 mg/L NO ₂ ⁻	DR 5000, DR 2800 DR 2700, DR/890 DR/2010, DR/4000		100	2107569
NitriVer 3 Nitrite Reagent Powder Pillows, 25 mL	8507	PP	0.02-0.300 mg/L NO ₂ ⁻ -N	DR/2000, DR/3000		100	1406599
NitriVer 3 Nitrite Reagent Powder Pillows, 25 mL	8507	PP	0.02-0.300 mg/L NO ₂ ⁻ -N	DR/2000, DR/3000		1,000	1406528
NitriVer 2 Nitrite Reagent Powder Pillows, 25 mL	8153	PP	2-150 mg/L NO ₂ ⁻	DR/2000, DR/3000		100	221969
DIGITAL TITRATOR TITRATIONS							
	8351						
Ceric Standard Solution Titration Cartridge, 0.5 N		DT	100-2500 mg/L NaNO ₂				2270701
Ferriin Indicator Solution, 29 mL		S					181233
Sulfuric Acid Standard Solution, 5.25 N, 100 mL		S					244932

[†]Dependent on the number of performed reagent blanks. [‡]EPA equivalent.

Test Strips

Description	Platform	Range	# Tests	Product Number
Nitrate and Nitrite Test Strips	TS	Nitrate: 0 - 50 mg/L (0, 1, 2, 5, 10, 20, 50 steps) Nitrite: 0-3 mg/L (0, 0.15, 0.3, 1, 1.5, 3 steps)	25	2745425

Test Kits

Description	Platform	Range	# Tests	Product Number
Nitrite Test Kit (Model NI-6)	CD	0-100/0-2,000 mg/L NO ₂ ⁻	100	224000
Nitrite Test Kit (Model NI-15)	CD	0.01-0.50 mg/L NO ₂ ⁻ -N	100	2182000
Nitrite Test Kit	CC	0.2-1.0 mg/L NO ₂ ⁻ -N	50	2059600
Nitrification Control Kit	PP, S			2882200
Kit includes DR/890 Colorimeter, all required reagents and a carrying case. Contains tests for:				
Free Ammonia		0.02-0.50 mg/L NH ₃ -N	50	
Monochloramine		0.04-4.50 mg/L Cl ₂	100	
Nitrite		0-0.350 mg/L NO ₂ ⁻ -N	100	
Total Chlorine, LR		0-2.00 mg/L Cl ₂	100	
Total Chlorine, HR		0.1-10.0 mg/L Cl ₂	100	

*Generally, the DR 5000 performs the same methods as the DR/4000. The DR 2800 performs the same methods as the DR 2700, DR/2500, and DR/2400. Some exceptions do exist.

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titration; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

Nitrogen, Total

- Rapid, easy-to-use methods

- Available as a TNTplus test for ultimate ease of use

Reagents

Description	Method	Platform	Range	Instrument*	Digestion Required	# Tests	Product Number
Total Nitrogen TNT Reagent Set	10071	TNT	0.5-25.0 mg/L N	All except DR/850, DR/820, PC II	Yes	25-50 [†]	2672245
Total Nitrogen TNT Reagent Set, HR	10072	TNT	10-150 mg/L N	All except DR/850, DR/820, PC II	Yes	25-50 [†]	2714100
Nitrogen, Total TNTplus™, LR	10208	TNT+	1-16 mg/L N	DR 5000, DR 2800	Yes	25	TNT826
Nitrogen, Total TNTplus™, HR	10208	TNT+	5-40 mg/L N	DR 5000, DR 2800	Yes	25	TNT827
Nitrogen, Total TNTplus™, UHR	10208	TNT+	20-100 mg/L N	DR 5000, DR 2800	Yes	25	TNT828

TOTAL KJELDAHL NITROGEN

Nitrogen Reagent Set , Nessler's Method (TKN)	8075	PP	1-150 mg/L N	All except DR/850, DR/820, PC II	Yes [‡]	250	2495300
Set includes:							
(1) Nessler Reagent, 500 mL		S				250	2119449
(1) Hydrogen Peroxide 50%, 490 mL		S				25	2119649
(1) TKN Indicator Solution, 50 mL		S				250	2251926
(1) Potassium Hydroxide Standard, 1.0 N, 50 mL		S				250	2314426
(1) Polyvinyl Alcohol Dispersing Reagent, 50 mL		S				250	2376526
(1) Mineral Stabilizer, 50 mL		S				250	2376626
(1) Potassium Hydroxide Standard, 8 N, 100 mL		S				250	28232H
(1) Sulfuric Acid, ACS 500 mL		S				250	97949

TOTAL INORGANIC NITROGEN (TIN)

10021

Requires both Prod. No. 2604945 and Prod. No. 2604545.

Total Inorganic Nitrogen Pretreatment Reagent Set		TNT	0.2-25.0 mg/L N	All except PC II		25-50 [†]	2604945
Ammonia Reagent Set , AmVer (Salicylate), LR		TNT	0.02-2.50 mg/L NH ₃ -N	All except PC II		25-50 [†]	2604545

LACHAT INSTRUMENT REAGENTS

TKN Reagent Set Please contact Technical Support for determination of method and range.				Lachat QuikChem® 8500 System		300	52906
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[†]Dependent on the number of performed reagent blanks. [‡]Digesdahl digestion required.

Standards

Description	Volume	Concentration	Product Number
Ammonia Nitrogen Standard Solution	500 mL	10-mg/L NH ₃ -N	15349
Ammonia Nitrogen Standard Solution	500 mL	100-mg/L NH ₃ -N	2406549
Ammonia Nitrogen Standard Solution	1 L	1,000-mg/L NH ₃ -N	2354153
Primary Standard Set, for Kjeldahl Nitrogen	25 g each		2277800
Set of 3 compounds: Ammonia p-Toluene Sulfonate, Glycine p-Toluene Sulfonate, Nicotinic Acid p-Toluene Sulfonate			
Water, Deionized	500 mL		27249
Water, Organic-free	500 mL		2641549
Wastewater Effluent Inorganics, Mixed Parameter QC Standard; (Ammonia, Nitrate, Phosphate, COD, Sulfate, TOC)	500 mL	Ammonia- 2 mg/L NH ₃ -N; Nitrate- 4 mg/L NO ₃ ⁻ -N; Phosphate- 2 mg/L PO ₄ ³⁻ ; COD- 25 mg/L COD; Sulfate- 50 mg/L SO ₄ ²⁻ ; TOC- 8 mg/L TOC	2833249

Accessories Required to Run Tests

Description	Product Number
DRB200 Reactor (For Total Nitrogen determination with Product Nos. TNT826, TNT827, TNT828) Requires reaction tubes, see below. To order, visit www.hach.com or contact your Hach representative.	
Centrifuge (recommended for Total Inorganic Nitrogen test)	115 Vac 6x15 mL 2676500 220 Vac 6x15 mL 2676502
Tube Rack for Total Nitrogen Reaction Tubes, 20 mm	2497902
Replacement Reaction Tubes, 20 mm, 5/pkg	LZP065
Cylinder, mixing, 25 mL	189640
Pipet, TenSette®, 0.1-1.0 mL	1970001
Pipet, TenSette®, 1.0-10.0 mL	1970010
Test Tube Cooling Rack, 13 mm Vials	2497900
Test Tube Cooling Rack, 16 mm Vials	1864100
Digesdahl Apparatus for TKN, 115 Vac	2313020
Digesdahl Apparatus for TKN, 220 Vac	2313021

*Generally, the DR 5000 performs the same methods as the DR/4000. The DR 2800 performs the same methods as the DR 2700, DR/2500, and DR/2400. Some exceptions do exist.



Reagents

Description	Platform	Instrument*	Product Number
Nutrients Basic Reagent Set, TNTplus 25 tests each: Nitrogen, Total, LR • Phosphorus, Total and Reactive (ortho), LR	TNT+	DR 5000, DR 2800	2925000 [†]
Nutrients Testing Basic Reagent Set, Test 'N Tube 25 test each: Nitrogen, Total, LR • Phosphorus, Total, LR	TNT	All except DR/850, DR/820, PC II	2925200 [‡]
Nutrients Advanced Reagent Set, TNTplus 25 tests each: Nitrogen, Total, LR • Nitrogen, Ammonia, LR • Nitrogen, Nitrate, LR • Nitrogen, Nitrite, LR • Phosphorus, Total and Reactive (ortho), LR	TNT+	DR 5000, DR 2800	2925100 [†]
Nutrients Testing Basic Reagent Set, Test 'N Tube • Nitrogen, Total, LR, 25 - 49 tests • Nitrogen, Ammonia, HR, 50 tests • Nitrogen, Nitrate, HR, 50 tests • Nitrogen, Nitrite, LR, 50 tests • Phosphorus, Total, LR, 25 - 49 tests • Phosphorus, Reactive, (ortho) LR, 50 tests	TNT	All except DR/850, DR/820, PC II	2925300 [‡]

[†]Requires Digestion. Use DRB200 Reactor (Prod. No. DRB200-05) with 13 mm vial wells or use TNTplus Adaptor Sleeves 16 mm to 13 mm (Prod. No. 28958-05) to convert from a 16 mm reactor vial well to 13 mm vial well.

[‡]Requires Digestion. Use DRB200 Reactor (Prod. No. LTV082.53.40001) or other dry block reactors with 16mm vial wells

Oil and Grease

Reagents

EPA
COMPLIANT

Description	Method	Platform	Range	# Tests	Product Number
HEXANE EXTRACTABLE GRAVIMETRIC METHOD	10056				
Acetone, ACS, 500 mL		S	15 - 3,000 mg/L HEM and SGT-HEM		1442949
Hexadecane, 99%, 100 mL		S			2664842
Hydrochloric Acid Standard Solution 500mL, 1:1 (6N)		S			88449
Hexane, ACS 500 mL		S			1447849
pH Paper		0-14		100	2601300
Silica Gel with indicator, 454 g					1426901
Silica Gel, 100-200 mesh, 500 g					2665034
Sodium Sulfate, Anhydrous, 454 g					709901
Stearic Acid, 500 g					2664934

Accessories Required to Run Tests

Description	Product Number
Aspirator, Vacuum	213100
Desiccator	2088800
Funnel, Separatory, 500 mL	52049
Hot Plate, 120 Vac	2881400
Oven, Drying 120 Vac	1428900
Pipette, Serological, 5 mL	53237

Refer to procedure for complete list of required accessories.

Above products are for use with Hach Method 10056. See page 100 for Xenosep® SPE System for testing for Oil and Grease using EPA Method 1664A.

ORP

For information about Hach laboratory and field ORP instruments, please see pages 27-47.

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PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titration; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

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Oxygen Scavengers

Methods available for a wide variety of oxygen scavengers:

- carbohydrazide
- DEHA
- hydroquinone

- iso-ascorbic (erythorbic) acid
- methylethylketoxime
- Ferrous Iron values also determined

Reagents

Description	Method	Platform	Range	Instrument*	# Tests	Product Number
Oxygen Scavenger Reagent Set	8140	PP, S	5-600 µg/L carbohydrazide 3-450 µg/L DEHA 9-1,000 µg/L hydroquinone 13-1500 µg/L erythorbic acid iso-ascorbic acid (ISA) 15-1,000 µg/L methylethyl ketoxime (MEKO)	DR/850, DR/820, PC II	100	2446600
Set includes: (2) DEHA 1 Powder Pillows (1) DEHA 2 Solution, 100 mL		PP S			50 100	2167969 2168042
Bottle, mixing, with 25-mL mark						1704200

Test Kits

Description	Platform	Range	# Tests	Product Number
DEHA Test Kit (Model DH-1)	CD	0-65,0-375,0-1700 µg/L DEHA	50	2168200
Oxygen Scavenger Test Kit (Model OS-1)	CD	0-65,0-375,0-1700 µg/L DEHA (and other Oxygen Scavengers)	100	2349500

See page 433 for on-line measurement with the 9186 Analyzer.

Ozone

- Easy-to-use AccuVac® reagents are ideally suited for ozone analysis
- Indigo Trisulfonate Method

- Multiple ranges available
- Hach's reagent formulation prevents chlorine interference

Reagents

Description	Method	Platform	Range	Instrument*	# Tests	Product Number
Ozone AccuVac	8311	AV	0.01-0.25 mg/L O ₃	All except DR/820	25	2516025
Ozone AccuVac	8311	AV	0.01-0.75 mg/L O ₃	All except DR/820	25	2517025
Ozone AccuVac	8311	AV	0.01-1.50 mg/L O ₃	All except DR/820, PC II	25	2518025

Test Kits

Description	Method	Platform	Range		# Tests	Product Number
Pocket Colorimeter™ II – Ozone	8311	PCII, AV	0.01-0.25 / 0.01-0.75 mg/L O ₃	Kit includes PC II	50	5870004
Ozone Test Kit (AccuVac) Indigo Method		AV, CD	0.01-0.30 mg/L O ₃		25	2516050
Ozone Test Kit (AccuVac) Indigo Method		AV, CD	0.02-0.80 mg/L O ₃		25	2517050
Ozone Test Kit (AccuVac) Indigo Method		AV, CD	0.05-1.6 mg/L O ₃		25	2518050
Ozone Test Kit (Model OZ-2), DPD Method		CD	0.05-2.30 mg/L O ₃		100	2064400

Standards

Description	Volume	Concentration	Instrument	Product Number
Spec✓ Gel secondary standard kit – Ozone MR	Set of 4 vials	0 - 0.75 mg/L O ₃	Includes values for all instruments, except DR/3000 and DR/700	2708000

See page 434 for on-line measurement with the 9185sc Amperometric Analyzer.

*Generally, the DR 5000 performs the same methods as the DR/4000. The DR 2800 performs the same methods as the DR 2700, DR/2500, and DR/2400. Some exceptions do exist.

PCB (Polychlorinated Biphenyls)

- Portable systems allow on-site evaluation

Reagents

Description	Method	Platform	Range	Instrument*	# Tests	Product Number
PCB Reagent Set	10050	IA	1, 5, 10, 50 ppm Thresholds	All except DR/3000 DR/2000, DR/800	up to 18	2773500
Soil Extraction Refill Kit						2775200
Water, Demineralized, 500 mL						27248

Test Kits

Description	Method	Platform	Range		# Tests	Product Number
Pocket Colorimeter™ II – PCB in Soil	10050	PCII, IA	Threshold ppm	Kit includes PCII	up to 18	2773400

Accessories Required to Run Tests (All are included in Pocket Colorimeter II Kit.)

Description	Product Number
Balance, AccuLab Pocket Pro	2796900
Soil Scoop, 5 g each	2657205
Caps, flip-spout 2/pkg	2581802
Rack, for 1 cm microcuvettes	4879900
Pipet, TenSette, 0.1 - 1.0 mL	1970001
Wipes, Disposable	2097000
Marker, Laboratory	2092000

Parameters

pH

Test Strips

Description	Platform	Range	# Tests	Product Number
pH Test Strips	TS	4-9 pH (4,5,6,7,8,9 steps)	50	2745650

Test Kits

Description	Platform	Range	# Tests	Product Number	
pH, NARROW RANGE					
pH Test Kit, Bromthymol Blue	CC	5.5-7.5 pH	50	2067100	
pH Test Kit, Phenol Red	CC	6.5-8.5 pH	50	1251900	
pH Test Kit (Model 17D), 2,4 Dinitrophenol	CD	3.0-5.0 pH	200	147004	
pH Test Kit (Model 17S), Bromcresol Blue	CD	5.2-6.8 pH	200	147014	
pH, MID-RANGE					
Pocket Colorimeter™ II – Chlorine, Free & Total & pH (Not for regulatory reporting.)	PCII,PP	0.1-10.0 mg/L Cl ₂ 6.0-8.5 pH	Kit includes PC II	100	5870012
pH Test Kit, Bromthymol Blue (Model 17F)	CD	5.5-8.5 pH	100	147006	
pH Test Kit, Phenol Red Liquid (Model 17H)	CD	6.5-8.5 pH	200	147008	
pH Test Kit, Phenol Red PP (Model 17G)	CD	6.5-8.5 pH	200	2667400	
pH Test Kit, Thymol Blue (Model 17J)	CD	7.8-10.0 pH	200	147009	
pH Test Kit, Alizarin Yellow (Model 17M)	CD	9.7-11.6 pH	200	147010	
pH, WIDE RANGE					
pH Test Kit (Model 17N)	CD	4-10 pH (0.5 unit steps)	300	147011	

Continued on next page.

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PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

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Standards (Buffers)

Description	Volume	Concentration	Product Number
COLOR-CODED			
Buffer Solution, (color-coded Red) (NIST)	500 mL	pH 4.01	2283449
Buffer Solution, (color-coded Red) (NIST)	4 L	pH 4.01	2283456
Buffer Solution, (color-coded Red) (NIST)	20 L	pH 4.01	2283461
Buffer PP (color-coded Red), 50 mL, pk/50 [†]	PP	pH 4.01	2226966
Buffer PP (color-coded Red), 50 mL, pk/250 [†]	PP	pH 4.01	2226964
Buffer Solution, (color-coded Yellow) (NIST)	500 mL	pH 7.00	2283549
Buffer Solution, (color-coded Yellow) (NIST)	4 L	pH 7.00	2283556
Buffer Solution, (color-coded Yellow) (NIST)	20 L	pH 7.00	2283561
Buffer PP (color-coded Yellow), 50 mL, pk/50 [†]	PP	pH 7.00	2227066
Buffer PP (color-coded Yellow), 50 mL, pk/250 [†]	PP	pH 7.00	2227064
Buffer Solution, (color-coded Blue) (NIST)	500 mL	pH 10.01	2283649
Buffer Solution, (color-coded Blue) (NIST)	4 L	pH 10.01	2283656
Buffer Solution, (color-coded Blue) (NIST)	20 L	pH 10.01	2283661
Buffer PP (color-coded Blue), 50 mL, pk/50 [†]	PP	pH 10.01	2227166
Buffer PP (color-coded Blue), 50 mL, pk/250 [†]	PP	pH 10.01	2227164
Buffer PP (color-coded Red and Yellow), pk/10 [†] each color	PP	pH 4.01 and pH 7.00	2299264
COLOR-CODED 3-PACKS			
One container each of pH standardization buffer solutions at pH 4.01 (red), 7.00 (yellow) and 10.01 (blue).	500 mL bottles	NEW!	2947600
	4L bottles		2507200
	20 L containers		2507300
COLORLESS			
Buffer Solution, (colorless) (NIST)	500 mL	pH 4.01	1222349
Buffer Solution, (colorless) (NIST)	4 L	pH 4.01	1222356
Buffer PP (colorless), 50 mL, pk/15 [†]	PP	pH 5.00	1409795
Buffer PP (colorless), 50 mL, pk/50 [†]	PP	pH 6.00	1405566
Buffer PP (colorless, 50 mL, pk/15 [†]	PP	pH 6.86	1409895
Buffer Solution, (colorless) (NIST)	500 mL	pH 7.00	1222249
Buffer Solution, (colorless) (NIST)	4 L	pH 7.00	1222256
Buffer PP (colorless), 50 mL, pk/15 [†]	PP	pH 8.00	1407995
Buffer PP (colorless), 50 mL, pk/15 [†]	PP	pH 9.00	1410766
Buffer Solution, (colorless) (NIST)	500 mL	pH 10.01	1222149
Buffer Solution, (colorless) (NIST)	4 L	pH 10.01	1222156
†NOTE: one Powder Pillow of buffer prepares 50 mL.			
SINGLET™ SOLUTION PACKS			
Buffer Solution, pk/20 total (10 each)	pH 7.00 and pH 10.01		2769820
Buffer Solution, pk/20 total (10 each)	pH 4.01 and pH 7.00		2769920
Buffer Solution, pk/20	pH 4.01		2770020
Buffer Solution, pk/20	pH 7.00		2770120
Buffer Solution, pk/20	pH 10.01		2770220

See pages 436-443 for on-line measurement with Hach pH Sensors and Analyzers.

Indicators

Description	Volume / # Tests	Product Number
Bromcresol Green Indicator Solution, pH indicator: pH 3.8 (yellow)-pH 5.4 (blue)	500 mL	2329549
Bromcresol Green-Methyl Red Indicator Powder Pillows	100	94399
	Powder 15 g	94323
Bromcresol Green-Methyl Red Indicator Solution, APHA, Alkalinity	15 mL SCDB	2329236
	100 mL MDB	2329232
	500 mL	2329249
Bromcresol Purple Indicator Solution, 0.02% (alc.)	100 mL MDB	25432
Phenolphthalein Indicator Powder Pillows	100	94299

Indicators (Continued)

Description	Volume	Product Number
Bromphenol Blue Indicator Powder Pillows pH indicator for acidity and alkalinity titrations Visual transition interval: pH 3.0 (yellow)-pH 4.6 (blue), 50-mL sample	100 Powder Pillows	1455099
Bromphenol Blue Indicator Solution pH indicator for acidity and alkalinity titrations Visual transition interval: pH 3.0 (yellow)-pH 4.6 (blue)	100 mL MDB	1455232
Bromthymol Blue Indicator Powder Pillows pH indicator Visual transition interval: pH 6.0 (yellow)- pH 7.6 (blue)	100 Powder Pillows	2067299
Bromthymol Blue Indicator Solution Standardized for colorimetric pH determination, pH range 5.5-7.3	100 mL MDB 500 mL	25532 25549
Cresol Red Indicator Solution, standardized for colorimetric pH determination pH range 6.4-7.8	500 mL	25649
2,4-Dinitrophenol Indicator Solution, suitable for pH Test Kit, Model 17D	100 mL MDB	186932
Methyl Orange Indicator Solution, 0.5 g/L	100 mL MDB 500 mL	14832 14849
Methyl Purple Indicator Solution, 1.0 g/L, for alkalinity titrations; pH range 4.8 to 5.4	100 mL MDB 500 mL	2193432 2193449
Methyl Red Indicator Solution, 1.0 g/L, APHA	500 mL	14949
Phenol Red Sodium Salt, pH indicator	5 g	2563922
Phenol Red Indicator Solutions, standardized for colorimetric pH determination Color range: pH 5.8 (yellow)-pH 7.3 (red)	15 mL SCDB 50 mL SCDB 100 mL MDB 500 mL 50 mL spec. grade	21136 21126 21132 21149 2657512
Thymol Blue Indicator Solution; pH range 7.4-9.5	100 mL MDB	25732
Thymolphthalein Indicator Solution, 1.0 g/L pH indicator: Visual transition interval: pH 8.8 (colorless)-pH 10.5 (blue)	15 mL SCDB	2185336
Wide Range pH Indicator Solution, for colorimeters and spectrophotometers	500 mL	2329649
Wide Range-4 pH Indicator Solution, for test kits	100 mL MDB 1 L	2329332 2329353

Phenols

- EPA approved (distillation required)

**Reagents**

Description	Method	Platform	Range	Instrument*	EPA Compliant	# Tests	Product Number
Phenols Reagent Set (no air freight) Set Includes: (3) Buffer Solution, Hardness 1, 500 mL (2) Chloroform, ACS 4L (2) Phenol Reagent Powder Pillows (2) Phenol 2 Reagent Powder Pillows	8047	PP, S S S PP PP	0.002-0.200 mg/L Phenol	All except DR/800 PC II	Yes	100 50 66 50 50	2243900 42449 1445817 87299 183699
Phenols Reagent Set , packaged for air freight Same contents as 22439-00. Reagents are packaged to meet air freight regulations		PP, S	0.002-0.200 mg/L Phenol	DR 5000, DR 2800	Yes	100	2243901

Test Kits

Description	Platform	Range	# Tests	Product Number
PL-1 Test Kit	CD	0.02-1.00 ; 0.1-5.0 mg/L	100	2483600

Standards

Description	Volume	Concentration	Product Number
Phenol, ACS, 113 g	Jar		75814

Continued on next page.

*Generally, the DR 5000 performs the same methods as the DR/4000. The DR 2800 performs the same methods as the DR 2700, DR/2500, and DR/2400. Some exceptions do exist.

Accessories Required to Run Tests

Description	Product Number
Funnel, Separatory, 500 mL	52049
Pipet, Volumetric, Class A 5.00 mL	1451537
Distillation Apparatus Set, General Purpose (Additional reagents are required for the distillation procedure.)	2265300
Distillation Heater and Support Apparatus, 115 V	2274400
Distillation Heater and Support Apparatus, 230 V	2274402
Cylinder, graduated, 500 mL	50849

Phosphonates

- Hach's unique UV Oxidation provides quick determination of phosphonates, without hot plate digestions

Reagents

Description	Method	Platform	Range	Instrument*	# Tests	Product Number
Phosphonate Reagent Set, 10 mL	8007	PP	0.02-2.50	All except DR/820	100	2429700
Set Includes:			1.0-125 mg/L PO ₄ ³⁻			
(1) Potassium Persulfate Powder Pillows		PP			100	2084769
(2) PhosVer 3 Powder Pillows, 10 mL		PP			100	2106069
Phosphonate Reagent Set, 25 mL	8007	PP	0.02-2.50	DR/2000, DR/3000	100	2244000
Set Includes:			1.0-125 mg/L PO ₄ ³⁻			
(1) Potassium Persulfate Powder Pillows		PP			100	2084769
(2) PhosVer 3 Powder Pillows, 25 mL		PP			50	212599

Also see Benzotriazole
on pages 132-133 and Oxygen
Scavengers on page 172.

Test Kits

Description	Method	Platform	Range	# Tests	Product Number
Phosphonate Test Kit (Model PN-10), with UV Lamp, 115V		CD	0.1-5 / 1-125 mg/L	100	2113300
Phosphonate Test Kit (Model PN-10), with UV Lamp, 220V		CD	0.1-5 / 1-125 mg/L	100	2113302
Phosphonate Test Kit (Model PN-10), without Lamp		CD	0.1-5 / 1-125 mg/L	100	2113301
Pocket Colorimeter™ II – Phosphonate	8007	PP	0.1-2.5/1-125 mg/L	100	5870007

Standards

Description	Volume	Concentration	Product Number
Phosphate Standard Solution	500 mL	1 mg/L	256949
Phosphate Standard Solution	946 mL	10 mg/L	1420416
Phosphate Standard Solution	10 mL/16 Volumetric Ampules	50 mg/L	17110

Accessories Required to Run Tests

Description	Product Number
Bottle, mixing, with 25-mL mark	1704200
Cylinder, mixing, 50-mL	189641
UV Lamp with power supply, 115V, includes goggles	2082800
UV Lamp with power supply, 220V, includes goggles	2082802
UV Lamp 9V Power Supply Field Pack	2670600
UV Lamp 9V Power Supply	2670800

*Generally, the DR 5000 performs the same methods as the DR/4000. The DR 2800 performs the same methods as the DR 2700, DR/2500, and DR/2400. Some exceptions do exist.

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titration; EX=Extraction; IA=Immunoassay; PCL=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

- **PhosVer® 3 (Ascorbic Acid)**—EPA accepted for wastewater analysis, obtain results quickly and easily with Hach's PhosVer® 3 reagent
- **Amino Acid**—Hach's mid-range Phosphorus method, a simple two-reagent method



- **Molybdovanadate**—Hach's highest range Phosphorus method, ideal method for process control of high phosphorus concentrations
- **Hach's Test 'N Tube™** reagents—make Total Phosphorus testing easy by allowing you to add sample, digest, and read in one vial
- **TNTplus™** reagents—the ultimate in convenience and accuracy

Reagents

Description	Method	Platform	Range	Instrument*	EPA Compliant	Digestion Required	# Tests	Product Number
PHOSPHORUS TNTplus™ – 13 mm								
Phosphorus, Reactive	10214	TNT+	1.6-30 mg/L P (5-90 mg/L PO ₄)	DR 5000, DR 2800			25	TNT846
Phosphorus, Reactive and Total, LR	10209	TNT+	0.05-1.5 mg/L P (0.15-4.5 mg/L PO ₄)	DR 5000, DR 2800	Yes	Yes for Total	25	TNT843
Phosphorus, Reactive and Total, HR	10209	TNT+	0.5-5 mg/L P (1.5-15.0 mg/L PO ₄)	DR 5000, DR 2800	Yes	Yes for Total	25	TNT844
Phosphorus, Reactive and Total, UHR	10209	TNT+	2-20 mg/L P (6-60 mg/L PO ₄)	DR 5000, DR 2800	Yes	Yes for Total	25	TNT845

Use this method and the appropriate Pour-Thru Cell for your instrument (page 83) for the lowest phosphorus detection limits.

PHOSPHORUS

Phosphorus Rapid Liquid Reagent Set Ascorbic Acid Method Set Includes: (1) Ascorbic Acid Reagent Dilution Solution, 450 mL (1) Ascorbic Acid Reagent Powder, 48g (1) Molybdate Reagent Solution, 500 mL	10055	S	19-3000 µg/L PO ₄	All except DR/4000, DR/800, PC II			250	2678600
			S				250	2599949
		Jar					250	2651255
		S					250	2599849
Phosphate Reagent Set Total + Acid Hydrolyzable Ascorbic Acid Method	8180	TNT	0.06-3.50 mg/L PO ₄	All except DR/820, PC II			25-50†	2742745
PhosVer® 3 Powder Pillows, 10 mL	8048	PP	0.02-2.50 mg/L PO ₄	All except DR/3000, DR/2000, DR/820	Yes		100	2106069
PhosVer® 3 Powder Pillows, 25 mL	8048	PP	0-2.50 mg/L PO ₄	DR/3000, DR/2000	Yes		100	212599
PhosVer® 3 AccuVac	8048	AV	0.02-2.50 mg/L PO ₄	All except DR/820	Yes		25	2508025
Reactive Phosphorus, Orthophosphate Reagent Set, LR PhosVer® 3 Method	8048	TNT	0.06-5.00 mg/L PO ₄	All except DR/820, PC II			25-50†	2742545
Orthophosphate Reagent Set Amino Acid Method Set Includes: (1) Amino Acid Reagent, 100 mL (1) Molybdate Reagent, 100 mL	8178	S	0.23-30.00 mg/L PO ₄	All except PC II			100	2244100
		S					100	193432
		S					100	223632
Molybdovanadate Reagent, 100mL, HR & Rapid Liquid, HR	8114	S	0.3-45.0 mg/L PO ₄	All except DR/850, DR/820, PC II			50	2076032
Molybdovanadate Reagent, 500mL, HR & Rapid Liquid, HR	8114	S	0.3-45.0 mg/L PO ₄	All except DR/850, DR/820, PC II			250	2076049
Phosphorus, Molybdovanadate AccuVac	8114	AV	0.3-45.0 mg/L PO ₄	All except DR/850, DR/820, PC II			25	2525025
Reactive Phosphorus Reagent Set, HR Molybdovanadate Method	8114	TNT	1.0-100.0 mg/L PO ₄	All except DR/850, DR/820, PC II			25-50†	2767345
Total Phosphorus Reagent Set, TNT, HR Molybdovanadate Method	10127	TNT	1.0-100.0 mg/L PO ₄	All except DR/850, DR/820, PC II		Yes	25-50†	2767245
Total Phosphorus Reagent Set, TNT, LR	8190	TNT	0.06-3.50 mg/L PO ₄	All except DR/820, PC II	Yes	Yes	25-50†	2742645
Phosphorus Digestion Reagent Set Set Includes: (1) Sulfuric Acid 5.25 N, 100 mL (1) Sodium Hydroxide 5.0 N, 100 mL (1) Potassium Persulfate Powder Pillows	8190	PP, S		All			100	2459000
		S					100	244932
		S					100	245032
		PP					100	245199

†Dependent on the number of performed reagent blanks.

Continued on next page.

*Generally, the DR 5000 performs the same methods as the DR/4000. The DR 2800 performs the same methods as the DR 2700, DR/2500, and DR/2400. Some exceptions do exist.

Reagents (Continued)

Description	Method	Platform	Range	Instrument*	EPA Compliant	Digestion Required	# Tests	Product Number
PhosVer® 3 Powder Pillows, 10 mL	8048	PP	0.02-2.50 mg/L PO ₄	All except DR/820	Yes		1,000	2106028
PhosVer® 3 Powder Pillows, 25 mL	8048	PP	0.02-2.50 mg/L PO ₄	DR/3000, DR/2000	Yes		100	212599
PhosVer® 3 Powder Pillows, 25 mL	8048	PP	0.02-2.50 mg/L PO ₄	DR/3000, DR/2000	Yes		1,000	212528

LACHAT INSTRUMENT REAGENTS

Phosphate Reagent Set Please contact Technical Support for determination of method and range.	Lachat QuikChem® 8500 System						1,500	52902
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Test Strips

Description	Platform	Range	# Tests	Product Number
Phosphate, Ortho (as PO ₄)	TS	0-50 mg/L PO ₄ (0, 5, 15, 30, 50 steps)	50	2757150

Test Kits

Description	Method	Platform	Range		# Tests	Product Number
Pocket Colorimeter™ II - Phosphate	8048	PCII	0.02-3.00 mg/L PO ₄	Kit includes PC II	100	5870006
Orthophosphate Test Kit (reactive) (Model PO-19) For clean samples		CD	0.02-1.00, 0.1-5.0, 1-50 mg/L PO ₄		100	224800
Orthophosphate Test Kit (reactive) (Model PO-19A) For clean samples and turbid samples		CD	0.1-5.0, 1-50 mg/L PO ₄		100	224801
Orthophosphate Test Kit (reactive) (Model PO-14)†		CD	0.1-4.5; 1-45 mg/L PO ₄		100	147500
Orthophosphate Test Kit (AccuVac)		AV, CD	0.1-5 mg/L PO ₄		25	2508050
Orthophosphate Test Kit		CC	1-5 mg/L PO ₄		50	1252200

†PO-14 is especially suited for measuring orthophosphate in waters conditioned with Poly-4 or similar orthophosphate compounds.

Standards

Description	Volume	Concentration	Product Number
Phosphate Standard Solution	500 mL	1 mg/L PO ₄ ³⁻	256949
Phosphate Standard Solution	946 mL	3 mg/L PO ₄ ³⁻	2059716
Phosphate Standard Solution	946 mL	10 mg/L PO ₄ ³⁻	1420416
Phosphate Standard Solution	100 mL	15 mg/L PO ₄ ³⁻	1424342
Phosphorus Standard Solution as P (NIST)	10 mL/16 Vialette Ampules	25 mg/L P	2109210
Phosphate Standard Solution	946 mL	30 mg/L PO ₄ ³⁻	1436716
Phosphate Standard Solution	2 mL / 20 Vialette Ampules	50 mg/L PO ₄ ³⁻	17120H
Phosphate Standard Solution	10 mL/16 Vialette Ampules	50 mg/L PO ₄ ³⁻	17110
Phosphate Standard Solution	500 mL	50 mg/L PO ₄ ³⁻	17149
Phosphate Standard Solution	100 mL	100 mg/L PO ₄ ³⁻	1436832
Phosphate Standard Solution	10 mL/16 Vialette Ampules	500 mg/L PO ₄ ³⁻	1424210
Phosphate Standard Solution	100 mL	500 mg/L PO ₄ ³⁻	1424232
Phosphorus Standard Solution as P (NIST)	100 mL	1000 mg/L P	2321142
Drinking Water Inorganics, Mixed Parameter QC Standard; (Fluoride Nitrate, Phosphate, Sulfate)	500 mL	Fluoride- 1 mg/L F ⁻ ; Nitrate- 2 mg/L NO ₃ ⁻ -N; Phosphate- 2 mg/L PO ₄ ³⁻ ; Sulfate- 50 mg/L SO ₄ ²⁻	2833049
Wastewater Influent Inorganics, Mixed Parameter QC Standard; (Ammonia, Nitrate, Phosphate, COD, Sulfate, TOC)	500 mL	Ammonia-15 mg/L NH ₃ -N; Nitrate-10 mg/L NO ₃ ⁻ -N; Phosphate-10 mg/L PO ₄ ³⁻ ; COD-500 mg/L COD; Sulfate-400 mg/L SO ₄ ²⁻ ; TOC-161 mg/L TOC	2833149
Wastewater Effluent Inorganics, Mixed Parameter QC Standard; (Ammonia, Nitrate, Phosphate, COD, Sulfate, TOC)	500 mL	Ammonia- 2 mg/L NH ₃ -N; Nitrate- 4 mg/L NO ₃ ⁻ -N; Phosphate- 2 mg/L PO ₄ ³⁻ ; COD- 25 mg/L COD; Sulfate- 50 mg/L SO ₄ ²⁻ ; TOC- 8 mg/L TOC	2833249

Accessories Required to Run Tests

Description	Product Number
DRB200 Reactor (Required for Total Phosphate TNT and TNTplus™ methods—to order, visit www.hach.com or contact your Hach representative.)	
Sample Blank Vials, 5/pk (required for Prod. No. TNT846)	TNT919
Reactor Adapter, 16 mm to 13 mm, 5/pk (For use with older COD Reactors with 16 mm holes)	2895805

*Generally, the DR 5000 performs the same methods as the DR/4000. The DR 2800 performs the same methods as the DR 2700, DR/2500, and DR/2400. Some exceptions do exist.

Reagents

Description	Method	Platform	Range	Instrument*	# Tests	Product Number
Potassium Reagent Set	8049	PP	0.1-7.0 mg/L K	All except DR/800, PC II	100	2459100
Set Includes:						
(4) Potassium 1 Reagent Powder Pillows		PP			25	1432198
(4) Potassium 2 Reagent Powder Pillows		PP			25	1432298
(1) Potassium 3 Reagent Powder Pillows		PP			100	1432399

Standards

Description	Volume	Concentration	Product Number
Potassium Standard Solution	500 mL	100 mg/L K	2351749
Potassium Standard Solution	10 mL/16 Voluette Ampules	250 mg/L K	1479010

Quaternary Ammonium Compounds

Reagents

Description	Method	Platform	Range	Instrument*	# Tests	Product Number
Quaternary Ammonium Compounds Reagent Set	8337	PP	0.2-5.0 mg/L as CTAB	All except DR/800, PC II	100	2459200
Set Includes:						
(4) QAC Reagent 1 Powder Pillows		PP			50	2401066
(8) QAC Reagent 2 Powder Pillows		PP			12.5	2401268

Standards

Description	Volume	Concentration	Product Number
QAC Standard Solution	100 mL	100 mg/L as CTAB	2415342

Salinity

Also see Meters Section, pages 27-52.

Reagents

Description	Method	Platform	Range	Instrument	# Tests	Product Number
MERCURIC NITRATE METHOD	10073					
Diphenylcarbazone Reagent Powder Pillows		PP	0-100 ppt salinity		100	96799
Mercuric Nitrate Titration Cartridge, 2.570 N		DT	0-100 ppt salinity	Digital Titrator	40-100	2393701
Water, Deionized (4L Bottle)		S				27256

Test Kits

Description	Platform	Range	# Tests	Product Number
Salinity Test Kit (Model SA-DT)	DT	2-100 ppt	100	2421800

Accessories Required to Run Tests

Description	Product Number
Digital Titrator	1690001
Syringe, 3-cc, Luer lock tip	4321300
Vial with 2, 5, 10, 15, 20, and 25-mL marks	219300

*Generally, the DR 5000 performs the same methods as the DR/4000. The DR 2800 performs the same methods as the DR 2700, DR/2500, and DR/2400. Some exceptions do exist.

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows;
RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

Reagents

Description	Method	Platform	Range	Instrument*	# Tests	Product Number
Selenium Reagent Set	8194	S	0.01-1.00 mg/L Se	All except DR/800, PC II	66-100	2244200
Set Includes:						
(1) Sulfate Buffer Solution pH 2.0, 500 mL		S			50	45249
(1) Diaminobenzidine tetrahydrochloride, 5 g		Jar			50	706222
(1) Potassium Hydroxide Std Soln 12N, 100 mL		S			25	23032
(1) TitraVer Hardness Reagent, ACS, 100 g		Jar			250	20426
(1) Toluene, ACS 4L		S			66-100	1447017
Selenium Reagent Set, Air Freight Configuration (Toluene is packaged in multiple bottles to meet air freight regulations.)					66-100	2244201
Water, Deionized (4L Bottle)		S				27256
DISTILLATION REAGENTS						
Calcium Chloride Solution, 1,000 mL		S				42853
Hydrochloric Acid Standard Solution, 0.1N, 1,000 mL						1481253
Hydrogen Peroxide, 30%, ACS, 473 mL						14411
Methyl Orange Indicator Solution, (0.50 g/L), 500 mL						14849
Phenol Solution, 30 g/L, 29 mL						211220
Potassium Permanganate Standard Solution, 1 g/L, 100 mL						1416442
Sodium Hydroxide Standard Solution, 0.100 N, 1,000 mL						19153
Sulfuric Acid Standard Solution, 19.2 N, 500 mL						203849

Standards

Description	Volume	Concentration	Product Number
Selenium Standard Solution	100 mL	1000 mg/L	2240742

Accessories Required to Run Tests

Description	Product Number
Pipet, Volumetric, 5 mL	1451537
Hot Plate, 7 x 7in, 115V	2881600
Hot Plate, 7 x 7in, 220V	2881602
Distillation Apparatus Set, general purpose	2265300
Distillation Apparatus Heater, 115 Vac	2274400
Distillation Apparatus Heater, 230 Vac	2274402

Please refer to the Hach procedure at www.hach.com for a complete list.

*Generally, the DR 5000 performs the same methods as the DR/4000. The DR 2800 performs the same methods as the DR 2700, DR/2500, and DR/2400. Some exceptions do exist.

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titration; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

- Hach's Silica analyzers have set the standard for monitoring trace Silica concentrations in boiler water for many years, and our laboratory solutions provide a great complement to these reliable products
- Hach's multiple Silica analysis methods and ranges offer a more complete solution to your Silica testing needs
- Silicomolybdate—Hach's highest range Silica method
- Heteropoly Blue—Hach's lowest range Silica method, two ranges available (low and ultra low range), developed specifically for boiler and ultra pure water analysis

Reagents

Description	Method	Platform	Range	Instrument*	# Tests	Product Number
Silica Ultra Low Range Rapid Liquid Reagent Set Heteropoly Blue	8282	S	3-1000 µg/L SiO ₂	All except DR/4000, DR/800, PC II	250	2678500
Set Includes:						
(1) Molybdate 3 Reagent Solution, 500 mL		S			250	199549
(1) Citric Acid Reagent Solution, 500 mL		S			250	2254249
(1) Amino Acid F Dilution Solvent, 475 mL		S			250	2353011
(1) Amino Acid F Reagent Powder, 55 g		Jar			250	2651155
Silica Ultra Low Range Bulk Solution Reagent Set Heteropoly Blue	8282	S	3-1000 µg/L SiO ₂	All except DR/800, PC II	100	2553500
Set Includes:						
(2) Molybdate 3 Reagent Solution, 100 mL		S			100	199532
(2) Citric Acid F Reagent Solution, 100 mL		S			100	2254232
(1) Amino Acid F Reagent Solution, 100 mL		S			100	2386442
Silica Ultra Low Range Ampuled Reagent Set Heteropoly Blue	8282	S	3-1000 µg/L SiO ₂	All except DR/3000, DR/800, PC II	40	2581400
Set Includes:						
(1) Molybdate 3 Reagent Solution, 100 mL		S			100	199532
(1) Citric Acid F Reagent Solution, 100 mL		S			100	2254232
(2) Amino Acid F Solution, 1.2 mL Ampules, 20/Pk		S			20	2386420
Silica Reagent Set, LR, 10 mL	8186	PP, S	0.010-1.600 mg/L SiO ₂	All except DR/3000, DR/2000, DR/820, PC II	100	2459300
Set Includes:						
(2) Molybdate 3 Reagent, 50 mL		S			50	199526
(2) Citric Acid Powder Pillows for Silica		PP			50	2106269
(1) Amino Acid F Reagent Powder Pillows		PP			100	2254069
Silica Reagent Set, HR, 10 mL	8185	PP	1-100 mg/L SiO ₂	All except DR/3000, DR/2000, DR/850, DR/820	100	2429600
Set Includes:						
(1) Acid Reagent Powder Pillows for HR Silica		PP			100	2107469
(1) Citric Acid Reagent Powder Pillows		PP			100	2106269
(1) Molybdate Reagent Powder Pillows		PP			100	2107369
Silica Low Range Reagent Set, 25 mL Heteropoly Blue	8186	PP, S	0.010-1.600 mg/L SiO ₂	DR/2000	100	2346800
Set Includes:						
(1) Molybdate 3 Reagent Solution 100 mL		S			100	199532
(2) Citric Acid Powder Pillows		PP			100	1454899
(1) Amino Acid F Reagent Powder Pillows		PP			100	2253869
Silica High Range Reagent Set, 25 mL Silicomolybdate	8185	PP	1-100 mg/L SiO ₂	DR/3000, DR/2000, DR/800	100	2244300
Set Includes:						
(1) Molybdate Reagent HR Powder Pillows		PP			100	104199
(1) Acid Reagent Powder Pillows		PP			100	104299
(1) Citric Acid Powder Pillows		PP			100	1454899

*Generally, the DR 5000 runs the same methods as the DR/4000. The DR 2800 runs the same methods as the DR/2500 and DR/2400. Some exceptions do exist.

Continued on next page.

Use the Ultra Low Range Rapid Liquid Reagent Set and the appropriate Pour Thru Cell for your instrument (page 83) for the lowest silica detection limits.

*Generally, the DR 5000 performs the same methods as the DR/4000. The DR 2800 performs the same methods as the DR 2700, DR/2500, and DR/2400. Some exceptions do exist.



MOST POPULAR!

Test Kits

Description	Method	Platform	Range		# Tests	Product Number
Pocket Colorimeter™ II – Silica HR	8185	PCII, PP	1-100 mg/L SiO ₂	Kit includes PC II	100	5870034
Silica Test Kit, LR (Model SI-7)		CD	0.02-1.00 mg/L SiO ₂		100	2255000
Silica Test Kit, HR (Model SI-5)		CD	1-40/ 20-800 mg/L SiO ₂		100	1455400

Standards

Description	Volume	Concentration	Product Number
Silica Standard Solution as SiO ₂ (NIST)	3.78 L	0.5 mg/L SiO ₂	2100817
Silica Standard Solution as SiO ₂ (NIST)	500 mL	1 mg/L SiO ₂	110649
Silica Standard Solution as SiO ₂ (NIST)	500 mL	10 mg/L SiO ₂	140349
Silica Standard Solution as SiO ₂ (NIST)	236 mL	25 mg/L SiO ₂	2122531
Silica Standard Solution as SiO ₂ (NIST)	200 mL	50 mg/L SiO ₂	111729
Silica Standard Solution as SiO ₂ (NIST)	500 mL	1000 mg/L SiO ₂	19449

Accessories Required to Run Tests

The Rapid Liquid and Ultra Low Range Methods require a Pour Thru Cell—please reference the procedure for specifics.

See page 449 for on-line measurement with the Series 5000 Analyzer.

Silver

- Digestion required for total silver determination or when interferences are present

Reagents

Description	Method	Platform	Range	Instrument*	# Tests	Product Number
Silver Reagent Set	8120	PP	0.005-0.700 mg/L Ag	All except DR/800, PC II	50	2296600
Set Includes:						
(1) Silver 1 Reagent Powder Pillows		PP			50	2293566
(1) Silver 2 Reagent Solution Pillows		SP			50	2293666
(1) Sodium Thiosulfate Powder Pillows		PP			50	2293766

DIGESTION REAGENTS (for Digesdahl digestion)

Hydrogen Peroxide, 50%, 490 mL						2119649
Phenolphthalein Indicator Solution 1 g/L, 15 mL						189736
Sodium Hydroxide Solution, 50% , 500 mL						218049
Sodium Hydroxide Solution, 1.00 N, 100 mL						104532
Sulfuric Acid, ACS Concentrated, 2.5 L						97909
Thymolphthalein Indicator Solution 1 g /L, 15 mL						2185336

Test Kits

Description	Platform	Range	# Tests	Product Number
RapidSilver™, Visual Comparison	Color Match	5-50 ppb Ag	100	2674500

*Generally, the DR 5000 performs the same methods as the DR/4000. The DR 2800 performs the same methods as the DR 2700, DR/2500, and DR/2400. Some exceptions do exist.

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip



Standards

Description	Volume	Concentration	Product Number
Silver Standard Solution	100 mL	1000 mg/L Ag	1461342
Water, Deionized (4L Bottle)			27256

Accessories Required to Run Tests

Description	Product Number
Digesdahl Digestion Apparatus, 115V	2313020
Boiling Chips, Silicon Carbide, 500g	2055734
Safety Shield for Digesdahl	5003000

Sodium

For information about Sodium Electrochemical Probes visit: www.hach.com.

For information about on-line measurement of sodium, see page 451.

Solids, Suspended**Required Apparatus**

Description	Method	Instrument*	Product Number
PHOTOMETRIC METHOD Spectrophotometer or colorimeter, with sample cells.	8006	All except DR/4000, PC II	
Beaker, 600 mL, poly			108052
Blender, 1.2 L, 120 Vac			2616100
Blender, 1.2 L, 240 Vac			2616102
Cylinder, Graduated, 500 mL, poly			108149
Pipet, Serological, 25 mL			206640

See pages 460 and 461
for on-line measurement with
the SOLITAX sc Sensor.

Solids, Total**Required Apparatus**

Description	Product Number
GRAVIMETRIC	
Cylinder, 50 mL	50841
Dessicant, Indicating, Drierite, 454 g	2088701
Dessicator	1428500
Dessicator Plate, Ceramic	1428400
Dish, Aluminum (63 X 17.5 mm), 100/pk	2164000
Oven, Laboratory, 120 Vac, 60 Hz	1428900
Tongs	56900
Balance, Analytical	2936701

*Generally, the DR 5000 performs the same methods as the DR/4000. The DR 2800 performs the same methods as the DR 2700, DR/2500, and DR/2400. Some exceptions do exist.

Sulfate

Parameters

- Single reagent system

- SulfaVer® 4 method EPA accepted for wastewater



Reagents

Description	Method	Platform	Range	Instrument*	EPA Compliant	# Tests	Product Number
SulfaVer 4 METHOD	8051						
SulfaVer 4 Reagent Powder Pillow, 10 mL		PP	2-70 mg/L SO_4^{2-}	All except DR/4000, DR/3000, DR/2010, DR/2000	Yes	100	2106769
SulfaVer 4 AccuVac		AV	2-70 mg/L SO_4^{2-}	All	Yes	25	2509025
SulfaVer 4 Reagent Powder Pillow, 25 mL		PP	2-70 mg/L SO_4^{2-}	DR/4000, DR/3000, DR/2010, DR/2000	Yes	100	1206599
SulfaVer 4 Reagent Powder Pillow, 25 mL		PP	2-70 mg/L SO_4^{2-}	DR/4000, DR/3000, DR/2010, DR/2000	Yes	1,000	1206528
Sulfate TNTplus™, LR	10227	TNT+	40-50 mg/L SO_4	DR 5000, DR 2800		25	TNT864
Sulfate TNTplus™, HR	10227	TNT+	150-900 mg/L SO_4	DR 5000, DR 2800		25	TNT865

NEW!

Test Kits

Description	Method	Platform	Range		# Tests	Product Number
Pocket Colorimeter™ II –Sulfate	8051	PCII, PP	2-70 mg/L	Kit includes PC II	100	5870029
Sulfate Test Kit (Model SF-1)		TRB	50-200 mg/L		100	225100

Standards

Description	Volume	Concentration	Product Number
Sulfate Standard Solution as SO_4^{2-} (NIST)	500 mL	50 mg/L SO_4^{2-}	257849
Sulfate Standard Solution as SO_4^{2-} (NIST)	500 mL	100 mg/L SO_4^{2-}	89149
Sulfate Standard Solution as SO_4^{2-} (NIST)	500 mL	1000 mg/L SO_4^{2-}	2175749
Sulfate Standard Solution as SO_4^{2-} (NIST)	10 mL/ 16 Viallette Ampules	2500 mg/L SO_4^{2-}	1425210
Sulfate Standard Solution as SO_4^{2-} (NIST)	500 mL	2500 mg/L SO_4^{2-}	1425249

See page 199
for mixed-parameter standards.

Sulfide / Hydrogen Sulfide

- Quick, easy test kits available for field use

- Stable formulations



Reagents

Description	Method	Platform	Range	Instrument*	EPA Compliant	# Tests	Product Number
Sulfide Reagent Set	8131	S	5-800 $\mu\text{g/L S}^{2-}$	All except DR/820, PC II	Yes	100	2244500
Set Includes:							
(2) Sulfide 1 Reagent, 100 mL		S				50	181632
(2) Sulfide 2 Reagent, 100 mL		S				50	181732

Test Kits

Description	Platform	Range	# Tests	Product Number
Hydrogen Sulfide Test Kit (Model HS-C) Effervescence of H_2S	Color Card	0-5 mg/L H_2S (0.0, 0.1, 0.3, 0.5, 0.7, 1.0, 2.0, 5.0 steps)	18	2537800
Hydrogen Sulfide Test Kit (Model HS-WR) Methylene blue	CD	0.01-0.55 mg/L S^{2-} 0.5-2.25 mg/L S^{2-} 2.5-11.25 mg/L S^{2-}	60 60 30	223801

Accessories Required to Run Tests

Description	Product Number
Pipet, Serological, 10 mL	53238

*Generally, the DR 5000 performs the same methods as the DR/4000. The DR 2800 performs the same methods as the DR 2700, DR/2500, and DR/2400. Some exceptions do exist.



• Choice of titration method (buret titration, Digital Titrator)

• Reagents formulated for boiler water analysis

Reagents

Description	Method	Platform	Range	# Tests	Product Number
BURET TITRATION					
Sulfite Reagent Set , Buret Titration	8071		PP, SO ₃ ²⁻ >500 mg/L SO ₃ ²⁻	100	2459800
Set Includes:					
(1) Starch Indicator Solution, 100 mL		S		100	34932
(1) Dissolved Oxygen 3 Powder Pillows		PP		100	98799
(1) Potassium Iodide-Iodate Std Soln. 0.0125 N, 1L		S		40-100	1400153
Water, De-Ionized, 4 L		S			27256
DIGITAL TITRATOR TITRATION					
Sulfite Reagent Set , Digital Titrator Titration	8216	DT	4->400 mg/L SO ₃ ²⁻	100	2272300
Set Includes:					
(1) Starch Indicator Solution, 100 mL		S		100	34932
(1) Dissolved Oxygen 3 Powder Pillows		PP		100	98799
(1) Iodate-Iodide 0.3998N Cartridge		DT		40-100	1496101

Test Kits

Description	Platform	Range	# Tests	Product Number
Sulfite Test Kit (Model SU-5)	DCT	1-20; 10-200 mg/L SO ₃ ²⁻	100	148002
Sulfite Test Kit, Digital Titrator (Model SU-DT)	DT	4-800 mg/L SO ₃ ²⁻	100	2063300

Standards

Description	Volume	Concentration	Product Number
Sodium Thiosulfate Standard Solution 0.025N	1000 mL	0.025 N	2409353
Sulfite Equivalent Solution as SO ₃ ²⁻ (NIST)	500 mL	15 mg/L	2408449
Sulfite Equivalent Solution as SO ₃ ²⁻ (NIST)	10 mL/16 Volumetric Ampoules	5,000 mg/L	2267410

Surfactants

See Detergents on page 150.

Tannin and Lignin

Reagents

Description	Method	Platform	Range	Instrument*	# Tests	Product Number
Tannin and Lignin Reagent Set	8193	S	0.1-9.0 mg/L as Tannic Acid	All except DR/820, PC I	100	2244600
Set includes:						
(2) Sodium Carbonate Solution, 500 mL		S			100	67549
(1) TanniVer® 3 Reagent, 100 mL		S			100	256032
Water, De-Ionized, 4L		S				27256

Test Kits

Description	Platform	Range	# Tests	Product Number
Tannin and Lignin Test Kit (Model TA-3)	CD	0.5-15; 5-150 mg/L	100	193701

Continued on next page.

*Generally, the DR 5000 performs the same methods as the DR/4000. The DR 2800 performs the same methods as the DR 2700, DR/2500, and DR/2400. Some exceptions do exist.

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCIL=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=Swiftest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

Tannin and Lignin

Standards

Description	Product Number
Tannic Acid, 113g	79114
Water, De-Ionized, 4 L	27256

Accessories Required to Run Tests

Description	Product Number
Pipet, Volumetric, Class A, 5.0 mL	1451537
Pipet, Volumetric, Class A, 0.5 mL	1451534
Cylinder, Mixing, Graduated 25 mL	2088640

TDS (Total Dissolved Solids)

See pages 27-47.

TOC (Total Organic Carbon)

- Eliminates hazardous Mercury, Chromium and Silver waste
- Correlates well to instrumental TOC methods
- Effective means to monitor disinfection by-product precursors

Reagents

Description	Method	Platform	Range	Instrument*	Digestion Required	# Tests	Product Number
TOC TNT Reagent Set, LR Includes: Acid Digestion Solution Vials Low Range TOC, Sulfate Buffer Solution, Funnel, Indicator Ampules Low Range TOC, TOC Persulfate PP	10129	TNT	0.3-20.0 mg/L C	All except DR/3000, DR/2000, DR/820, PC II	Yes	25-50 [†]	2760345
TOC TNT Reagent Set, MR Includes: Acid Digestion Solution Vials High Range TOC, Sulfate Buffer Solution, Funnel, Indicator Ampules High Range TOC, TOC Persulfate PP	10173	TNT	15-150 mg/L C	All except DR/3000, DR/2000, DR/820, PC II	Yes	25-50 [†]	2815945
TOC TNT Reagent Set, HR Includes: Acid Digestion Solution Vials High Range TOC, Sulfate Buffer Solution, Funnel, Indicator Ampules High Range TOC, TOC Persulfate PP	10128	TNT	100-700 mg/L C	All except DR/3000, DR/2000, DR/820, PC II	Yes	25-50 [†]	2760445
Water, Organic-free, 500 mL	S						2641549

[†]Dependent on the number of performed reagent blanks.

Standards

Description	Volume	Concentration	Product Number
TOC Standard Solution (KHP Standard)	20 mL 5 ampules	1000 mg/L C	2791505
Oxygen Demand, Mixed Parameter QC Standard; (BOD, COD, TOC)	10 mL/ 16 Volumette Ampules	BOD - 396 mg/L BOD COD - 617 mg/L COD TOC - 242 mg/L TOC	2833510
Wastewater Influent Inorganics, Mixed Parameter QC Standard; (Ammonia, Nitrate, Phosphate, COD, Sulfate, TOC)	500 mL	Ammonia-15 mg/L NH ₃ -N; Nitrate-10 mg/L NO ₃ ⁻ -N; Phosphate-10 mg/L PO ₄ ³⁻ ; COD-500 mg/L COD; Sulfate-400 mg/L SO ₄ ²⁻ ; TOC-161 mg/L TOC	2833149
Wastewater Effluent Inorganics, Mixed Parameter QC Standard; (Ammonia, Nitrate, Phosphate, COD, Sulfate, TOC)	500 mL	Ammonia- 2 mg/L NH ₃ -N; Nitrate- 4 mg/L NO ₃ ⁻ -N; Phosphate- 2 mg/L PO ₄ ³⁻ ; COD- 25 mg/L COD; Sulfate- 50 mg/L SO ₄ ²⁻ ; TOC- 8 mg/L TOC	2833249
Potassium Acid Phthalate, 500g			31534

*Generally, the DR 5000 performs the same methods as the DR/4000. The DR 2800 performs the same methods as the DR 2700, DR/2500, and DR/2400. Some exceptions do exist.

TOC (Total Organic Carbon)

Accessories Required to Run Tests

Description	Product Number
DRB200 Reactor (To order, visit www.hach.com or contact your Hach representative.)	
Pipet, Tensette, 0.1-1.0 mL	1970001
Pipet, Tensette, 1.0-10.0 mL	1970010
Stir Bar	4531500
Magnetic Stirrer	2881200
pH Paper	39133
Test Tube Rack	1864100

See pages 452-455 for on-line measurement with the astroTOC Analyzers.

Tolytriazole

See Benzotriazole, on pages 132-133.

Toxicity

- Quick and inexpensive method makes it easy to monitor more frequently
- Economical alternative to bioassays

Reagents

Description	Method	Platform	Range	Instrument*	# Tests	Product Number
ToxTrak™ Toxicity Reagent Set	10017	PP, S	0-100% Inhibition	All except DR/3000, DR/820, PC II	25-49	2597200
Set includes:						
(1) ToxTrak Powder Pillows		PP			50	2560766
(1) ToxTrak Accelerator Solution, 15 mL		S			50	2560836
(1) Media Set, Total Bacteria					varies	2277700
(5) Culture Tube 16 mm x 100 mm (5/pk)						2275806
(1) Pipette, Transfer (6/pk)						2232512
(1) Sodium Thiosulfate Standard, 0.0246 N, 100 mL					varies	2409232

Test Kits

Description	Platform	# Tests	Product Number
Eclox™ Water Test Kit	Multiple	50	2886800
Eclox™ Reagent Set	Multiple	50	2886900
ToxTrak™ Toxicity Test Kit	CD	25	2597700
Culture Set, ToxTrak™		30	2597800

Accessories Required to Run Tests

Description	Product Number
Incubator, 12-well (for ToxTrak inoculum development)	2281400

*Generally, the DR 5000 performs the same methods as the DR/4000. The DR 2800 performs the same methods as the DR 2700, DR/2500, and DR/2400. Some exceptions do exist.

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titration; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

TPH in Soil (Total Petroleum Hydrocarbons)

- Portable systems allow on-site evaluation

- Detect TPH in soil or water

Reagents

Description	Method	Platform	Range	Instrument*	# Tests	Product Number
TPH Reagent Set	10050	IA	Threshold ppm 20, 50, 100, 200 ppm threshold	All except DR/3000, DR/2000, DR/800	up to 18	2774300
Soil Extraction Refill Kit						2775200
Water, Demineralized 500 mL						27248

Test Kits

Description	Method	Platform	Range	Instrument	# Tests	Product Number
Pocket Colorimeter™ II – TPH in Soil	10050	PCII, IA	Threshold ppm 20, 50, 100, 200 ppm threshold	Kit includes PC II	up to 18	2775000

Accessories Required to Run Tests (Included in Pocket Colorimeter Kit)

Description	Product Number
Balance, AccuLab Pocket Pro	2796900
Soil Scoop, 5 g each	2657205
Caps, flip-spout 2/pkg	2581802
Rack, for 1 cm microcuvettes	4879900
Pipet, TenSette, 0.1 - 1.0 mL	1970001
Wipes, Disposable	2097000
Marker, Laboratory	2092000

TPH in Water (Total Petroleum Hydrocarbons)

Reagents

Description	Method	Platform	Range	Instrument*	# Tests	Product Number
TPH Reagent Set	10050	IA	Threshold ppm 2, 5, 10, 20 ppm threshold	All except DR/3000, DR/2000, DR/800	up to 18	2774300
Water, Demineralized 500 mL						27248

Test Kits

Description	Method	Platform	Range	Instrument	# Tests	Product Number
Pocket Colorimeter™ II – TPH in Water	10050	PCII, IA	Threshold ppm	Kit includes PCII	up to 18	2774200

Accessories Required to Run Tests (Included in Pocket Colorimeter Kit)

Description	Product Number
Caps, flip-spout, 2/pkg	2581802
Rack, for 1 cm microcuvettes	4879900
Pipet, Tensette®, 0.1 - 1.0 mL	1970001
Wipes, Disposable	2097000
Marker, Laboratory	2092000

Triazole

See Benzotriazole, on page 132-133.

*Generally, the DR 5000 performs the same methods as the DR/4000. The DR 2800 performs the same methods as the DR 2700, DR/2500, and DR/2400. Some exceptions do exist.



Trihalomethane Formation Potential

- Determine the potential of source waters to form disinfection by-products when chlorinated

- Evaluate water treatment processes and water sources
- Predict THM formation in distribution systems

Reagents

Description	Method	Platform	Range	Instrument*	# Tests	Product Number
Chlorine Dosing Ampules, 10 mL ampules, 16/pkg	10224	S	1190-1310 mg/L as Cl ₂	DR5000, DR2800, DR 2700	Varies	2504810
DPD Free Chlorine Reagent Powder Pillows, 25 mL		PP			Varies	1407099
THM Plus Reagent Set					Varies	2790800

Standards

Description	Volume	Concentration	Product Number
Chloroform Ampules	2 mL, 7/pkg	10 ppm	2756707
Water, Organic Free	500 mL		2641549

Accessories Required to Run Tests

Description	Product Number
Bottles, Amber Glass, 118 mL, 6/pkg	714424
Caps, Black, PP Teflon liner, 12/pkg	2401812
Cell Holder assembly, TTHM	4788000
Evaporating Dish, 125 mm x 65 mm	2764700
Hot Plate/Stirrer, 7x7 inch, 110 V	2881600
Sample Cells, 10 mL w/caps	2427606
Stir Bar, Teflon-coated, 2.22 x 0.48 cm	4531500

TTHM (Total Trihalomethanes)

- Fast results
- Detection limit of 10 ppb
- Use to screen for hot spots in distribution systems

- Designed specifically for drinking water plants
- More cost effective than GC method
- Use to optimize plant operations for DBP control

Reagents

Description	Method	Platform	Range	Instrument*	Digestion Required	# Tests	Product Number
COLORIMETRIC							
Total Trihalomethanes Plus Reagent Set	10132	PP, S	10-600 µg/L CHCl ₃	DR 5000, DR/4000, DR 2800, DR 2700, DR/2400	Yes	50-99	2790800
Set includes:							
(1) THM 1 Reagent Solution, 15 mL		S				50	2753929
(1) THM 2 Reagent Solution, 330 mL		S				50	2754048
(1) THM 3 Reagent Solution, 110 mL		S				50	2754142
(1) THM 4 Powder Pillows		PP				50	2756699

Standards

Description	Volume	Concentration	Product Number
Chloroform Ampules, pk/7	2 mL	10 ppm Chloroform	2756707
Water, Organic-Free	500 mL		2641549

Total Trihalomethanes
Plus Reagent Set
Product No. 2790800



Continued on next page.

*Generally, the DR 5000 performs the same methods as the DR/4000. The DR 2800 performs the same methods as the DR 2700, DR/2500, and DR/2400. Some exceptions do exist.

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCIL=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

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U.S. customers only.



TTHM (Total Trihalomethanes)

Accessories Required to Run Tests

Description	Product Number
Cooling Basket; Cell Holder Assembly	4788000
Hot Plate, Stirring, 7" x 7", 115V	2881600
Hot Plate, Stirring, 7" x 7", 230V	2881602
TenSette Pipet, 1-10 mL	1970010

This TTHM test requires heating and the use of transfer pipets and several other common lab items. Please refer to the Hach Procedure at www.hach.com for a complete list.

Turbidity



2100 Series Laboratory Turbidimeters

For lab and portable turbidimeters, see pages 71-76.

See pages 456-464 for on-line turbidity analyzers.



2100 Series Portable Turbidimeter

Volatile Acids

Reagents

Description	Method	Platform	Range	Instrument*	Digestion Required	# Tests	Product Number
COLORIMETRIC							
Volatile Acids Reagent Set	8196	S	27-2800 mg/L Acetic Acid	All except PC II		100	2244700
Set includes:							
(1) Hydroxylamine Hydrochloride Solution 100 g/L, 100 mL		S				100	81842
(1) Sulfuric Acid Standard Solution, 19.2 N		S				250	203832
(1) Ethylene Glycol, 1 L		S				333	203953
(1) Sodium Hydroxide Standard Solution, 4.5 N, 1 L		S				250	204053
(2) Ferric Chloride-Sulfuric Acid Solution, 1 L		S				50	204253
BURET TITRATION							
	8291						
Distillation required. See Accessories Required, below.							
Phenolphthalein Powder Pillow		PP	100-2,400 mg/L CH ₃ COOH			100	94299
Sodium Hydroxide, 0.100N, 1 L		S					19153
DIGITAL TITRATOR TITRATION							
Distillation required. See Accessories Required, below.							
Volatile Acid Reagent Set	8218	DT, PP	100-2400 mg/L CH ₃ COOH			100	2460200
Set includes:							
(1) Sodium Hydroxide Cartridge, 0.9274 N		DT				40-100	1484201
(1) Phenolphthalein Powder Pillows		PP				100	94299

Standards

Description	Volume	Concentration	Product Number
Volatile Acids Standard Solution	10 mL/16 Volumetric Ampules	62,500 mg/L Acetic Acid	1427010

*Generally, the DR 5000 performs the same methods as the DR/4000. The DR 2800 performs the same methods as the DR 2700, DR/2500, and DR/2400. Some exceptions do exist.

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

Accessories Required to Run Tests

Description	Product Number
Centrifuge, 115 Vac	2676500
Centrifuge Tubes, 15 mL, 10/pkg	2278739
Hot Plate, 4-inch, 120 Vac	1206701
Water Bath and Rack	195555
For Distillation:	
General Purpose Distillation Apparatus Set	2265300
Heater and Support Apparatus, 115 Vac, 60 Hz	2274400
Heater and Support Apparatus, 230 Vac, 50 Hz	2274402

Water in Oil

- Detect coolant leakage into engine lubricants

Test Kits

Description	Platform	Range	# Tests	Product Number
Model WO-1 Test Kit	Visual	0.05-1, 0.2-10%	25	2237300

Zinc

- Zincon method EPA approved for NPDES reporting after digestion

- Accurate, reliable results
- Easy to use



Reagents

Description	Method	Platform	Range	Instrument*	EPA Compliant	# Tests	Product Number
Zinc Reagent Set, 20 mL Set includes: (1) Cyclohexanone, 100 mL (1) ZincoVer 5 Powder Pillows	8009	PP, S S PP	0.01-3.00 mg/L Zn	All except DR/3000, DR/2000	Yes	100	2429300 1403332 2106669
Zinc Reagent Set, 50 mL Set includes: (1) Cyclohexanone, 100 mL (4) ZincoVer 5 Powder Pillows	8009	PP, S S PP	0.01-2.00 mg/L Zn	DR/3000, DR/2000	Yes	100	2244800 1403332 1403268

Test Kits

Description	Platform	Range	EPA Compliant	# Tests	Product Number
Pocket Colorimeter TM II – Zinc	PCII, PP	0.02-3.00 mg/L Zn	Yes	100	5870009

Standards

Description	Volume	Concentration	Product Number
Zinc Standard Solution as Zn (NIST)	10 mL/ 16 Viallette Ampules	25 mg/L Zn	1424610
Zinc Standard Solution as Zn (NIST)	100 mL	100 mg/L Zn	237842
Zinc Standard Solution as Zn (NIST)	100 mL	1,000 mg/L Zn	1417742

Accessories Required to Run Tests

Description	Product Number
Cylinder, Graduated, Mixing, 25 mL	2088640
OR	
Cylinder, Graduated, Mixing 50 mL	189641

*Generally, the DR 5000 performs the same methods as the DR/4000. The DR 2800 performs the same methods as the DR 2700, DR/2500, and DR/2400. Some exceptions do exist.

Hach Reagent Delivery Program



Hach Reagent Delivery Program Facts

Ensure factory fresh chemicals and reagents, scheduled to meet your usage needs.

For customers who can forecast their reagent supply requirements (up to one year), Hach offers a Reagent Delivery Program (formerly known as SIRR Plan). This program applies to purchases of all Hach chemicals—analyzer reagents, COD vials, AccuVac® Ampules, buffers and standards, liquids and powders—and offers the following benefits:

- **Lower inventory costs and fresh supplies**
By arranging for reagents to arrive on your schedule, storage expense is minimized while assuring a predictable supply of fresh chemicals.
- **Reduced paperwork**
Submit one purchase order for the entire year—Hach will ship the amounts you dictate on a schedule you set.
- **Automatic shipments**
Enjoy peace of mind—your chemicals will be there when you need them. Hach shipments arrive on the schedule that best meets your needs.
- **Volume discounts**
Heavy chemical users may qualify for a volume discount up to 7%.

Here's how it works.

1. Determine Hach product numbers for the chemicals that you would like to include in your program.
2. Forecast your usage requirements for a one-year period, determining quantities and delivery dates for each item. These can vary based on seasonal usage for items such as chlorine, for example.
3. Determine the date of first delivery—when your program will begin.
4. To place your order visit www.hach.com or call **800-227-4224**.

Terms and Conditions

- To qualify for the Hach Reagent Delivery Program, orders must contain at least four shipments during a 12-month period, beginning at the time of the first delivery. Only reagents and chemicals that ship at least four times will apply to the program. Freight charges may vary with each shipment, and will be billed after each shipment is sent.
- Tiered discount plan available for large volume orders—contact Hach for details.
- No items may be added during the contract period. Additional items require a separate order. However, occasional customer requests for changes in purchase quantities or delivery schedules may be granted. Any delivery changes require advance notice of at least 30 days—and 60 days for specialty chemicals or items.
- Hach reserves the right to refuse changes in contractual terms. Customers electing to terminate the Program agreement prior to natural expiration and delivery in full may be assessed a cancellation fee amounting to any discount that may have been applied on the shipped product.
- All other terms stated in Hach catalogs, quotations and invoices will apply. Eligibility for the Hach Reagent Delivery Program is limited to USA customers for products to be shipped and used in the USA.