

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 EPA 350.1* | | | | | |
| Calcium | 984374 | Calcium (Ca) | 3 x 20 mL | 350 | Tietz Fundamentals of Clinical Chemistry 6th Ed. | Drinking, ground, surface and waste water | 660 / - | 0.1 ^(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 4500CI-E | | | 0.349 ^(b) | | 1000 ⁽⁸⁾ |
| | 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 |

*EPA 350.1 amended as accepted in Title 40 Part 136.3 – phenol substitution by salicylate.

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|-------------------|-----------------------|-----------------------------------|------------|------|--|---|--|--|--|--|
| 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 | | | | | |
| | 984722 ⁽⁶⁾ | Nitrite (as NO ₂) Std | 500 mL | - | ISO 13395:1996 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 | | | | | |
| | 984724 ⁽⁶⁾ | Nitrate (as NO ₃) Std | 500 mL | - | | | | | | |
| 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 | (NECi) 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⁾ (NECi) Method N07-0003 | | | | | |

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|---------------------------|-----------------------|-------------------------------------|--|-------|---|---|-----------|--|--------------------|------|
| 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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