# WATER POLLUTION

**Matrices with high concentrations of analytes for testing water pollution or waste water. Standards are based on requirements of the United States Environmental Protection Agency Clean Water Act and may be used to satisfy PT requirements worldwide.**


## 2015 Water Pollution PT Scheme Schedule

| | Scheme # | Opens | Closes |
|---|---|---|---|
| Q | WP 240 | Jan 12 | Feb 26 |
| | WP 241 | Feb 16 | Apr 2 |
| | WP 242 | Mar 9 | Apr 23 |
| Q | WP 243 | Apr 13 | May 28 |
| | WP 244 | May 11 | Jun 25 |
| | WP 245 | Jun 15 | Jul 30 |
| Q | WP 246 | Jul 13 | Aug 27 |
| | WP 247 | Aug 10 | Sep 24 |
| | WP 248 | Sep 14 | Oct 29 |
| Q | WP 249 | Oct 16 | Nov 30 |
| | WP 250 | Nov 13 | Dec 28 |
| | WP 251 | Dec 14 | Jan 28, 2016 |

Schedule subject to change – see ERA's website at www.eraqc.com

## 2016 Water Pollution PT Scheme Schedule

| | Scheme # | Opens | Closes |
|---|---|---|---|
| Q | WP 252 | Jan 18 | Mar 3 |
| | WP 253 | Feb 15 | Mar 31 |
| | WP 254 | Mar 7 | Apr 21 |
| Q | WP 255 | Apr 11 | May 26 |
| | WP 256 | May 16 | Jun 30 |
| | WP 257 | Jun 13 | Jul 28 |
| Q | WP 258 | Jul 18 | Sep 1 |
| | WP 259 | Aug 15 | Sep 29 |
| | WP 260 | Sep 12 | Oct 27 |
| Q | WP 261 | Oct 14 | Nov 28 |
| | WP 262 | Nov 7 | Dec 22 |
| | WP 263 | Dec 12 | Jan 26, 2017 |

Schedule subject to change – see ERA's website at www.eraqc.com

| Description | CRM | PT | QR | Page |
|---|---|---|---|---|
| Acidity | 915 | 885 Q | 915QR | 16 |
| Acids | 712 | 834 M | 712QR | 18 |
| Boron | 919 | 886 Q | 919QR | 16 |
| Base/Neutrals | 711 | 833 M | 711QR | 18 |
| Bromide | 769 | 887 Q | 769QR | 16 |
| BTEX & MTBE | 760 | 643 Q | 760QR | 17 |
| Carbamate Pesticides | 908 | 899 Q | 908QR | 19 |
| Chlordane | 716 | 837 M | 716QR | 19 |
| Chlorinated Acid Herbicides | 718 | 829 M | 718QR | 17 |
| Color | 070 | 882 Q | 070QR | 15 |
| Complex Nutrients | 525 | 579 M | 525QR | 12 |
| Cyanide & Phenol | 502 | 588 M | 502QR | 15 |
| Demand | 516 | 578 M | 516QR | 13 |
| Diesel Range Organics (DRO) in Water | 764 | 641 Q | 764QR | 18 |
| EDB/DBCP/TCP | 692 | 562 Q | 692QR | 18 |
| Gasoline Range Organics (GRO) | 762 | 640 Q | 762QR | 17 |
| Glycols in Water | 401 | 271 Q | 401QR | 18 |
| Hardness | 507 | 580 M | 507QR | 12 |
| HEM/SGT-HEM | 519 | 489 Q | 519QR | 13 |
| Hexavalent Chromium | 984 | 898 M | 984QR | 14 |
| Lithium | 4992 | 4990 * | 4992QR | 14 |
| Low-Level Mercury | 931 | 896 Q | 931QR | 14 |
| Low-Level Nitroaromatics & Nitramines | 677 | 932 Q | 677QR | 18 |
| Low-Level PAHs | 715 | 836 Q | 715QR | 18 |
| Low-Level Total Residual Chlorine (TRC) | 917 | 881 M | 917QR | 16 |
| Mercury | 514 | 574 M | 514QR | 14 |
| Minerals | 506 | 581 M | 506QR | 12 |
| Nitrite | 770 | 888 M | 770QR | 12 |
| Nitrogen Pesticides | 674 | 487 Q | 674QR | 19 |
| Oil & Grease | see page 13 for options | | | |
| Organochlorine Pesticides | 713 | 831 M | 713QR | 19 |
| Organophosphorous Pesticides | 665 | 934 Q | 665QR | 19 |
| PAHs-GC/GCMS | 4882 | 4880 Q | 4882QR | 18 |
| PCBs in Oil | 729S | 835S M | 729SQR | 17 |
| PCBs in Water | 734S | 832S M | 734SQR | 17 |
| pH | 977 | 577 M | 977QR | 12 |
| QC Plus | see pages 21-22 for options | | | |
| Ready-to-Use CRMS | see page 20 for options | | | |
| Settleable Solids | 911 | 883 M | 911QR | 12 |
| Silica | 775 | 890 Q | 775QR | 15 |
| Simple Nutrients | 505 | 584 M | 505QR | 12 |
| Solids | 499 | 241 M | 499QR | 12 |
| Solids Concentrate | 4032 | 4030 M | 4032QR | 12 |
| Surfactants-MBAS | 776 | 892 Q | 776QR | 15 |
| Sulfide | 071 | 891 M | 071QR | 15 |
| Sulfite | 534 | 244 * | 534QR | 15 |
| Tin & Titanium | 517 | 573 M | 517QR | 14 |
| Total Organic Halides (TOX) | 670 | 895 Q | 670QR | 15 |
| Total Phenolics (4-AAP) | 515 | 589 M | 515QR | 15 |
| Total Residual Chlorine (TRC) | 501 | 587 M | 501QR | 16 |
| Toxaphene | 717 | 838 M | 717QR | 19 |
| TPH in Water | 600/601 | 642 Q | 602QR | 13 |
| Trace Metals | 500 | 586 M | 500QR | 14 |
| Turbidity | 777 | 893 M | 777QR | 15 |
| Uranium | 4402 | 4400 Q | 4402QR | 14 |
| Volatile Aromatics | 4452 | 4450 Q | 4452QR | 17 |
| Volatiles | 710 | 830 M | 710QR | 17 |
| Volatile Solids | 913 | 884 M | 913QR | 12 |

**CRM** – Certified Reference Material
**PT** – Proficiency Testing
**QR** – QuiK Response

All ERA WP PTs open monthly (M) or quarterly (Q) unless otherwise noted.
* WP Lithium PTs open in February and August. WP Sulfite PTs open in January and July.

Quarterly months are January, April, July, and October.

## QuiK Response PT

Need PT results fast? Available 52 weeks a year, QuiK Response PTs are on demand PTs that return final results within minutes of submitting your data online. In the US, please call ERA customer service at 800-372-0122 or 303-431-8454 to order. Outside of the US, please contact your authorized ERA sales partner to order.

# MINERALS/SOLIDS

## Minerals

| CRM | PT M | QR |
|---|---|---|
| Cat. #506 | Cat. #581 | Cat. #506QR |

One 500 mL whole-volume bottle is ready to analyze.

| | |
|---|---|
| Total alkalinity as $CaCO_3$ | 25-400 mg/L |
| Chloride | 35-275 mg/L |
| Fluoride | 0.4-4 mg/L |
| Potassium | 4-40 mg/L |
| Sodium | 10-100 mg/L |
| Specific conductance at 25 °C | 200-1200 µmhos/cm |
| Sulfate | 5-125 mg/L |
| Total dissolved solids at 180 °C | 140-800 mg/L |
| Total solids at 105 °C | 140-800 mg/L |

## Hardness

| CRM | PT M | QR |
|---|---|---|
| Cat. #507 | Cat. #580 | Cat. #507QR |

One 500 mL whole-volume bottle is ready to analyze.

| | | |
|---|---|---|
| Calcium | 10-100 | mg/L |
| Calcium hardness as $CaCO_3$ | 25-250 | mg/L |
| Total hardness as $CaCO_3$ | 40-415 | mg/L |
| Magnesium | 4-40 | mg/L |
| Total suspended solids (TSS) | 20-100 | mg/L |

## pH

| CRM | PT M | QR |
|---|---|---|
| Cat. #977 | Cat. #577 | Cat. #977QR |

One 250 mL whole-volume bottle is ready to analyze.

| | |
|---|---|
| pH | 5-10 units |

## Settleable Solids

| CRM | PT M | QR |
|---|---|---|
| Cat. #911 | Cat. #883 | Cat. #911QR |

One 60 mL poly bottle with a solid yields 1 liter after dilution. Use with EPA method 160.5, Standard Methods 2540F, or other applicable method.

| | |
|---|---|
| Settleable solids | 5-50 mL/L |

## Volatile Solids

| CRM | PT M | QR |
|---|---|---|
| Cat. #913 | Cat. #884 | Cat. #913QR |

One 12 mL screw-cap vial with a solid yields 1 liter after dilution. Use with EPA method 160.4, Standard Methods 2540E, or other applicable method.

| | |
|---|---|
| Total volatile solids | 100-500 mg/L |

## Solids Concentrate

| CRM | PT M | QR |
|---|---|---|
| Cat. #4032 | Cat. #4030 | Cat. #4032QR |

One 24 mL screw-cap vial with a powder yields 1 liter of solution.

| | |
|---|---|
| Total solids at 105 °C | 140-800 mg/L |
| Total dissolved solids at 180 °C | 140-800 mg/L |
| Total suspended solids (TSS) | 20-100 mg/L |

## Solids

| CRM | PT M | QR |
|---|---|---|
| Cat. #499 | Cat. #241 | Cat. #499QR |

One 500 mL whole-volume bottle is ready to analyze.

| | |
|---|---|
| Total solids at 105 °C | 140-800 mg/L |
| Total dissolved solids at 180 °C | 140-800 mg/L |
| Total suspended solids (TSS) | 20-100 mg/L |

# NUTRIENTS

## Simple Nutrients

| CRM | PT M | QR |
|---|---|---|
| Cat. #505 | Cat. #584 | Cat. #505QR |

One 15 mL screw-cap vial yields up to 2 liters after dilution.

| | |
|---|---|
| Ammonia as N | 1-20 mg/L |
| Nitrate as N | 2-25 mg/L |
| Nitrate plus nitrite as N | 2.5-25 mg/L |
| ortho-Phosphate as P | 0.5-5.5 mg/L |

## Complex Nutrients

| CRM | PT M | QR |
|---|---|---|
| Cat. #525 | Cat. #579 | Cat. #525QR |

One 15 mL screw-cap vial yields up to 2 liters after dilution.

| | |
|---|---|
| Total Kjeldahl Nitrogen as N | 3-35 mg/L |
| Total phosphorus as P | 0.5-10 mg/L |

## Nitrite

| CRM | PT M | QR |
|---|---|---|
| Cat. #770 | Cat. #888 | Cat. #770QR |

One 15 mL screw-cap vial yields up to 2 liters after dilution.

| | |
|---|---|
| Nitrite as N | 0.4-4 mg/L |

# OIL & GREASE/TOTAL PETROLEUM HYDROCARBONS

When ordering Oil & Grease or Total Petroleum Hydrocarbons (TPH) PTs, please specify if you need a sample compatible with SPE.

## Oil & Grease

| CRM |
|---|
| Cat. #504 |

One 250 mL whole-volume bottle is ready to analyze.

Oil & Grease ..... 20-200 mg/bottle

## Oil & Grease Concentrate

| CRM | PT M | QR |
|---|---|---|
| Cat. #4122 | Cat. #4120 | Cat. #4122QR |

One 24 mL screw-cap vial yields up to 2 liters after dilution. Use with EPA method 1664, or other applicable method. Gravimetric analysis only.

Oil & Grease ..... 20-200 mg/L

## 1 Liter Oil & Grease

| CRM | PT M | QR |
|---|---|---|
| Cat. #518 | Cat. #582 | Cat. #518QR |

One liter whole-volume glass bottle with a 33-430 thread is ready to analyze. For gravimetric and IR analyses.

Oil & Grease ..... 20-200 mg/L

## 1 Liter Boston Round Oil & Grease

| CRM | PT M | QR |
|---|---|---|
| Cat. #818 | Cat. #582 | Cat. #818QR |

One liter whole-volume glass bottle with a 33-400 thread is ready to analyze. For gravimetric and IR analyses.

Oil & Grease ..... 20-200 mg/L

## HEM/SGT-HEM

| CRM | PT Q | QR |
|---|---|---|
| Cat. #519 | Cat. #489 | Cat. #519QR |

One 5 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA method 1664, or other applicable method to measure hexane extractable material (HEM) and silica gel treated-HEM. Contains both hexadecane and stearic acid. Note: If a NELAC compliant PT is required, use Cat. #582 or Cat. #4120.

Hexane extractable material ..... 5-100 mg/L
Silica gel treated-HEM ..... 5-100 mg/L

## Total Petroleum Hydrocarbons (TPH) in Water

| CRM | PT Q | QR |
|---|---|---|
| Cat. #600 | Cat. #642 | Cat. #602QR |

One liter whole-volume bottle is ready to analyze for TPH without interfering fatty acids. Use with EPA methods 418.1, 1664, 5520, or other applicable method.

Total Petroleum Hydrocarbons ..... 20-200 mg/L

## Total Petroleum Hydrocarbons (TPH) in Water

| CRM | PT Q | QR |
|---|---|---|
| Cat. #601 | Cat. #642 | Cat. #602QR |

One liter whole-volume bottle is ready to analyze for TPH in the presence of interfering fatty acids. Use with EPA methods 418.1, 1664, 5520, or other applicable method.

Total Petroleum Hydrocarbons ..... 20-200 mg/L

# DEMAND

## Demand

| CRM | PT M | QR |
|---|---|---|
| Cat. #516 | Cat. #578 | Cat. #516QR |

One 15 mL screw-cap vial yields up to 2 liters after dilution.

5-day BOD ..... 18-230 mg/L
Carbonaceous BOD ..... 18-230 mg/L
COD ..... 30-250 mg/L
TOC ..... 6-100 mg/L

# METALS

## Trace Metals

| CRM | PT M | QR |
|---|---|---|
| Cat. #500 | Cat. #586 | Cat. #500QR |

One 15 mL screw-cap vial yields up to 1 liter after dilution. Use with AA, ICP-OES or ICP-MS and selected colorimetric methods.

| | |
|---|---|
| Aluminum | 200-4,000 µg/L |
| Antimony | 90-900 µg/L |
| Arsenic | 90-900 µg/L |
| Barium | 100-2,500 µg/L |
| Beryllium | 50-500 µg/L |
| Boron | 800-2,000 µg/L |
| Cadmium | 100-1,000 µg/L |
| Chromium | 100-1,000 µg/L |
| Cobalt | 100-1,000 µg/L |
| Copper | 100-1,000 µg/L |
| Iron | 200-4,000 µg/L |
| Lead | 100-1,500 µg/L |
| Manganese | 200-2,000 µg/L |
| Molybdenum | 60-600 µg/L |
| Nickel | 200-2,000 µg/L |
| Selenium | 100-1,000 µg/L |
| Silver | 100-1,000 µg/L |
| Strontium | 50-500 µg/L |
| Thallium | 80-800 µg/L |
| Vanadium | 50-2,000 µg/L |
| Zinc | 300-2,000 µg/L |


## Mercury

| CRM | PT M | QR |
|---|---|---|
| Cat. #514 | Cat. #574 | Cat. #514QR |

One 15 mL screw-cap vial yields up to 1 liter after dilution. Analyze for total mercury.

| | |
|---|---|
| Mercury, total | 3-30 µg/L |

## Low-Level Mercury

| CRM | PT Q | QR |
|---|---|---|
| Cat. #931 | Cat. #896 | Cat. #931QR |

One 5 mL flame-sealed ampule yields up to 4 liters after dilution. Use with EPA1631, or other sensitive mercury analysis methods.

| | |
|---|---|
| Mercury, total | 20-100 ng/L |

*ERA Low-Level Mercury is also available during February and March WP PT schemes.*

## Hexavalent Chromium

| CRM | PT M | QR |
|---|---|---|
| Cat. #984 | Cat. #898 | Cat. #984QR |

One 15 mL screw-cap vial yields up to 2 liters after dilution. Use with IC or colorimetric methods.

| | |
|---|---|
| Hexavalent chromium | 90-900 µg/L |

## Tin and Titanium

| CRM | PT M | QR |
|---|---|---|
| Cat. #517 | Cat. #573 | Cat. #517QR |

One 15 mL screw-cap vial yields up to 1 liter after dilution. Use with AA, ICP-OES or ICP-MS methods.

| | |
|---|---|
| Tin | 200-2,000 µg/L |
| Titanium | 60-300 µg/L |

## Uranium

| CRM | PT Q | QR |
|---|---|---|
| Cat. #4402 | Cat. #4400 | Cat. #4402QR |

One 15 mL screw-cap vial yields up to 1 liter after dilution.

| | |
|---|---|
| Uranium | 25-200 µg/L |

## Lithium

| CRM | PT ✱ | QR |
|---|---|---|
| Cat. #4992 | Cat. #4990 | Cat. #4992QR |

One 15 mL screw-cap vial yields up to 2 liters after dilution. Designed for the Ohio VAP program.

| | |
|---|---|
| Lithium | 50-500 µg/L |

✱ ERA WP Lithium PTs open in February and August.

# PHYSICAL PROPERTY

## Color

| CRM | PT Q | QR |
|---|---|---|
| Cat. #070 | Cat. #882 | Cat. #070QR |

One 125 mL whole-volume bottle is ready to analyze. Use with EPA methods 110.1, 110.2, and 110.3, Standard Methods 2120B, 2120C, 2120E, or other applicable method.

Color ..... 10-75 PC units

## Turbidity

| CRM | PT M | QR |
|---|---|---|
| Cat. #777 | Cat. #893 | Cat. #777QR |

One 15 mL screw-cap vial yields up to 1 liter after dilution. Use with nephelometric methods.

Turbidity ..... 2-30 NTU

# MISCELLANEOUS CHEMISTRY

## Cyanide & Phenol

| CRM | PT M | QR |
|---|---|---|
| Cat. #502 | Cat. #588 | Cat. #502QR |

One 15 mL screw-cap vial yields up to 2 liters after dilution. The CRM is also certified for Phenol at 0.05-5 mg/L. For a Total Phenolics PT, order Cat #589.

Total Cyanide ..... 0.1-1 mg/L
Amenable Cyanide ..... 0.1-1 mg/L

## Total Organic Halides (TOX)

| CRM | PT Q | QR |
|---|---|---|
| Cat. #670 | Cat. #895 | Cat. #670QR |

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Analyze for total organic halides with adsorption pyrolysis titrimetric methods.

TOX ..... 300-1,500 µg/L

## Total Phenolics (4-AAP)

| CRM | PT M | QR |
|---|---|---|
| Cat. #515 | Cat. #589 | Cat. #515QR |

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Analyze for total phenolic compounds by 4-AAP methods.

Total Phenolics by 4-AAP ..... 0.5-5 mg/L

## Silica

| CRM | PT Q | QR |
|---|---|---|
| Cat. #775 | Cat. #890 | Cat. #775QR |

One 60 mL poly bottle yields up to 1 liter after dilution. Analyze for silica as $SiO_2$ with colorimetric or ICP methods.

Silica as $SiO_2$ ..... 50-250 mg/L

## Sulfide

| CRM | PT M | QR |
|---|---|---|
| Cat. #071 | Cat. #891 | Cat. #071QR |

One 10 mL flame-sealed ampule yields up to 1 liter after dilution. Preserved sample is guaranteed stable. Analyze for sulfide by titrimetric or colorimetric methods or ISE.

Sulfide ..... 2-10 mg/L

## Sulfite

| CRM | PT * | QR |
|---|---|---|
| Cat. #534 | Cat. #244 | Cat. #534QR |

One 10 mL concentrate yields up to 2 liters after dilution.

Sulfite ..... 10-250 mg/L

* ERA WP Sulfite PTs open in January and July.

## Surfactants-MBAS

| CRM | PT Q | QR |
|---|---|---|
| Cat. #776 | Cat. #892 | Cat. #776QR |

One 15 mL screw-cap vial yields up to 2 liters after dilution. Analyze for Surfactants-MBAS with EPA method 425.1, or other applicable method.

Surfactants-MBAS ..... 0.2-1 mg/L

# MISCELLANEOUS CHEMISTRY

## Acidity

| CRM | PT Q | QR |
|---|---|---|
| Cat. #915 | Cat. #885 | Cat. #915QR |

One 250 mL whole-volume bottle is ready to analyze. Designed for use with titrimetric methods to a pH endpoint of 8.3 S.U.

Acidity as $CaCO_3$ ..... 650-1,800 mg/L

## Boron

| CRM | PT Q | QR |
|---|---|---|
| Cat. #919 | Cat. #886 | Cat. #919QR |

One unpreserved 60 mL poly bottle yields in excess of 2 liters after dilution. Designed for colorimetric methods.

Boron ..... 800-2000 µg/L

## Bromide

| CRM | PT Q | QR |
|---|---|---|
| Cat. #769 | Cat. #887 | Cat. #769QR |

One 15 mL screw-cap vial yields up to 2 liters after dilution. Use with ion chromatography or colorimetric methods.

Bromide ..... 1-10 mg/L

## Total Residual Chlorine (TRC)

| CRM | PT M | QR |
|---|---|---|
| Cat. #501 | Cat. #587 | Cat. #501QR |

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with titrimetric or colorimetric methods.

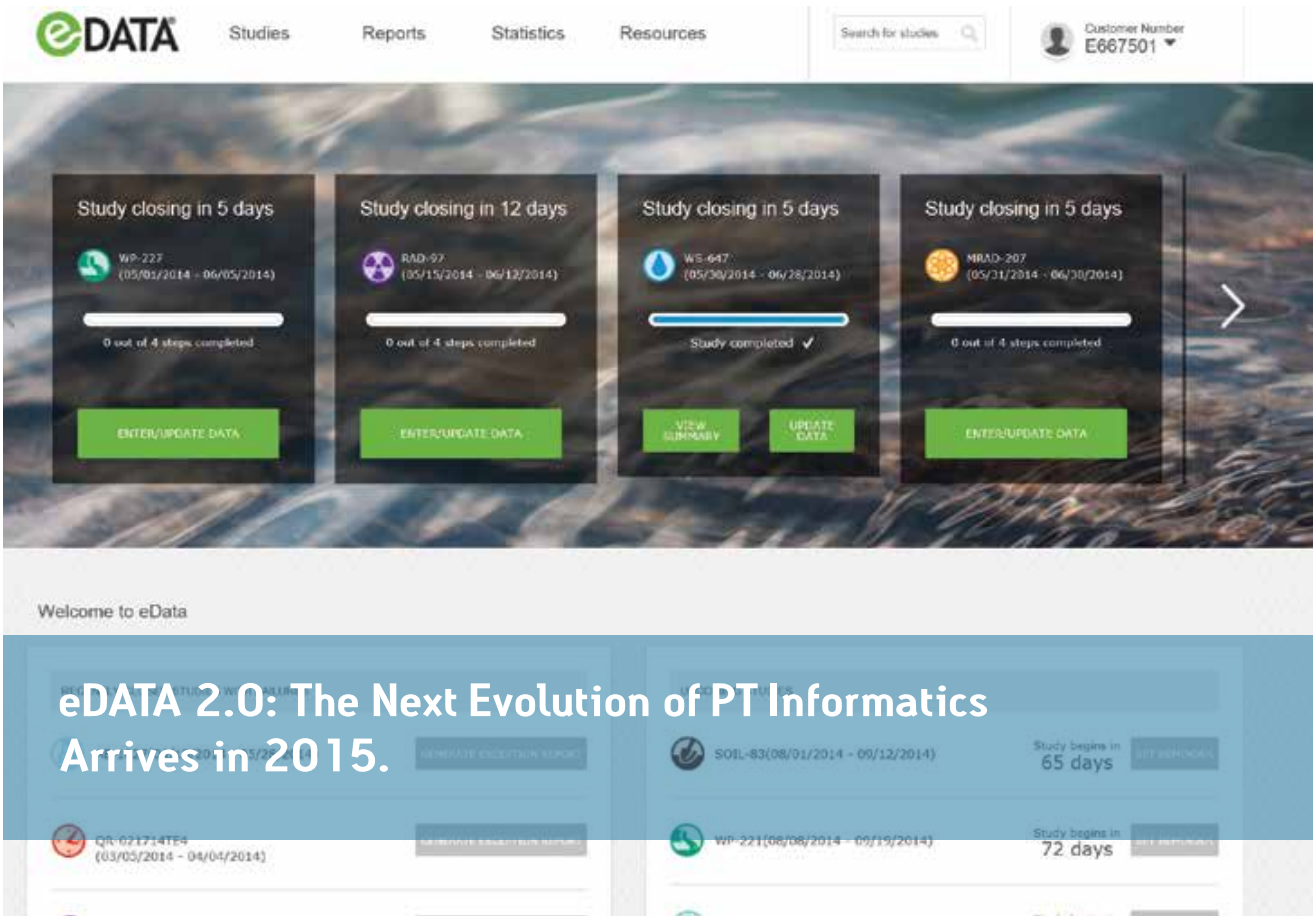
Total Residual Chlorine ..... 0.5-3 mg/L

## Low-Level Total Residual Chlorine (TRC)

| CRM | PT M | QR |
|---|---|---|
| Cat. #917 | Cat. #881 | Cat. #917QR |

Designed for testing at low µg/L levels. One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with sensitive titrimetric or colorimetric methods.

Total Residual Chlorine ..... 75-250 µg/L



# VOLATILES

## Volatiles

| CRM | PT M | QR |
|---|---|---|
| Cat. #710 | Cat. #830 | Cat. #710QR |

One 2 mL flame-sealed ampule yields in excess of 200 mL after dilution. Use with EPA methods 601, 602, 8021, 624, 8260, or other applicable method. Contains a subset of the analytes listed below at 5-300 µg/L.

- Acetone
- Acetonitrile
- Acrolein
- Acrylonitrile
- Benzene
- Bromobenzene
- Bromochloromethane
- Bromodichloromethane
- Bromoform
- Bromomethane
- 2-Butanone (MEK)
- n-Butylbenzene
- sec-Butylbenzene
- tert-Butylbenzene
- Carbon disulfide
- Carbon tetrachloride
- Chlorobenzene
- Chlorodibromomethane
- Chloroethane
- 2-Chloroethyl vinyl ether
- Chloroform
- Chloromethane
- 2-chlorotoluene
- 4-chlorotoluene
- 1,2-Dibromo-3-chloropropane (DBCP)
- 1,2-Dibromoethane (EDB)
- Dibromomethane
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- Dichlorodifluoromethane
- 1,1-Dichloroethane
- 1,2-Dichloroethane
- cis-1,2-Dichloroethene
- 1,1-Dichloroethene
- trans-1,2-Dichloroethene
- 1,3-Dichloropropane
- 1,2-Dichloropropane
- 2,2-Dichloropropane
- cis-1,3-Dichloropropene
- 1,1-Dichloropropene
- trans-1,3-Dichloropropene
- Ethylbenzene
- Hexachlorobutadiene
- Hexachloroethane
- 2-Hexanone
- Isopropylbenzene
- p-Isopropyltoluene
- Methyl tert-butyl ether (MTBE)
- 4-Methyl-2-pentanone (MIBK)
- Methylene chloride
- Naphthalene
- Nitrobenzene
- n-Propylbenzene
- Styrene
- 1,1,1,2-Tetrachloroethane
- 1,1,2,2-Tetrachloroethane
- Tetrachloroethene
- Toluene
- 1,2,3-Trichlorobenzene
- 1,2,4-Trichlorobenzene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethene
- Trichlorofluoromethane
- 1,2,3-Trichloropropane
- 1,2,4-Trimethylbenzene
- 1,3,5-Trimethylbenzene
- Vinyl acetate
- Vinyl chloride
- m&p Xylene
- o-Xylene
- Xylenes, total

## Volatile Aromatics

| CRM | PT Q | QR |
|---|---|---|
| Cat. #4452 | Cat. #4450 | Cat. #4452QR |

One 2 mL flame-sealed ampule yields in excess of 200 mL after dilution. Use with EPA methods 602, 8021, or other applicable method. Each standard contains all listed analytes at 5-300 µg/L after dilution.

- Benzene
- Chlorobenzene
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- Ethylbenzene
- Naphthalene
- Toluene
- 1,2,4-Trichlorobenzene
- 1,2,4-Trimethylbenzene
- 1,3,5-Trimethylbenzene
- m&p Xylene
- o-Xylene
- Xylenes, total

## BTEX & MTBE in Water

| CRM | PT Q | QR |
|---|---|---|
| Cat. #760 | Cat. #643 | Cat. #760QR |

One 2 mL flame-sealed ampule yields in excess of 200 mL after dilution. Use with EPA methods 602, 8021, or other applicable method. Includes all BTEX compounds and MTBE at 5-300 µg/L after dilution.

## Gasoline Range Organics (GRO) in Water

| CRM | PT Q | QR |
|---|---|---|
| Cat. #762 | Cat. #640 | Cat. #762QR |

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with both purge & trap and modified EPA 8015 GC/FID methods or other applicable methods to test for GRO at 400-4,000 µg/L. Also use to test for BTEX in gasoline.

# HERBICIDES

## Chlorinated Acid Herbicides

| CRM | PT M | QR |
|---|---|---|
| Cat. #718 | Cat. #829 | Cat. #718QR |

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA methods 615, 8151, or other applicable methods. Contains a subset of the analytes or other applicable methods listed below at 2-10 µg/L (except MCPA and MCPP at 10-100 µg/L).

*Note: 4-nitrophenol and pentachlorophenol are not within the EPA/NELAC range. Use the Acids standard (page 13) for these compounds in the EPA/NELAC range.*

- Acifluorfen
- Bentazone
- Chloramben
- 2,4-D
- 2,4-DB
- Dacthal diacid (DCPA)
- Dalapon
- Dicamba
- 3,5-Dichlorobenzoic acid
- Dichlorprop
- Dinoseb
- MCPA
- MCPP
- 4-Nitrophenol
- Pentachlorophenol
- Picloram
- 2,4,5-T
- 2,4,5-TP (Silvex)

# PCBs

## PCBs in Water

| CRM | PT M | QR |
|---|---|---|
| Cat. #734S | Cat. #832S | Cat. #734SQR |

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA methods 608, 8082, or other applicable method. Contains a different Aroclor, randomly selected from the list below at 2-10 µg/L.

- Aroclor 1016
- Aroclor 1221
- Aroclor 1232
- Aroclor 1242
- Aroclor 1248
- Aroclor 1254
- Aroclor 1260

## PCBs in Oil

| CRM | PT M | QR |
|---|---|---|
| Cat. #729S | Cat. #835S | Cat. #729SQR |

One 10 mL flame-sealed ampule is ready to analyze. Use with EPA method 8082, or other applicable method. Contains a different Aroclor, randomly selected from the list below at 12-50 mg/kg.

- Aroclor 1016
- Aroclor 1242
- Aroclor 1254
- Aroclor 1260

# SEMIVOLATILES

## Base/Neutrals

| CRM | PT M | QR |
|---|---|---|
| Cat. #711 | Cat. #833 | Cat. #711QR |

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA methods 625, 8270, or other applicable method. Contains a subset of the analytes listed below at 10-225 µg/L (except Benzidine at 200-1,000 µg/L).

- Acenaphthene
- Acenaphthylene
- 2-Amino-1-methylbenzene
- (o-Toluidine)
- Aniline
- Anthracene
- Benzidine
- Benzo(a)anthracene
- Benzo(b)fluoranthene
- Benzo(k)fluoranthene
- Benzo(g,h,i)perylene
- Benzo(a)pyrene
- Benzyl alcohol
- 4-Bromophenyl phenyl ether
- Butyl benzyl phthalate
- Carbazole
- 4-Chloroaniline
- bis(2-Chloroethoxy)methane
- bis(2-Chloroethyl)ether
- bis(2-Chloroisopropyl)ether
- 1-Chloronaphthalene
- 2-Chloronaphthalene
- 4-Chlorophenyl phenyl ether
- Chrysene
- Dibenz(a,h)anthracene
- Dibenzofuran
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- 3,3'-Dichlorobenzidine
- Diethyl phthalate
- Dimethyl phthalate
- Di-n-butyl phthalate
- 2,4-Dinitrotoluene
- 2,6-Dinitrotoluene
- Di-n-octyl phthalate
- bis(2-Ethylhexyl)phthalate
- Fluoranthene
- Fluorene
- Hexachlorobenzene
- Hexachlorobutadiene
- Hexachlorocyclopentadiene
- Hexachloroethane
- Indeno(1,2,3-cd)pyrene
- Isophorone
- 2-Methylnaphthalene
- Naphthalene
- 2-Nitroaniline
- 3-Nitroaniline
- 4-Nitroaniline
- Nitrobenzene
- N-Nitrosodiethylamine
- N-Nitrosodimethylamine
- N-Nitroso-di-n-propylamine
- N-Nitrosodiphenylamine
- Pentachlorobenzene
- Phenanthrene
- Pyrene
- Pyridine
- 1,2,4,5-Tetrachlorobenzene
- 1,2,4-Trichlorobenzene

## Acids

| CRM | PT M | QR |
|---|---|---|
| Cat. #712 | Cat. #834 | Cat. #712QR |

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA methods 604, 625, 8041, 8270, or other applicable method. Contains a subset of the analytes listed below at 30-200 µg/L.

- Benzoic Acid
- 4-Chloro-3-methylphenol
- 2-Chlorophenol
- 2,4-Dichlorophenol
- 2,6-Dichlorophenol
- 2,4-Dimethylphenol
- 2,4-Dinitrophenol
- 2-Methyl-4,6-dinitrophenol
- 2-Methylphenol
- 3 & 4-Methlyphenol
- 2-Nitrophenol
- 4-Nitrophenol
- Pentachlorophenol
- Phenol
- 2,3,4,6-Tetrachlorophenol
- 2,4,5-Trichlorophenol
- 2,4,6-Trichlorophenol

## Diesel Range Organics (DRO) in Water

| CRM | PT Q | QR |
|---|---|---|
| Cat. #764 | Cat. #641 | Cat. #764QR |

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with modified EPA 8015 GC/FID methods, or other applicable method. Includes #2 Diesel at 800-6,000 µg/L.

## EDB/DBCP/TCP

| CRM | PT M | QR |
|---|---|---|
| Cat. #692 | Cat. #562 | Cat. #692QR |

One 2 mL flame-sealed ampule yields in excess of 200 mL after dilution. Use with EPA method 8011, or other applicable method. Each lot contains all analytes at 15-150 µg/L.

- 1,2-Dibromo-3-chloropropane (DBCP) ..... 15-150 µg/L
- 1,2-Dibromoethane (EDB) ..... 10-120 µg/L
- 1,2,3-Trichloropropane (TCP) ..... 15-150 µg/L

## Glycols in Water

| RM | PT Q | QR |
|---|---|---|
| Cat. #401 | Cat. #271 | Cat. #401QR |

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA methods 8015B, 8430, 1671, or other applicable method.

- Diethylene glycol
- Ethylene glycol
- Propylene glycol
- Tetraethylene glycol
- Triethylene glycol

## Low-Level Nitroaromatics & Nitramines

| CRM | PT Q | QR |
|---|---|---|
| Cat. #677 | Cat. #932 | Cat. #677QR |

One 2 mL flame-sealed ampule yields up to 2 liters of sample after dilution. Use with EPA methods 8330, 8091, or other applicable method for explosive and explosive residue analytes. Contains at least 80% of the analytes, randomly selected from the list below at 1-20 µg/L.

- 4-Amino-2,6-dinitrotoluene
- 2-Amino-4,6-dinitrotoluene
- 1,3-Dinitrobenzene
- 2,4-Dinitrotoluene
- 2,6-Dinitrotoluene
- HMX
- Nitrobenzene
- 2-Nitrotoluene
- 3-Nitrotoluene
- 4-Nitrotoluene
- RDX
- Tetryl
- 1,3,5-Trinitrobenzene
- 2,4,6-Trinitrotoluene

## Low-Level PAHs

| CRM | PT Q | QR |
|---|---|---|
| Cat. #715 | Cat. #836 | Cat. #715QR |

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA HPLC methods 610, 8310, or other applicable method, and GC/MS method 8270 SIM. Contains a subset of the analytes listed below at 0.5-20 µg/L.

- Acenaphthene
- Acenaphthylene
- Anthracene
- Benzo(a)anthracene
- Benzo(b)fluoranthene
- Benzo(k)fluoranthene
- Benzo(g,h,i)perylene
- Benzo(a)pyrene
- Chrysene
- Dibenz(a,h)anthracene
- Fluoranthene
- Fluorene
- Indeno(1,2,3-cd)pyrene
- Naphthalene
- Phenanthrene
- Pyrene

## PAHs – GC/GCMS

| CRM | PT Q | QR |
|---|---|---|
| Cat. #4882 | Cat. #4880 | Cat. #4882QR |

One 2mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA methods 625, 8100, 8270, or other applicable method. Each standard contains a subset of the analytes listed below at 10-200 µg/L.

- Acenaphthene
- Acenaphthylene
- Anthracene
- Benzo(a)anthracene
- Benzo(a)pyrene
- Benzo(b)fluoranthene
- Benzo(k)fluoranthene
- Benzo(g,h,i)perylene
- Chrysene
- Dibenz(a,h)anthracene
- Fluoranthene
- Fluorene
- Indeno(1,2,3-cd)pyrene
- Naphthalene
- Phenanthrene
- Pyrene

# PESTICIDES

## Organochlorine Pesticides

| CRM | PT M | QR |
|---|---|---|
| Cat. #713 | Cat. #831 | Cat. #713QR |

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA methods 608, 8081, or other applicable method. Contains contains a subset of the analytes listed below at 1-20 µg/L.

- Aldrin
- alpha-BHC
- beta-BHC
- delta-BHC
- gamma-BHC (Lindane)
- alpha-Chlordane
- gamma-Chlordane
- 4,4'-DDD
- 4,4'-DDE
- 4,4'-DDT
- Dieldrin
- Endosulfan I
- Endosulfan II
- Endosulfan sulfate
- Endrin
- Endrin aldehyde
- Endrin ketone
- Heptachlor
- Heptachlor epoxide (beta)
- Methoxychlor

## Nitrogen Pesticides

| CRM | PT Q | QR |
|---|---|---|
| Cat. #674 | Cat. #487 | Cat. #674QR |

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA methods 619, 633, 8141, 8270, or other applicable method. Contains a subset of the analytes listed below at 2-20 µg/L.

- Alachlor
- Ametryn
- Anilazine
- Atraton
- Atrazine
- Bromacil
- Butachlor
- Butylate
- Cyanazine
- Deethyl atrazine
- Deisopropyl atrazine
- Diaminoatrazine
- EPTC (Eptam)
- Hexazinone
- Metolachlor
- Metribuzin
- Napropamide
- Prometon
- Prometryn
- Pronamide
- Propachlor
- Propazine
- Simazine
- Terbacil
- Trifluralin

**As your partner in defensible data, we are dedicated to ensuring your successful PT performance by helping you solve analytical challenges and improve root cause analysis and corrective action.**

## Chlordane

| CRM | PT M | QR |
|---|---|---|
| Cat. #716 | Cat. #837 | Cat. #716QR |

One 2 mL flame-sealed ampule yields up to 2 liters of sample after dilution. Use with EPA methods 608, 8081, or other applicable method. Contains technical chlordane at 3-25 µg/L.

## Toxaphene

| CRM | PT M | QR |
|---|---|---|
| Cat. #717 | Cat. #838 | Cat. #717QR |

One 2 mL flame-sealed ampule yields up to 2 liters of sample after dilution. Use with EPA methods 608, 8081, or other applicable method. Contains toxaphene at 20-100 µg/L.

## Carbamate Pesticides

| CRM | PT Q | QR |
|---|---|---|
| Cat. #908 | Cat. #899 | Cat. #908QR |

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA method 632, or other applicable method. Contains a subset of the analytes listed below at 5-200 µg/L.

- Aldicarb
- Aldicarb sulfone
- Aldicarb sulfoxide
- Baygon
- Carbaryl
- Carbofuran
- Diuron
- 3-Hydroxycarbofuran
- Methiocarb
- Methomyl
- Oxamyl
- Propham

## Organophosphorus Pesticides (OPP)

| CRM | PT Q | QR |
|---|---|---|
| Cat. #665 | Cat. #934 | Cat. #665QR |

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA methods 614, 622, 8141, or other applicable method. Contains a subset of the analytes listed below at 2-20 µg/L.

- Azinphos-methyl (Guthion)
- Carbophenothion
- Chlorpyrifos
- Demeton O & S
- Diazinon
- Dichlorvos (DDVP)
- Dimethoate
- Dioxathion
- Disulfoton
- Ethion
- Ethoprop
- Ethyl Parathion (Parathion)
- Famphur
- Fonofos
- Malathion
- Methyl parathion
- Phorate
- Phosmet
- Ronnel
- Stirophos (tetrachlorovinphos)
- Terbufos

# READY-TO-USE CRMS

The following whole-volume standards are ready-to-use as provided and require no dilution before analysis.*

## Minerals

**CRM**
Cat. #506

One 500 mL whole-volume bottle is ready to analyze.

| | |
|---|---|
| Total alkalinity as $CaCO_3$ | 25-400 mg/L |
| Chloride | 35-275 mg/L |
| Fluoride | 0.4-4 mg/L |
| Potassium | 4-40 mg/L |
| Sodium | 10-100 mg/L |
| Specific conductance at 25 °C | 200-1,200 µmhos/cm |
| Sulfate | 5-125 mg/L |
| Total dissolved solids at 180 °C | 140-800 mg/L |
| Total solids at 105 °C | 140-800 mg/L |

## Hardness

**CRM**
Cat. #507

One 500 mL whole-volume bottle is ready to analyze.

| | |
|---|---|
| Calcium | 10-100 mg/L |
| Calcium hardness as $CaCO_3$ | 25-250 mg/L |
| Total hardness as $CaCO_3$ | 40-415 mg/L |
| Magnesium | 4-40 mg/L |
| Total suspended solids (TSS) | 20-100 mg/L |

## pH

**CRM**
Cat. #977

One 250 mL whole-volume bottle is ready to analyze. Use with electrometric methods.

| | |
|---|---|
| pH | 5-10 units |

## Oil & Grease

**CRM**
Cat. #504

One 250 mL whole-volume bottle is ready to analyze. Use with EPA hexane extraction method 1664, or other applicable method. Certified values are provided for IR and gravimetric methods. For additional Oil & Grease CRMs see page 13.

| | |
|---|---|
| Oil & Grease | 20-200 mg/bottle |

## Solids

**CRM**
Cat. #499

One 500 mL whole-volume bottle is ready to analyze.

| | |
|---|---|
| Total solids at 105 °C | 140-800 mg/L |
| Total dissolved solids at 180 °C | 140-800 mg/L |
| Total suspended solids (TSS) | 20-100 mg/L |
| pH | 5-10 units |

## Trace Metals*

**CRM**
Cat. #740

One 500 mL whole-volume bottle is ready to analyze. Use with AA, ICP-OES or ICP-MS methods.

| | |
|---|---|
| Aluminum | 200-4,000 µg/L |
| Antimony | 90-900 µg/L |
| Arsenic | 90-900 µg/L |
| Barium | 100-2,500 µg/L |
| Beryllium | 50-500 µg/L |
| Boron | 800-2,000 µg/L |
| Cadmium | 100-1,000 µg/L |
| Chromium | 100-1,000 µg/L |
| Cobalt | 100-1,000 µg/L |
| Copper | 100-1,000 µg/L |
| Iron | 200-4,000 µg/L |
| Lead | 100-1,500 µg/L |
| Manganese | 200-2,000 µg/L |
| Molybdenum | 60-600 µg/L |
| Nickel | 200-2,000 µg/L |
| Selenium | 100-1,000 µg/L |
| Silver | 100-1,000 µg/L |
| Strontium | 50-500 µg/L |
| Thallium | 80-800 µg/L |
| Vanadium | 50-2,000 µg/L |
| Zinc | 300-2,000 µg/L |

## Demand*

**CRM**
Cat. #743

One 500 mL whole-volume bottle is ready to analyze.

| | |
|---|---|
| 5-day BOD | 18-230 mg/L |
| Carbonaceous BOD | 18-230 mg/L |
| COD | 30-250 mg/L |
| TOC | 6-100 mg/L |

## Simple Nutrients*

**CRM**
Cat. #739

One 500 mL whole-volume bottle is ready to analyze.

| | |
|---|---|
| Ammonia as N | 1-20 mg/L |
| Nitrate as N | 2-25 mg/L |
| Nitrate plus nitrite as N | 2.5-25 mg/L |
| ortho-Phosphate as P | 0.5-5.5 mg/L |

## Complex Nutrients*

**CRM**
Cat. #741

One 500 mL whole-volume bottle is ready to analyze.

| | |
|---|---|
| Total Kjeldahl Nitrogen as N | 3-35 mg/L |
| Total phosphorus as P | 0.5-10 mg/L |

*These standards are guaranteed stable for a minimum of one month after receipt at your facility.

# QC PLUS

ERA's QC Plus program includes environmental analytes at concentrations that reflect realistic levels of pollutants in industrial settings.

Each sample level is designed for wastewater and industrial analysis. These Reference Materials (RM) are an asset to any quality assurance program because they enable you to test your internal systems to ensure that your equipment, methods, and analysts are producing quality data.

## QC Plus – Demand

**RM**
Cat. #4013

One 24 mL screw-cap vial yields up to 1 liter after dilution.

| | |
|---|---|
| 5-day BOD | 100-300 mg/L |
| Carbonaceous BOD | 87.0-256 mg/L |
| COD | 150-500 mg/L |
| TOC | 50.0-200 mg/L |

## QC Plus – Hexavalent Chromium

**RM**
Cat. #4183

One 15 mL screw-cap vial yields up to 2 liters after dilution.

| | |
|---|---|
| Hexavalent chromium | 100-1000 µg/L |

## QC Plus – Minerals

**RM**
Cat. #4053

Two 30 mL screw-cap vials to be diluted together to yield up to 2 liters of sample.

| | |
|---|---|
| Alkalinity as $CaCO_3$ | 10.0-300 mg/L |
| Calcium | 5.00-150 mg/L |
| Calcium Hardness as $CaCO_3$ | 12.5-375 mg/L |
| Chloride | 10.0-700 mg/L |
| Conductivity | 100-4000 µmhos/cm |
| Magnesium | 1.00-50.0 mg/L |
| Potassium | 1.00-300 mg/L |
| Sodium | 10.0-300 mg/L |
| Sulfate | 10.0-300 mg/L |
| Total dissolved solids at 180 °C | 20.0-2400 mg/L |
| Total Hardness as $CaCO_3$ | 15.0-600 mg/L |

## QC Plus – Nutrients

**RM**
Cat. #4023

Two 15 mL screw-cap vials yield up to 2 liters each after dilution.

| | |
|---|---|
| Ammonia Nitrogen as N | 0.250-10.0 mg/L |
| Nitrate Nitrogen as N | 0.250-10.0 mg/L |
| ortho-Phosphate as P | 0.0500-10.0 mg/L |
| Total Kjeldahl Nitrogen | 0.250-10.0 mg/L |
| Total phosphorus as P | 0.100-10.0 mg/L |

## QC Plus – Oil & Grease

**RM**
Cat. #4123

One 24 mL screw-cap vial yields up to 2 liters after dilution.

| | |
|---|---|
| Oil & Grease | 10.0-100 mg/L |

## QC Plus – pH

**RM**
Cat. #4063

One 250 mL whole-volume bottle is ready to analyze.

| | |
|---|---|
| pH | 2.00-12.0 Units |

## QC Plus – Fluoride

**RM**
Cat. #4423

One 15 mL screw-cap vial yields up to 2 liters after dilution.

| | |
|---|---|
| Fluoride | 5-20 mg/L |

# QC PLUS

## QC Plus – Solids

**CRM**
Cat. #4033

One 24 mL screw-cap vial with a powder yields 1 liter after dilution.

| | |
|---|---|
| Total dissolved solids at 180 °C | 500-2000 mg/L |
| Total solids at 105 °C | 600-2500 mg/L |
| Total suspended solids (TSS) | 100-500 mg/L |

## QC Plus – Total Cyanide

**CRM**
Cat. #4093

One 15 mL screw-cap vial yields up to 2 liters after dilution.

| | |
|---|---|
| Total Cyanide | 1.00-5.00 mg/L |

## QC Plus – Total Phenolics

**CRM**
Cat. #4083

One 24 mL screw-cap vial yields up to 2 liters after dilution.

| | |
|---|---|
| Total phenolics by 4-AAP | 0.05-0.5 mg/L |

## QC Plus – Total Residual Chlorine

**CRM**
Cat. #4103

One 24 mL amber vial with screw-cap yields up to 2 liters of solution after dilution.

| | |
|---|---|
| Total Residual Chlorine | 0.100-1.00 mg/L |

## QC Plus – Trace Metals

**CRM**
Cat. #4073

Two 15 mL screw-cap vials to be diluted together to yield up to 2 liters of sample.

| | |
|---|---|
| Aluminum | 50.0-200 µg/L |
| Antimony | 10.0-300 µg/L |
| Arsenic | 10.0-250 µg/L |
| Barium | 50.0-500 µg/L |
| Beryllium | 5.00-100 µg/L |
| Boron | 50.0-250 µg/L |
| Cadmium | 5.00-100 µg/L |
| Chromium | 15.0-500 µg/L |
| Cobalt | 25.0-500 µg/L |
| Copper | 15.0-500 µg/L |
| Iron | 25.0-500 µg/L |
| Lead | 50.0-500 µg/L |
| Manganese | 50.0-500 µg/L |
| Mercury | 0.500-5.00 µg/L |
| Molybdenum | 20.0-500 µg/L |
| Nickel | 50.0-500 µg/L |
| Selenium | 10.0-100 µg/L |
| Silver | 10.0-100 µg/L |
| Strontium | 50.0-500 µg/L |
| Thallium | 10.0-250 µg/L |
| Tin | 200-1000 µg/L |
| Titanium | 10.0-100 µg/L |
| Vanadium | 50.0-250 µg/L |
| Zinc | 25.0-250 µg/L |