

Discrete Industrial Analyzer System Reagents for Water/Environmental Samples

Analyte	Code ⁽¹⁾	Product name	Kit size	Max. nbr. of tests/kit ⁽²⁾	Reference ⁽³⁾	Sample matrix	Interference filter nm ⁽⁴⁾	MDL ⁽⁵⁾ mg/L	Test ranges up to mg/L	
									Low range	High range
Alkalinity	984623	Alkalinity R1	4 x 20 mL	975	-	Drinking, ground and surface water	600 / 880	3.4 as CaCO ₃ ^(a)	-	400
	984624	Alkalinity R2	4 x 20 mL	780				5.4 as CaCO ₃ ^(b)		
Ammonia	984362	Ammonia R1	125 mL	2000	ISBN 0117516139	Drinking, ground, surface and waste water	660 / -	0.0005 as N ^(a)	1.0 ⁽⁷⁾	10.0
	984363	Ammonia R2	4 x 20 mL	1300	ISO 7150			0.0016 as N ^(b)		
	984720 ⁽⁶⁾	Ammonium (as N) Std	500 mL	-	DIN 38 406					
	984728 ⁽⁶⁾	Ammonium (as NH ₄) Std	500 mL	-	ISO 15923-1					
Calcium	984361	Calcium (Ca)	3 x 20 mL	350	Tietz Fundamentals of Clinical Chemistry 5th Ed.	Drinking, ground, surface and waste water	660 / -	1.16 ^(a)	-	1000
Chloride	984364	Chloride R1	4 x 20 mL	500	ISBN 0117516260	Drinking, ground, surface, waste and saline water	480 / -	0.035 ^(a)	100 ⁽⁷⁾	500 ⁽⁷⁾
	984365	Chloride R1L	20 x 20 mL	2500	SM 4500Cl-E			0.349 ^(b)		
	984721 ⁽⁶⁾	Chloride Std	500 mL	-	EPA 325.2 EN ISO 15682 ISO 15923-1					
Hexavalent Chromium	984357	Chromium (VI)	4 x 20 mL	480	SM 3500 Cr-B SW 7196 A DIN EN ISO 23913:2009 ISO 11083	Drinking, ground, surface and waste water	540 / 880	0.0026 ^(a)	0.1	1.0

Fluoride	984629	Fluoride R1	4 x 20 mL	2200		Drinking, ground, surface, waste and saline water	600 / 880	0.007 ^(a) 0.089 ^(b)	-	5.0 ⁽⁷⁾ 2.0 ⁽⁸⁾
	984630	Fluoride R2	4 x 20 mL	4800	SM 4500-F- E					
	984631	Fluoride R3	4 x 20 mL	2200	EPA 340.3					
	984733	Fluoride Std	100 mL	-						
Iron (Ferrous)	984706	Iron (Ferrous) R1	4 x 20 mL	1900	ISO 6332-1988	Drinking, Surface and waste water	510 / 880	0.05 ^(a) 0.04 ^(b)	-	5
	984707	Iron (Ferrous) R2	4 x 20 mL	1080	SM 3500 F-B					
Magnesium	984358	Magnesium (Mg)	8 x 11 mL	350	Tietz Fundamentals of Clinical Chemistry 5th Ed.	Drinking, ground, surface and waste water	510 / -	0.1 ^(a) 0.8 ^(b)	-	400
Nitrite	984371	TON R3	4 x 20 mL	1000	ISBN 0117515930	Drinking, ground, surface, waste and saline water	540 / -	0.0004 as N ^(a) 0.0012 as N ^(b)	2.5 ⁽⁷⁾ 1.5 ⁽⁸⁾	-
	984372	TON R3L	20 x 20 mL	5000	SM 4500 NO2-B					
	984723 ⁽⁶⁾	Nitrite (as N) Std	500 mL	-	EPA 354.1 ISO 13395:1996					
	984722 ⁽⁶⁾	Nitrite (as NO ₂) Std	500 mL	-	DIN EN 26777 ISO 15923-1					
Nitrate (TON Hyd)	984369	TON R1	125 mL	1300		Drinking, ground, surface and waste water	540 / -	0.0006 as N ^(a) 0.0115 as N ^(b)	2.5 ⁽⁷⁾	25 ⁽⁷⁾ 50 ⁽⁸⁾
	984370	TON R2	4 x 20 mL	750						
	984652	TON R2XL	6 x 60 mL	3400	ISBN 0117515930					
	984371	TON R3	4 x 20 mL	1000	SM 4500 NO3-H					
	984372	TON R3L	20 x 20 mL	5000	EPA 353.1					
	984725 ⁽⁶⁾	Nitrate (as N) Std	500 mL	-	ISO 15923-1					
Nitrate (TON Enz)	984187	TON Enz	20 mL	275	ASTM D7781-14	Drinking, ground, surface, waste and saline water	540 / 700 ⁽⁷⁾ 570 / - ⁽⁸⁾	0.00035 as N ^(a)	2.5 ⁽⁷⁾ 5.0 ⁽⁸⁾	30.0 ⁽⁸⁾
	984371	TON R3	4 x 20 mL	760	(NEC) Nitrate Reductase method for drinking water ⁽¹¹⁾					
	984725 ⁽⁶⁾	Nitrate (as N) Std	500 mL	-	USGS I-2547-11 ⁽¹²⁾					
	984724 ⁽⁶⁾	Nitrate (as NO ₃) Std	500 mL	-	USGS I-2548-11 ⁽¹²⁾ (NEC) Method N07- 0003					

Nitrate (TON Vanadium)	984350	TON-V R1	4 x 10 mL	360	NEMI ⁽⁹⁾ : Nitrate via manual Vanadium (III) reduction	Drinking, ground, surface, waste and saline water	540 / -	0.0007 as N ^(a)	0.4	50
	984351	TON-V R2	4 x 10 mL	500						
	984725 ⁽⁶⁾	Nitrate (as N) Std	500 mL	-						
	984724 ⁽⁶⁾	Nitrate (as NO ₃) Std	500 mL	-						
Phosphate	984366	Phosphate R1	4 x 20 mL	2300	ISBN 0117515825 SM 4500 P-E EPA 365.1 EN ISO 6878 ISO 15923-1	Drinking, ground, surface, waste and saline water	880 / -	0.0004 as P ^(a) 0.0036 as P ^(b)	1.0 ⁽⁷⁾	10.0
	984367	Phosphate R1L	20 x 20 mL	11700						
	984368	Phosphate R2	4 x 20 mL	3000						
	984729 ⁽⁶⁾	Phosphate (as P) Std	500 mL	-						
	984726 ⁽⁶⁾	Phosphate (as PO ₄) Std	500 mL	-						
Silica	984625	Silica R1	4 x 20 mL	970	USGS I-2700-85 EPA 370.1 SM 4500 SiO ₂ -D ISO 15923-1	Drinking, ground, surface, waste and saline water	700 / 420	0.01 as SiO ₂ ^(a) 0.05 as SiO ₂ ^(b)	-	80
	984626	Silica R2	4 x 20 mL	1950						
	984627	Silica R3	4 x 20 mL	1950						
Sulphate	984648	Sulphate R1	4 x 20 mL	1100	ISBN 0117533406 SM 4500 SO ₄ ²⁻ E EPA 375.4 DIN 38405-D 5-2 ISO 15923-1	Drinking, ground, surface and waste water	420 / -	0.26 ^(a)	100 ⁽⁷⁾	500
	984649	Sulphate R1XL	6 x 60 mL	5100						
	984727 ⁽⁶⁾	Sulphate Std	500 mL	-						
Total Hardness	984620	Total Hardness R1	4 x 20 mL	1100	EPA 130.1	Drinking, ground and surface water	620 / 880	2 as CaCO ₃ ^(a) 10 as CaCO ₃ ^(b)	-	500
	984621	Total Hardness R2	4 x 20 mL	975						
	984622	Total Hardness R3	4 x 20 mL	4300						
Urea ⁽¹⁰⁾	984321	Urea (Ammonia)	3 x 16 mL R1 3 x 4.5 mL R2 3 x 4.5 mL R3	775	Enzymatic urease method	Swimming pool water	340 / -	-	-	2

NOTE:

1. Reagents marked with XL in 60 mL vial sizes, TON R2XL and Sulphate R1XL, are only available for Aquakem systems.
2. Number of tests/ kit is test flow dependent number.
3. ISBN number refers to the UK blue book method
SM refers to Standard Methods for The Examination of Water and Waste Water, the 21st edition (APHA, AWWA, WEF)
SW refers to Standard Methods for Water and Waste Water
Methods are adapted for discrete analyzers from referred standards.
4. λ_1/λ_2 (main/side wavelength in nm)

5. MDL, Method detection limit, is the minimum concentration of an analyte that can be identified, measured and reported with 99 % confidence that the analyte concentration is greater than zero.
 - a) MDL = 3.14 x SD (blank/std sample, n = 7)
 - b) MDL = 3 x SD + average (blank sample, 3-5 batches, n = 30-50)
6. NIST Traceable standard solution
7. Application for the Gallery analyzers
8. Application for the Aquakem analyzers
9. See www.nemi.gov
10. Ammonia result is needed for Urea calculation from assayed Ammonia
11. Nitrate Elimination Company, Inc. (NECi). "Method for Nitrate Reductase Nitrate-Nitrogen Analysis of Drinking Water," February 2016.
12. See www.usgs.gov

NIST traceable standards for ECM measurements

Parameter	Code	Product name	Kit size
pH	984330	ECM pH 2 Standard	2 x 60 mL
	984331	ECM pH 4 Standard	2 x 60 mL
	984332	ECM pH 7 Standard	2 x 60 mL
	984333	ECM pH 10 Standard	2 x 60 mL
	984334	ECM pH 12 Standard	2 x 60 mL
Conductivity (mS/cm)	984339	ECM Conductivity 0.08 Standard	2 x 60 mL
	984336	ECM Conductivity 1.4 Standard	2 x 60 mL
	984337	ECM Conductivity 13 Standard	2 x 60 mL
	984338	ECM Conductivity 112 Standard	2 x 60 mL

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