Waters™ | ERA™

Environmental and Process Water

Proficiency Testing and Reference Materials

2022–2023 Product Catalog

COMMITMENT TO QUALITY

For more than 40 years, ERA™ has been providing analytical laboratories and organizations with the products and services required to eliminate inaccurate results. Laboratories globally rely on ERA's products to be integrated into their quality programs to ensure total confidence in their data analysis.

Our comprehensive range of Proficiency Testing (PT) programs and Certified Reference Materials (CRMs) are designed to provide you with confidence that your data is valid and defensible. Whether complying with regulatory requirements or internal quality programs, you can depend on ERA to support your efforts in providing sound, well documented data so you can have confidence in your decisions.

Then and Now – 25 Years in Continued Quality Commitment

(left to right)
Lisa Berry, Dale Shallenberger, Curtis Wood, and Craig Huff

CONTENTS

Environmental

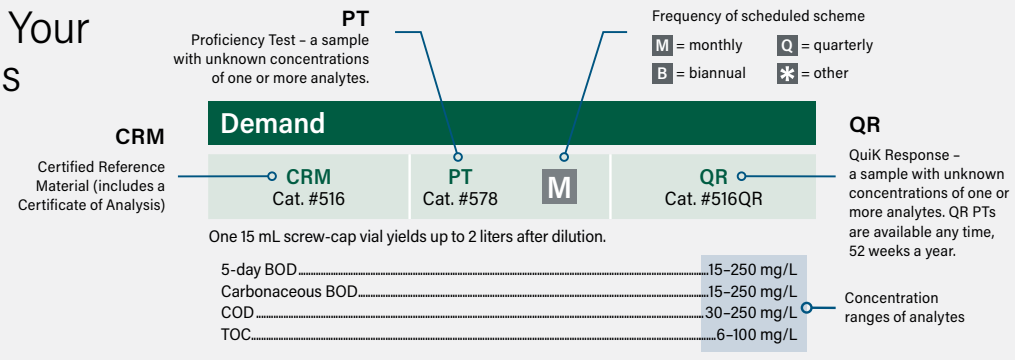
Process Water

New and Reformulated Products

Cat #	Product	Product Type	
597	1,4-Dioxane (WP)	PT	14
402	1,4-Dioxane (WP)	CRM	14
402QR	1,4-Dioxane (WP)	QR	14
272	1,4-Dioxane (WS)	PT	27
689	1,4-Dioxane (WS)	CRM	27
689QR	1,4-Dioxane (WS)	QR	27
461	1,4-Dioxane Soil	PT	39
538	1,4-Dioxane Soil	CRM	39
538QR	1,4-Dioxane Soil	QR	39
598	PFAS (Non-Potable Water (WP)	PT	15
403	PFAS (Non-Potable Water (WP)	CRM	15
403QR	PFAS (Non-Potable Water (WP)	QR	15
960	PFAS Drinking Water	PT	28
735	PFAS Drinking Water	CRM	28
735QR	PFAS Drinking Water	QR	28
462	PFAS Soil	PT	41
604	PFAS Soil	CRM	41
604QR	PFAS Soil	QR	41
929	PFAS Ground Water & Surface Water	PT	28
731	PFAS Ground Water & Surface Water	CRM	28
731QR	PFAS Ground Water & Surface Water	QR	28
584	Simple Nutrients (WP)	PT	10
505	Simple Nutrients (WP)	CRM	10
505QR	Simple Nutrients (WP)	QR	10
833	Base/Neutrals (WP)	PT	16
711	Base/Neutrals (WP)	CRM	16
711QR	Base/Neutrals (WP)	QR	16
873	Anions in Soil	PT	39
543	Anions in Soil	CRM	39
543QR	Anions in Soil	QR	39
620	Metals in Soil	PT	38
540	Metals in Soil	CRM	38
540QR	Metals in Soil	QR	38
467	Base/Neutrals & Acids in Soil	PT	41
727	Base/Neutrals & Acids in Soil	CRM	41
727QR	Base/Neutrals & Acids in Soil	QR	41
588	Cyanide (WP)	PT	13
502	Cyanide (WP)	CRM	13
502QR	Cyanide (WP)	QR	13

Sales Information and Indexes

Ordering Your Standards



DELIVERING CONTINUOUS SUPPORT

1977

Environmental Resource Associates (ERA) is founded in Chicago, Illinois by Mark Carter and Terry Epstein as a reference materials provider for environmental laboratories

1982

Analytical Products Group, Inc. (APG) is founded in Marietta, Ohio as a proficiency testing provider

1993

ERA receives ISO 9001 certification

1999

ERA achieves PT provider accreditation by NIST/NVLAP for EPA approved studies

2000

Process standards product line is launched including reference materials for total organic carbon and conductivity

2006

ERA is acquired by Waters™ Corp, the worldwide leader in liquid chromatography, mass spectrometry and thermal analysis

2006

ERA opens international office in Manchester, UK offering reference materials to laboratories throughout Europe

Waters ERA acquires Analytical Products Group, Inc. (APG)

2008

Waters ERA products go to the International Space Station

2008

Waters ERA introduces Stationary Source Audit Sample (SSAS)

2013

Waters ERA innovates 2-day turn around for final study reports

2014

eDATA 2.0 is launched

2015

Major upgrades to business systems that deliver superior customer experience

2019

Today

After more than 40 years in business, Waters ERA products are in use in over 80 countries by nearly 13,000 labs

2022 Proficiency Testing Scheme Schedule

Air & Emissions

	Scheme #	Opens	Closes
Q	AE 59	Jan 31	Mar 17
Q	AE 60	Apr 25	Jun 9
Q	AE 61	Jul 29	Sep 12
Q	AE 62	Oct 28	Dec 12

MRAD

Scheme #	Opens	Closes
MRAD 36	Mar 21	May 20
MRAD 37	Sep 19	Nov 18

2 schemes per year – open for 60 days

Radiochemistry

	Scheme #	Opens	Closes
Q	RAD 128	Jan 10	Feb 24
Q	RAD 129	Apr 4	May 19
Q	RAD 130	Jul 11	Aug 25
Q	RAD 131	Oct 7	Nov 21

Soil (including UST in Soil)

	Scheme #	Opens	Closes
Q	SOIL 117	Jan 24	Mar 10
Q	SOIL 118	Apr 18	Jun 2
Q	SOIL 119	Jul 25	Sep 8
Q	SOIL 120	Oct 21	Dec 5

Water Supply

	Scheme #	Opens	Closes
Q	WS 306	Jan 10	Feb 24
	WS 307	Feb 7	Mar 24
	WS 308	Mar 7	Apr 21
Q	WS 309	Apr 4	May 19
	WS 310	May 9	Jun 23
	WS 311	Jun 6	Jul 21
Q	WS 312	Jul 11	Aug 25
	WS 313	Aug 8	Sep 22
	WS 314	Sep 6	Oct 21
Q	WS 315	Oct 7	Nov 21
	WS 316	Nov 1	Dec 16
	WS 317	Dec 5	Jan 19, 2023

Water Pollution (including UST in Water)

	Scheme #	Opens	Closes
Q	WP 324	Jan 18	Mar 4
	WP 325	Feb 14	Mar 31
	WP 326	Mar 14	Apr 28
Q	WP 327	Apr 11	May 26
	WP 328	May 16	Jun 30
	WP 329	Jun 13	Jul 28
Q	WP 330	Jul 18	Sep 1
	WP 331	Aug 15	Sep 29
	WP 332	Sep 12	Oct 27
Q	WP 333	Oct 14	Nov 28
	WP 334	Nov 4	Dec 19
	WP 335	Dec 12	Jan 26, 2023

DMR-QA 42

Scheme #	Opens	Closes
DMR-QA 42	Est. March TBD, 2022	Est. July TBD, 2022

DMR-QA Study Open and Close dates determined by EPA

Need PT results fast? QuiK Response™ PTs are available on demand, 52 weeks a year. Plus, when you report in eDATA, you receive your final QuiK Response PT results instantly. Contact your Customer Service Representative or an authorized Waters ERA sales partner to place your QuiK Response order.

The Industry Standard for over 40 years

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

Q Quarterly Study

For the latest products and information, please visit us online at eraqc.com

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2023 Proficiency Testing Scheme Schedule

Air & Emissions

	Scheme #	Opens	Closes
Q	AE 63	Jan 30	Mar 16
Q	AE 64	Apr 28	Jun 12
Q	AE 65	Jul 28	Sep 11
Q	AE 66	Oct 27	Dec 11

MRAD

Scheme #	Opens	Closes
MRAD 38	Mar 20	May 19
MRAD 39	Sep 18	Nov 17

2 schemes per year – open for 60 days

Radiochemistry

	Scheme #	Opens	Closes
Q	RAD 132	Jan 9	Feb 23
Q	RAD 133	Apr 10	May 25
Q	RAD 134	Jul 10	Aug 24
Q	RAD 135	Oct 6	Nov 20

Soil (including UST in Soil)

	Scheme #	Opens	Closes
Q	SOIL 121	Jan 23	Mar 9
Q	SOIL 122	Apr 24	Jun 8
Q	SOIL 123	Jul 24	Sep 7
Q	SOIL 124	Oct 20	Dec 4

Water Supply

	Scheme #	Opens	Closes
Q	WS 318	Jan 9	Feb 23
	WS 319	Feb 6	Mar 23
	WS 320	Mar 6	Apr 20
Q	WS 321	Apr 10	May 25
	WS 322	May 8	Jun 22
	WS 323	Jun 5	Jul 20
Q	WS 324	Jul 10	Aug 24
	WS 325	Aug 7	Sep 21
	WS 326	Sep 5	Oct 20
Q	WS 327	Oct 6	Nov 20
	WS 328	Oct 31	Dec 15
	WS 329	Dec 4	Jan 18, 2024

Water Pollution (including UST in Water)

	Scheme #	Opens	Closes
Q	WP 336	Jan 17	Mar 3
	WP 337	Feb 13	Mar 30
	WP 338	Mar 13	Apr 27
Q	WP 339	Apr 17	Jun 1
	WP 340	May 15	Jun 29
	WP 341	Jun 12	Jul 27
Q	WP 342	Jul 17	Aug 31
	WP 343	Aug 14	Sep 28
	WP 344	Sep 11	Oct 26
Q	WP 345	Oct 13	Nov 27
	WP 346	Nov 3	Dec 18
	WP 347	Dec 11	Jan 25, 2024

DMR-QA 43

Scheme #	Opens	Closes
DMR-QA 43	Est. March TBD, 2023	Est. July TBD, 2023

DMR-QA Study Open and Close dates determined by EPA

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The Industry Standard for over 40 years

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

Q Quarterly Study

For the latest products and information, please visit us online at eraqc.com

Waters™ | ERA

WATER POLLUTION

Matrices with high concentrations of analytes for testing water pollution or waste water. Standards may be used to satisfy PT requirements worldwide.

Water Pollution (including UST in Water) PT Schedule 2022

Water Pollution (including UST in Water)			
	Scheme #	Opens	Closes
Q	WP 324	Jan 18	Mar 4
	WP 325	Feb 14	Mar 31
	WP 326	Mar 14	Apr 28
Q	WP 327	Apr 11	May 26
	WP 328	May 16	Jun 30
	WP 329	Jun 13	Jul 28
Q	WP 330	Jul 18	Sep 1
	WP 331	Aug 15	Sep 29
	WP 332	Sep 12	Oct 27
Q	WP 333	Oct 14	Nov 28
	WP 334	Nov 4	Dec 19
	WP 335	Dec 12	Jan 26, 2023

2023

Water Pollution (including UST in Water)			
	Scheme #	Opens	Closes
Q	WP 336	Jan 17	Mar 3
	WP 337	Feb 13	Mar 30
	WP 338	Mar 13	Apr 27
Q	WP 339	Apr 17	Jun 1
	WP 340	May 15	Jun 29
	WP 341	Jun 12	Jul 27
Q	WP 342	Jul 17	Aug 31
	WP 343	Aug 14	Sep 28
	WP 344	Sep 11	Oct 26
Q	WP 345	Oct 13	Nov 27
	WP 346	Nov 3	Dec 18
	WP 347	Dec 11	Jan 25, 2024

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

Contents

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

All Waters ERA WP PTs open monthly (M), quarterly (Q), or biannually (B) unless otherwise noted. * WP Lithium PTs open in February and August. Quarterly months are January, April, July, and October. Biannual months are January and July.

Minerals/Solids

Minerals

CRM	PT		QR
Cat. #506	Cat. #581	M	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		QR
Cat. #507	Cat. #580	M	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

Settleable Solids

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

CRM: A reference material characterized by a metrologically valid procedure for one or more specified properties, accompanied by a reference material certificate that provides the value of the specified property, its associated uncertainty, and a statement of metrological traceability.

A complete listing of ERA's CRMs can be found on our Scope of Accreditation for general requirements for competence of reference material producers available at www.eraqc.com/AboutERA/Accreditations.

PT: A Proficiency Test (PT) is an analysis of what is often referred to as a blind sample or a sample with unknown concentrations of analytes for the purpose of evaluating a laboratory's analytical performance.

QR: Similar to a Proficiency Test, a QuiK Response (QR) is a sample with unknown concentrations. However, unlike a scheduled PT, QR is on-demand and available at any time. Plus, your results are returned within two business days. QuiK Response can be used as a bilateral PT as referenced in the IUPAC/CITAC guide: Selection and use of PT schemes for a limited number of participants – chemical analytical labs.

RM: A material, sufficiently homogeneous and stable with respect to one or more specified properties, which has been established to be fit for its intended use in a measurement process.

Volatile Solids

CRM	PT		QR
Cat. #913	Cat. #884	M	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		QR
Cat. #4032	Cat. #4030	M	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		QR
Cat. #499	Cat. #241	M	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

NEW ANALYTE

CRM	PT		QR
Cat. #505	Cat. #584	M	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
Total nitrogen	3–45 mg/L

Complex Nutrients

CRM	PT		QR
Cat. #525	Cat. #579	M	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		QR
Cat. #770	Cat. #888	M	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. For gravimetric and IR analyses.

Hexane Extractable Materials (O&G)..... 20–200 mg/bottle

Oil & Grease Concentrate

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

Hexane Extractable Materials (O&G)..... 20–200 mg/L

1 Liter Oil & Grease

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

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

Hexane Extractable Materials (O&G)..... 20–200 mg/L

1 Liter Boston Round Oil & Grease

CRM	PT		QR
Cat. #818	Cat. #582	M	Cat. #518QR

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

Hexane Extractable Materials (O&G)..... 20–200 mg/L

HEM/SGT-HEM

CRM	PT		QR
Cat. #519	Cat. #489	Q	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 #1

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

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

Total petroleum hydrocarbons..... 20–200 mg/L

Total Petroleum Hydrocarbons (TPH) in Water #2

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

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

Total petroleum hydrocarbons..... 20–200 mg/L

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

All Waters ERA WP PTs open monthly (M) or quarterly (Q) unless otherwise noted.

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

Learn more about WP products

Melissa Coyner
Director of Sales and Marketing

Demand

Demand

CRM	PT		QR
Cat. #516	Cat. #578	M	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		QR
Cat. #500	Cat. #586	M	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	200–4000 µg/L
Antimony	90–900 µg/L
Arsenic	90–900 µg/L
Barium	100–2500 µg/L
Beryllium	50–500 µg/L
Boron	800–2000 µg/L
Cadmium	100–1000 µg/L
Chromium	100–1000 µg/L
Cobalt	100–1000 µg/L
Copper	100–1000 µg/L
Iron	200–4000 µg/L
Lead	100–1500 µg/L
Manganese	200–2000 µg/L
Molybdenum	60–600 µg/L
Nickel	200–2000 µg/L
Selenium	100–1000 µg/L
Silver	100–1000 µg/L
Strontium	50–500 µg/L
Thallium	80–800 µg/L
Vanadium	50–2000 µg/L
Zinc	300–2000 µg/L

Mercury

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

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

Total mercury	3–30 µg/L

Low-Level Mercury

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

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

Total mercury	20–100 ng/L

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

Metals (continued)

Hexavalent Chromium

CRM	PT		QR
Cat. #984	Cat. #898	M	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		QR
Cat. #517	Cat. #573	M	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	200–2000 µg/L
Titanium	60–300 µg/L

Uranium

CRM	PT		QR
Cat. #4402	Cat. #4400	Q	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 1 liter after dilution. Designed for the Ohio VAP program.

Lithium	50–500 µg/L

✱ Waters ERA WP Lithium PTs open in February and August.

Physical Property

Color

CRM	PT		QR
Cat. #070	Cat. #882	Q	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		QR
Cat. #777	Cat. #893	M	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

NEW ANALYTE

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

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

Total cyanide ..... 0.1–1 mg/L
Amenable cyanide ..... 0.1–1 mg/L
Available cyanide ..... 0.1–1 mg/L

Dissolved Oxygen

CRM	PT		QR
Cat. #213	Cat. #212	Q	Cat. #213QR

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

Dissolved oxygen ..... 1–20 mg/L

Total Organic Halides (TOX)

CRM	PT		QR
Cat. #670	Cat. #895	Q	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 ..... 300–1500 µg/L

Total Phenolics (4-AAP)

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

Perchlorate

CRM	PT		QR
Cat. #1501	Cat. #1500	Q	Cat. #1501QR

One 15 mL screw-cap vial yields up to 2 liters after dilution. Use with EPA methods 314.0, 314.2, 331.0, 332.0, or other applicable methods. LCMS and IC compatible.

Perchlorate ..... 10–200 µg/L

Silica

CRM	PT		QR
Cat. #775	Cat. #890	Q	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		QR
Cat. #071	Cat. #891	M	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	B	Cat. #534QR

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

Sulfite ..... 10–250 mg/L

B Waters ERA WP Sulfite PTs open in January and July.

Surfactants-MBAS

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

Acidity

CRM	PT		QR
Cat. #915	Cat. #885	Q	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 $CaCO_3$ ..... 650–1800 mg/L

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

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Miscellaneous Chemistry (continued)

pH

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

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

pH ..... 5–10 units

Boron

CRM	PT		QR
Cat. #919	Cat. #886	Q	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		QR
Cat. #769	Cat. #887	Q	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		QR
Cat. #501	Cat. #587	M	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
Free residual chlorine ..... 0.5–3 mg/L

Low-Level Total Residual Chlorine (TRC)

CRM	PT		QR
Cat. #917	Cat. #881	M	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 ..... 50–250 µg/L

Craig Huff
Senior Technical Manager

Volatiles

Volatiles

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

1,4-Dioxane

NEW PRODUCT

CRM	PT		QR
Cat. #402	Cat. #597	B	Cat. #402QR

One 2 mL flame-sealed ampule yields up to 1 liter after dilution. Use with modified versions of EPA methods 8260, 8270, 1624, or other applicable methods.

1,4-Dioxane ..... 3–30 µg/L

Volatile Aromatics

CRM	PT		QR
Cat. #4452	Cat. #4450	Q	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 10–300 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		QR
Cat. #760	Cat. #643	Q	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 10–300 µg/L after dilution.

Volatiles (continued)

Gasoline Range Organics (GRO) in Water

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

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with both purge and trap and modified EPA 8015 GC/FID methods or other applicable methods to test for GRO at 400–4000 µg/L. Also use to test for BTEX in gasoline.

Note: This standard is not compliant with the NELAC concentration ranges for the BTEX analytes. If you require a NELAC-compliant sample for these analytes, use WP Volatiles catalog #830 or BTEX in Water catalog #643.

PCBs

PCBs in Water

CRM	PT		QR
Cat. #734S	Cat. #832S	M	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 Water Standards

PCBs in water standards are sold individually in 2 mL flame-sealed ampules that yield 1 liter after dilution. Use with EPA Methods 608, 8082, or other applicable methods. Each standard contains an Aroclor at 1–15 µg/L after dilution.

CRM Cat. #	Aroclor	Range
860	1016	1–15 µg/L
861	1221	1–15 µg/L
862	1232	1–15 µg/L
863	1242	1–15 µg/L
864	1248	1–15 µg/L
865	1254	1–15 µg/L
866	1260	1–15 µg/L

PCBs in Oil

CRM	PT		QR
Cat. #729S	Cat. #835S	M	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 10–50 mg/kg.

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

Per-and Polyfluoroalkyl Substances (PFAS)

PFAS - Non-Potable Water

NEW PRODUCT

CRM	PT		QR
Cat. #403	Cat. #598	B	Cat. #403QR

One 2 mL flame sealed ampule yields in excess of 1.5 liters after dilution. Design is suitable for methods analyzing non-potable water. Use with LC-MS/MS techniques. The diluted standard will contain a minimum of 17 analytes in each lot selected from the list below.

- 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)..... 100–500 ng/L
- 9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)..... 100–500 ng/L
- 4,8-dioxa-3H-perfluorononanoic acid (DONA)..... 100–500 ng/L
- N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)..... 100–500 ng/L
- 1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)..... 100–500 ng/L
- 1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)..... 100–500 ng/L
- 1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)..... 100–500 ng/L
- Hexafluoropropylene oxide dimer acid (HFPO-DA)..... 100–500 ng/L
- N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)..... 100–500 ng/L
- Perfluorobutanesulfonic acid (PFBS)..... 100–500 ng/L
- Perfluorobutanoic acid (PFBA)..... 100–500 ng/L
- Perfluorodecane sulfonic acid (PFDS)..... 100–500 ng/L
- Perfluorodecanoic acid (PFDA)..... 100–500 ng/L
- Perfluorododecanoic acid (PFDoA)..... 100–500 ng/L
- Perfluoroheptane sulfonic acid (PFHpS)..... 100–500 ng/L
- Perfluoroheptanoic acid (PFHpA)..... 100–500 ng/L
- Perfluorohexanesulfonic acid (PFHxS)..... 100–500 ng/L
- Perfluorohexanoic acid (PFHxA)..... 100–500 ng/L
- Perfluorononane sulfonic acid (PFNS)..... 100–500 ng/L
- Perfluorononanoic acid (PFNA)..... 100–500 ng/L
- Perfluorooctane sulfonamide (PFOSAm)..... 100–500 ng/L
- Perfluorooctanesulfonic acid (PFOS)..... 100–500 ng/L
- Perfluorooctanoic acid (PFOA)..... 100–500 ng/L
- Perfluoropentanoic acid (PFPeA)..... 100–500 ng/L
- Perfluoropentane sulfonic acid (PFPeS)..... 100–500 ng/L
- Perfluorotetradecanoic acid (PFTDA)..... 100–500 ng/L
- Perfluorotridecanoic acid (PFTrDA)..... 100–500 ng/L
- Perfluoroundecanoic acid (PFUnDA)..... 100–500 ng/L

Herbicides

Chlorinated Acid Herbicides

CRM	PT		QR
Cat. #718	Cat. #829	M	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 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 16) for these compounds in the EPA/NELAC range.

- Acifluorfen
- Bentazon
- 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)

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

All Waters ERA WP PTs open monthly (M), quarterly (Q), or biannually (B) unless otherwise noted. * WP Lithium PTs open in February and August. Quarterly months are January, April, July, and October. Biannual months are January and July.

Semivolatiles

Base/Neutrals

NEW ANALYTES

CRM	PT		QR
Cat. #711	Cat. #833	M	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 200–1000 µg/L).

- Acenaphthene
- Acenaphthylene
- Acetophenone
- 2-Amino-1-methylbenzene
- (o-Toluidine)
- Aniline
- Anthracene
- Atrazine
- Azobenzene
- Benzaldehyde
- Benzidine
- Benzo(a)anthracene
- Benzo(b)fluoranthene
- Benzo(k)fluoranthene
- Benzo(g,h,i)perylene
- Benzo(a)pyrene
- Benzyl alcohol
- 1,1-Biphenyl
- 4-Bromophenyl phenyl ether
- Butyl benzyl phthalate
- Caprolactam
- Carbazole
- 4-Chloroaniline
- bis(2-Chloroethoxy)methane
- bis(2-Chloroethyl)ether
- 1-Chloronaphthalene
- 2-Chloronaphthalene
- 4-Chlorophenyl phenyl ether
- Chrysene
- n-Decane
- Dibenz(a,h) anthracene
- Dibenzofuran
- 2,3-Dichloroaniline
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- 3,3-Dichlorobenzidine
- Diethyl phthalate
- Dimethyl phthalate
- Di-n-butyl phthalate
- 1,3-Dinitrobenzene
- 2,4-Dinitrotoluene
- 2,6-Dinitrotoluene
- 1,2-Diphenylhydrazine
- 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
- n-Octadecane
- 2,2'-Oxybis(1-Chloropropane)
- Pentachlorobenzene
- Phenanthrene
- Pyrene
- Pyridine
- 1,2,4,5-Tetrachlorobenzene
- 1,2,4-Trichlorobenzene

Acids

CRM	PT		QR
Cat. #712	Cat. #834	M	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		QR
Cat. #764	Cat. #641	Q	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 800–6000 µg/L.

EDB/DBCP/TCP

CRM	PT		QR
Cat. #692	Cat. #562	Q	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 0.2–2.0 µg/L.

- 1,2-Dibromo-3-chloropropane (DBCP)
- 1,2-Dibromoethane (EDB)
- 1,2,3-Trichloropropane (TCP)

Glycols in Water

CRM	PT		QR
Cat. #401	Cat. #271	Q	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. Each lot contains all analytes in the concentration range 75–200 mg/L.

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

Low-Level Nitroaromatics & Nitramines

CRM	PT		QR
Cat. #677	Cat. #932	Q	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		QR
Cat. #715	Cat. #836	Q	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		QR
Cat. #4882	Cat. #4880	Q	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
- 1-Methylnaphthalene
- 2-Methylnaphthalene
- Naphthalene
- Phenanthrene
- Pyrene

Pesticides

Organochlorine Pesticides

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

Chlordane

CRM	PT		QR
Cat. #716	Cat. #837	M	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		QR
Cat. #717	Cat. #838	M	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		QR
Cat. #908	Cat. #899	Q	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

Nitrogen Pesticides

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

Organophosphorus Pesticides (OPP)

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

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

All Waters ERA WP PTs open monthly (M) or quarterly (Q) unless otherwise noted. Quarterly months are January, April, July, and October.

Audrey Cornell
Principal Proficiency Testing
Technical Specialist

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	200–1200 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
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.

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 11.

Oil and 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, ICP-MS, and selected colorimetric methods.

Aluminum	200–4000 µg/L
Antimony	90–900 µg/L
Arsenic	90–900 µg/L
Barium	100–2500 µg/L
Beryllium	50–500 µg/L
Boron	800–2000 µg/L
Cadmium	100–1000 µg/L
Chromium	100–1000 µg/L
Cobalt	100–1000 µg/L
Copper	100–1000 µg/L
Iron	200–4000 µg/L
Lead	100–1500 µg/L
Manganese	200–2000 µg/L
Molybdenum	60–600 µg/L
Nickel	200–2000 µg/L
Selenium	100–1000 µg/L
Silver	100–1000 µg/L
Strontium	50–500 µg/L
Thallium	80–800 µg/L
Vanadium	50–2000 µg/L
Zinc	300–2000 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

The 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 Certified Reference Materials (CRMs) 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

CRM
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

CRM
Cat. #4183

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

Hexavalent chromium	100–1000 µg/L

QC Plus – Minerals

CRM
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

CRM
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

CRM
Cat. #4123

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

Oil and grease	10.0–100 mg/L

QC Plus – pH

CRM
Cat. #4063

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

pH	2.00–12.0 units

QC Plus – Fluoride

CRM
Cat. #4423

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

Fluoride	5–20 mg/L

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

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

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 15 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 screw cap vial yields up to 2 liters of solution after dilution.

Total residual chlorine	0.100–1.00 mg/L

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

Claire Toon
Proficiency Testing
Technical Specialist

TRUST THE DMR-QA EXPERTS

Whether you are new to the U.S. EPA's Discharge Monitoring Report-Quality Assurance (DMR-QA) study, or are a seasoned participant, Waters ERA offers readily-accessible tools and a team of professionals to help you:

- Report data easily with access to eDATA tools
- Receive WP study reports two days after close date
- Access NPDES data from eDATA at the close of study
- Meet study requirements and be successful with the DMR-QA journey

Learn more at eraqc.com/dmr-qa

WATER SUPPLY

Matrices with low concentrations of analytes for testing water supply, drinking water, or ground water. Standards are based on requirements of the United States Environmental Protection Agency Safe Drinking Water Act and may be used to satisfy PT requirements worldwide.

Water Supply PT Schedule

2022

Water Supply			
	Scheme #	Opens	Closes
Q	WS 306	Jan 10	Feb 24
	WS 307	Feb 7	Mar 24
	WS 308	Mar 7	Apr 21
Q	WS 309	Apr 4	May 19
	WS 310	May 9	Jun 23
	WS 311	Jun 6	Jul 21
Q	WS 312	Jul 11	Aug 25
	WS 313	Aug 8	Sep 22
	WS 314	Sep 6	Oct 21
Q	WS 315	Oct 7	Nov 21
	WS 316	Nov 1	Dec 16
	WS 317	Dec 5	Jan 19, 2023

2023

Water Supply			
	Scheme #	Opens	Closes
Q	WS 318	Jan 9	Feb 23
	WS 319	Feb 6	Mar 23
	WS 320	Mar 6	Apr 20
Q	WS 321	Apr 10	May 25
	WS 322	May 8	Jun 22
	WS 323	Jun 5	Jul 20
Q	WS 324	Jul 10	Aug 24
	WS 325	Aug 7	Sep 21
	WS 326	Sep 5	Oct 20
Q	WS 327	Oct 6	Nov 20
	WS 328	Oct 31	Dec 15
	WS 329	Dec 4	Jan 18, 2024

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

Contents

CRM: A reference material characterized by a metrologically valid procedure for one or more specified properties, accompanied by a reference material certificate that provides the value of the specified property, its associated uncertainty, and a statement of metrological traceability.

A complete listing of ERA's CRMs can be found on our Scope of Accreditation for general requirements for competence of reference material producers available at www.eraqc.com/AboutERA/Accreditations.

PT: A Proficiency Test (PT) is an analysis of what is often referred to as a blind sample or a sample with unknown concentrations of analytes for the purpose of evaluating a laboratory's analytical performance.

QR: Similar to a Proficiency Test, a QuiK Response (QR) is a sample with unknown concentrations. However, unlike a scheduled PT, QR is on-demand and available at any time. Plus, your results are returned within two business days. QuiK Response can be used as a bilateral PT as referenced in the IUPAC/CITAC guide: Selection and use of PT schemes for a limited number of participants – chemical analytical labs.

RM: A material, sufficiently homogeneous and stable with respect to one or more specified properties, which has been established to be fit for its intended use in a measurement process.

All Waters ERA WS PTs open monthly (M), quarterly (Q), or biannually (B) unless otherwise noted. Quarterly months are January, April, July, and October. Biannual months are January and July.

Minerals/Solids

Hardness

CRM	PT		QR
Cat. #693	Cat. #555	M	Cat. #693QR

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

Calcium	30–90 mg/L
Calcium hardness as $CaCO_3$	75–225 mg/L
Total hardness as $CaCO_3$	83–307 mg/L
Magnesium	2–20 mg/L
Sodium	12–50 mg/L

Inorganics

CRM	PT		QR
Cat. #698	Cat. #591	M	Cat. #698QR

One 500 mL whole-volume bottle is ready to analyze. The CRM is also certified for sodium at 10–400 mg/L. For a sodium PT, order Hardness, Cat. #555.

Alkalinity as $CaCO_3$	25–200 mg/L
Chloride	20–160 mg/L
Fluoride	1–8 mg/L
Nitrate as N	3–10 mg/L
Nitrate plus nitrite as N	3–10 mg/L
Potassium	10–40 mg/L
Specific conductance at 25 °C	130–1300 µmhos/cm
Sulfate	25–250 mg/L
Total dissolved solids (TDS) at 180 °C	100–1000 mg/L

Solids Concentrate

CRM	PT		QR
Cat. #5152	Cat. #5150	M	Cat. #5152QR

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

Total filterable residue (TDS) at 180 °C	100–1000 mg/L
Total solids (TS) at 105 °C	123–1100 mg/L
Total suspended solids (TSS)	23–100 mg/L

The Industry Standard for over 40 years

Trace Metals

Metals

CRM	PT		QR
Cat. #697	Cat. #590	M	Cat. #697QR

One 15 mL screw-cap vial yields up to 2 liters after dilution. Use with ICP-OES, ICP-MS, and AA methods.

Aluminum	130–1000 µg/L
Antimony	6–50 µg/L
Arsenic	5–50 µg/L
Barium	500–3000 µg/L
Beryllium	2–20 µg/L
Boron	800–2000 µg/L
Cadmium	2–50 µg/L
Chromium	10–200 µg/L
Copper	50–2000 µg/L
Iron	100–1800 µg/L
Lead	5–100 µg/L
Manganese	40–900 µg/L
Molybdenum	15–130 µg/L
Nickel	10–500 µg/L
Selenium	10–100 µg/L
Silver	20–300 µg/L
Thallium	2–10 µg/L
Vanadium	50–1000 µg/L
Zinc	200–2000 µg/L

Mercury

CRM	PT		QR
Cat. #666	Cat. #551	M	Cat. #666QR

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

Total mercury	0.5–10 µg/L

Hexavalent Chromium

CRM	PT		QR
Cat. #658	Cat. #854	Q	Cat. #658QR

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

Hexavalent chromium	5–50 µg/L

Uranium

CRM	PT		QR
Cat. #930	Cat. #858	Q	Cat. #930QR

One 15 mL screw-cap vial yields up to 2 liters after dilution. Use with ICP-MS methods.

Uranium	3–104 µg/L

Vanadium

CRM	PT		QR
Cat. #660	Cat. #856	Q	Cat. #660QR

One 15 mL screw-cap vial yields up to 2 liters after dilution. Designed to meet California ELAP requirements.

Vanadium	5–50 µg/L

Disinfection By-Products

Chloral Hydrate

CRM	PT		QR
Cat. #676	Cat. #853	B	Cat. #676QR

One 2 mL flame-sealed ampule yields in excess of 200 mL after dilution. Use with EPA Method 551, or other applicable method. Includes chloral hydrate at 4–30 µg/L.

B Waters ERA WS Chloral Hydrate PTs open in January and July.

Haloacetic Acids (HAA)

CRM	PT		QR
Cat. #684	Cat. #852	M	Cat. #684QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA Method 552, or other applicable method. Includes all the analytes below at 5–50 µg/L.

Bromochloroacetic acid
Dibromoacetic acid
Dichloroacetic acid
Monobromoacetic acid
Monochloroacetic acid
Trichloroacetic acid

Inorganic Disinfection #1

CRM	PT		QR
Cat. #5272	Cat. #5270	M	Cat. #5272QR

One 24 mL screw-cap vial yields up to 4 liters after dilution.

Chlorate ..... 60–180 µg/L
Chlorite ..... 100–1000 µg/L

Inorganic Disinfection #2

CRM	PT		QR
Cat. #5262	Cat. #5260	M	Cat. #5262QR

One 24 mL screw-cap vial yields up to 4 liters after dilution.

Bromate ..... 7–50 µg/L
Bromide ..... 50–300 µg/L

Nutrients

Ammonia as N

CRM	PT		QR
Cat. #1359	Cat. #1319	B	Cat. #1359QR

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

Ammonia as N ..... 0.1–1 mg/L

B Waters ERA WS Ammonia as N PTs open in January and July.

Nitrite

CRM	PT		QR
Cat. #695	Cat. #594	M	Cat. #695QR

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

Nitrite as N ..... 0.4–2 mg/L

o-Phosphate Nutrients

CRM	PT		QR
Cat. #667	Cat. #558	M	Cat. #667QR

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

ortho-Phosphate as P ..... 0.5–5.5 mg/L

Miscellaneous Inorganic

Residual Chlorine

CRM	PT		QR
Cat. #696	Cat. #593	M	Cat. #696QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution.

Total residual chlorine ..... 0.5–3 mg/L
Free residual chlorine ..... 0.5–3 mg/L

Cyanide

CRM	PT		QR
Cat. #983	Cat. #556	M	Cat. #983QR

One 15 mL screw-cap vial yields up to 2 liters after dilution. Source material is free cyanide.

Free cyanide ..... 0.1–0.5 mg/L
Total cyanide ..... 0.1–0.5 mg/L
Cyanide ..... 0.1-0.5 mg/L

Darren Sauer
Senior Customer Service Representative

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

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Miscellaneous Inorganic (continued)

Organic Carbon

CRM	PT		QR
Cat. #669	Cat. #557	M	Cat. #669QR

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

Total organic carbon ..... 1.3–13 mg/L
Dissolved organic carbon ..... 1.3–13 mg/L

Perchlorate

CRM	PT		QR
Cat. #910	Cat. #903	Q	Cat. #910QR

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

Perchlorate ..... 4–20 µg/L

pH

CRM	PT		QR
Cat. #779	Cat. #552	M	Cat. #779QR

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

pH ..... 5–10 units

Silica

CRM	PT		QR
Cat. #785	Cat. #902	Q	Cat. #785QR

One 60 mL poly bottle yields 1 liter after dilution.

Silica as SiO_2 ..... 5–75 mg/L

Surfactants-MBAS

CRM	PT		QR
Cat. #784	Cat. #901	Q	Cat. #784QR

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

Surfactants-MBAS ..... 0.1–1 mg/L

Physical Property

Color

CRM	PT		QR
Cat. #661	Cat. #859	Q	Cat. #661QR

One 125 mL whole-volume bottle is ready to analyze.

Color ..... 10–75 PC units

Corrosivity

CRM	PT		QR
Cat. #980	Cat. #900	Q	Cat. #980QR

One 500 mL whole-volume bottle is ready to analyze for corrosivity, calcium carbonate saturation, and Langelier Saturation Index.

Corrosivity ..... -4 to +4 SI units

Turbidity

CRM	PT		QR
Cat. #699	Cat. #592	M	Cat. #699QR

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

Turbidity ..... 0.5–8 NTU

UV 254 Absorbance

CRM	PT		QR
Cat. #662	Cat. #904	Q	Cat. #662QR

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

UV 254 absorbance ..... 0.05–0.7 cm^{-1}

Learn more about WS products

Volatile Organics

1,4-Dioxane

NEW PRODUCT

CRM	PT	QR
Cat. #689	Cat. #272 B	Cat. #689QR

One 2 mL flame-sealed ampule yields 500 mL after dilution. Use with EPA method 522.

1,4-Dioxane.....0.1–10 µg/L

Gasoline Additives

CRM	PT	QR
Cat. #909	Cat. #905 Q	Cat. #909QR

One 2 mL flame-sealed ampule yields in excess of 200 mL after dilution. Use with EPA Method 524.2, or other applicable method for gasoline additives/oxygenates. Contains all of the analytes below at 5–50 µg/L.

- tert-Amyl methyl ether (TAME)
- tert-Butyl alcohol
- Di-isopropylether (DIPE)
- Ethyl tert-butyl ether (ETBE)
- Methyl tert-butyl ether (MTBE)
- Trichlorofluoromethane (Freon® 11)
- Trichlorotrifluoroethane (Freon 113)

Halomethanes (THMs)

CRM	PT	QR
Cat. #702	Cat. #842 M	Cat. #702QR

One 2 mL flame-sealed ampule yields in excess of 200 mL after dilution. Use with EPA Methods 502.2, 524.2, 551, or other applicable method. Contains all of the analytes below at 5–50 µg/L.

- Bromodichloromethane
- Bromoform
- Chlorodibromomethane
- Chloroform

Regulated Volatiles

CRM	PT	QR
Cat. #703	Cat. #840 M	Cat. #703QR

One 2 mL flame-sealed ampule yields in excess of 200 mL after dilution. Use with EPA Methods 502.2, 524.2, or other applicable method. Contains all of the analytes below at 2–50 µg/L.

- Benzene
- Carbon tetrachloride
- Chlorobenzene
- 1,2-Dichlorobenzene
- 1,4-Dichlorobenzene
- 1,2-Dichloroethane
- 1,1-Dichloroethylene
- cis-1,2-Dichloroethylene
- trans-1,2-Dichloroethylene
- 1,2-Dichloropropane
- Ethylbenzene
- Methylene chloride
- Styrene
- Tetrachloroethylene
- Toluene
- 1,2,4-Trichlorobenzene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethylene
- Vinyl chloride
- Xylenes, total

Unregulated Volatiles

CRM	PT	QR
Cat. #683	Cat. #841 M	Cat. #683QR

One 2 mL flame-sealed ampule yields in excess of 200 mL after dilution. Use with EPA Methods 502.2, 524.2, or other applicable method. Contains at least 60% of the analytes randomly selected from the list below at 2–50 µg/L.

- Bromobenzene
- Bromochloromethane
- Bromomethane
- n-Butylbenzene
- sec-Butylbenzene
- tert-Butylbenzene
- Chloroethane
- Chloromethane
- 2-Chlorotoluene
- 4-Chlorotoluene
- Dibromomethane
- 1,3-Dichlorobenzene
- Dichlorodifluoromethane
- 1,1-Dichloroethane
- 1,3-Dichloropropane
- 2,2-Dichloropropane
- 1,1-Dichloropropene
- cis-1,3-Dichloropropene
- trans-1,3 Dichloropropene
- Fluorotrichloromethane
- Hexachlorobutadiene
- Isopropylbenzene
- 4-Isopropyltoluene
- Methyl tert-butyl ether (MTBE)
- Naphthalene
- n-Propylbenzene
- 1,1,1,2-Tetrachloroethane
- 1,1,2,2-Tetrachloroethane
- 1,2,3-Trichlorobenzene
- 1,2,3-Trichloropropane
- 1,2,4-Trimethylbenzene
- 1,3,5-Trimethylbenzene

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

All Waters ERA WS PTs open monthly (M), quarterly (Q), or biannually (B) unless otherwise noted. Quarterly months are January, April, July, and October.

Per- and Polyfluoroalkyl Substances (PFAS)

PFAS Drinking Water

NEW ANALYTES

CRM	PT		QR
Cat. #735	Cat. #960	Q	Cat. #735QR

One 2 mL flame sealed ampule yields in excess of 1.5 L after dilution. Use with EPA method 537. The diluted standard will contain 6-8 analytes in each lot selected from the list below.

11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	50–500 ng/L
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	50–500 ng/L
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	50–500 ng/L
4,8-dioxa-3H-perfluorononanoic acid (DONA)	50–500 ng/L
Hexafluoropropylene oxide dimer acid (HFPO-DA)	100–1000 ng/L
N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	50–500 ng/L
Perfluorobutanesulfonic acid (PFBS)	100–1000 ng/L
Perfluorodecanoic acid (PFDA)	50–500 ng/L
Perfluorododecanoic acid (PFDoA)	50–500 ng/L
Perfluoroheptanoic acid (PFHpA)	50–500 ng/L
Perfluorohexanesulfonic acid (PFHxS)	50–500 ng/L
Perfluorohexanoic acid (PFHxA)	50–500 ng/L
Perfluorononanoic acid (PFNA)	50–500 ng/L
Perfluorooctanesulfonic acid (PFOS)	50–500 ng/L
Perfluorooctanoic acid (PFOA)	50–500 ng/L
Perfluorotetradecanoic acid (PFTDA)	50–500 ng/L
Perfluorotridecanoic acid (PFTrDA)	50–500 ng/L
Perfluoroundecanoic acid (PFUnDA)	50–500 ng/L

PFAS Ground Water & Surface Water

NEW ANALYTES

CRM	PT		QR
Cat. #731	Cat. #929	Q	Cat. #731QR

One 2 mL flame sealed ampule yields in excess of 1.5 L after dilution. Design is suitable for methods analyzing ground water or surface water. Use with LC-MS/MS techniques. The diluted standard will contain 6–12 analytes in each lot selected from the list below.

11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	100–500 ng/L
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	100–500 ng/L
4,8-dioxa-3H-perfluorononanoic acid (DONA)	100–500 ng/L
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	100–500 ng/L
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)	100–500 ng/L
1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)	100–500 ng/L
1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)	100–500 ng/L
Hexafluoropropylene oxide dimer acid (HFPO-DA)	100–500 ng/L
N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	100–500 ng/L
Perfluorobutanesulfonic acid (PFBS)	100–500 ng/L
Perfluorobutanoic acid (PFBA)	100–500 ng/L
Perfluorodecane sulfonic acid (PFDS)	100–500 ng/L
Perfluorodecanoic acid (PFDA)	100–500 ng/L
Perfluorododecanoic acid (PFDoA)	100–500 ng/L
Perfluoroheptane sulfonic acid (PFHpS)	100–500 ng/L
Perfluoroheptanoic acid (PFHpA)	100–500 ng/L
Perfluorohexanesulfonic acid (PFHxS)	100–500 ng/L
Perfluorohexanoic acid (PFHxA)	100–500 ng/L
Perfluorononane sulfonic acid (PFNS)	100–500 ng/L
Perfluorononanoic acid (PFNA)	100–500 ng/L
Perfluorooctane sulfonamide (PFOSAm)	100–500 ng/L
Perfluorooctanesulfonic acid (PFOS)	100–500 ng/L
Perfluorooctanoic acid (PFOA)	100–500 ng/L
Perfluoropentanoic acid (PFPeA)	100–500 ng/L
Perfluoropentane sulfonic acid (PFPeS)	100–500 ng/L
Perfluorotetradecanoic acid (PFTDA)	100–500 ng/L
Perfluorotridecanoic acid (PFTrDA)	100–500 ng/L
Perfluoroundecanoic acid (PFUnDA)	100–500 ng/L
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	100–500 ng/L
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	100–500 ng/L
Perfluoro-3-methoxypropanoic acid (PFMPA)	100–500 ng/L
Perfluoro-4-methoxybutanoic acid (PFMBA)	100–500 ng/L

Pesticides

Pesticides

CRM	PT		QR
Cat. #709	Cat. #850	M	Cat. #709QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA Methods 505, 507, 508, 525, or other applicable method for organochlorine, nitrogen, and organophosphorus pesticides. Each standard contains at least 14 analytes randomly selected from the list below at 0.2–20 µg/L.

Alachlor	Heptachlor	Metribuzin
Aldrin	Heptachlor epoxide (beta)	Molinate (ordram)
Atrazine	Hexachlorobenzene	Prometon
Bromacil	Hexachlorocyclopentadiene	Propachlor
Butachlor	Lindane (gamma-BHC)	Simazine
Diazinon	Methoxychlor	Thiobencarb
Dieldrin	Metolachlor	Trifluralin
Endrin		

Carbamate/Carbamoxyloxime Pesticides

CRM	PT		QR
Cat. #707	Cat. #846	M	Cat. #707QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA Methods 531.1, 531.2, 632, or other applicable method. Each standard contains at least 8 of the analytes below at 15–150 µg/L.

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

Chlordane

CRM	PT		QR
Cat. #705	Cat. #845	M	Cat. #705QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA Methods 505, 508, 525, or other applicable method. Each standard contains technical chlordane at 2–20 µg/L.

Toxaphene

CRM	PT		QR
Cat. #700	Cat. #844	M	Cat. #700QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA Methods 505, 508, 525, or other applicable method. Each standard contains toxaphene at 2–20 µg/L.

Brian Miller
Product Line Manager

GET AHEAD OF INCREASING PFAS DEMANDS

PFASs have long been a contaminant of concern for environmental waters, but they are now emerging in food safety concerns. Laboratories are seeking fast and sensitive solutions to rapidly detect these pollutants in surface, ground, and waste waters to help target remediation efforts and prevent food chain contamination.

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Pesticides (continued)

EDB/DBCP/TCP

CRM	PT		QR
Cat. #706	Cat. #847	M	Cat. #706QR

One 2 mL flame-sealed ampule yields in excess of 200 mL after dilution. Use with EPA Methods 504, 551, or other applicable method. Each lot contains all analytes below at 0.05–2 µg/L.

- 1,2-Dibromo-3-chloropropane (DBCP)
- Ethylene dibromide (EDB)
- 1,2,3-Trichloropropane (1,2,3-TCP)

Low-Level 1,2,3-TCP

CRM	PT		QR
Cat. #682	Cat. #596	B	Cat. #682QR

One 2 mL flame-sealed ampule yields 100 mL after dilution. Use with California method SRL 524M, or other applicable method. Each standard contains 1,2,3-Trichloropropane (TCP) at 5-100 ng/L after dilution.

B Low-Level 1,2,3-TCP available in January and July.

Semivolatile Organics

Dioxin

CRM	PT		QR
Cat. #663	Cat. #857	Q	Cat. #663QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA Methods 613, 1613, 8280, 8290, or other applicable method. Each standard contains 2,3,7,8-TCDD at 20–100 pg/L.

PCBs as Decachlorobiphenyl

CRM	PT		QR
Cat. #708	Cat. #839	Q	Cat. #708QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA Quantitative Method 508A. This standard can also be used for aroclor identification and quantification using EPA Methods 505, 508, 508.1, or other applicable method. Includes an aroclor randomly selected from the list below at 0.5–5 µg/L as decachlorobiphenyl.

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

Semivolatile Organics (continued)

Semivolatiles #1

CRM	PT		QR
Cat. #690	Cat. #848	M	Cat. #690QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA Methods 506, 525, 550, or other applicable method for PAHs, phthalates, and adipates. Each standard contains benzo(a)pyrene, bis(2-ethylhexyl)adipate, and bis(2-ethylhexyl)phthalate plus at least 13 additional analytes, selected from the list below, at 0.2–50 µg/L.

- Acenaphthene
- Acenaphthylene
- Anthracene
- Benzo(a)anthracene
- Benzo(b)fluoranthene
- Benzo(k)fluoranthene
- Benzo(g,h,i)perylene
- Benzo(a)pyrene
- Butyl benzyl phthalate
- Chyrsene
- Dibenz(a,h)anthracene
- Di-n-butyl phthalate
- Diethyl phthalate
- Dimethyl phthalate
- Di-n-octyl phthalate
- bis(2-Ethylhexyl)adipate
- bis(2-Ethylhexyl)phthalate
- Fluoranthene
- Fluorene
- Indeno(1,2,3-cd)pyrene
- Naphthalene
- Phenanthrene
- Pyrene

Naphthalene is not within the EPA/NELAC range. Use the Unregulated Volatiles standard (page 27 for this compound in the EPA/NELAC range.

Herbicides

Chlorinated Acid Herbicides

CRM	PT		QR
Cat. #704	Cat. #851	M	Cat. #704QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA Methods 515.1, 515.2, 515.3, 515.4, 555, or other applicable method. All lots include at least 10 analytes from the list below at 1–120 µg/L.

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

Semivolatiles #2 Herbicides

CRM	PT		QR
Cat. #691	Cat. #849	M	Cat. #691QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA Methods 547, 548, 549, or other applicable method. Each standard contains all the analytes below at 8–800 µg/L.

- Diquat
- Endothall
- Glyphosate
- Paraquat

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

All Waters ERA WS PTs open monthly (M), quarterly (Q), or biannually (B) unless otherwise noted. Quarterly months are January, April, July, and October.

MAGNIFY YOUR DIOXIN DETECTION

The analysis of dioxins is particularly demanding due to encountered low-level regulatory exposure limits and complex sample matrices. Waters provides LC-MS/MS and GC-MS/MS systems for the detection and quantification of dioxins and related compounds at ultra-trace levels. Combined with our analytical standards & reagents, proficiency testing (ERA), column and sample preparation products, and data management software, these solutions are designed to:

- Increase accuracy
- Enhance sensitivity
- Accelerate throughput
- Ensure compliance

Employ dependable solutions for POPs and chemical contaminant analysis.

Waters

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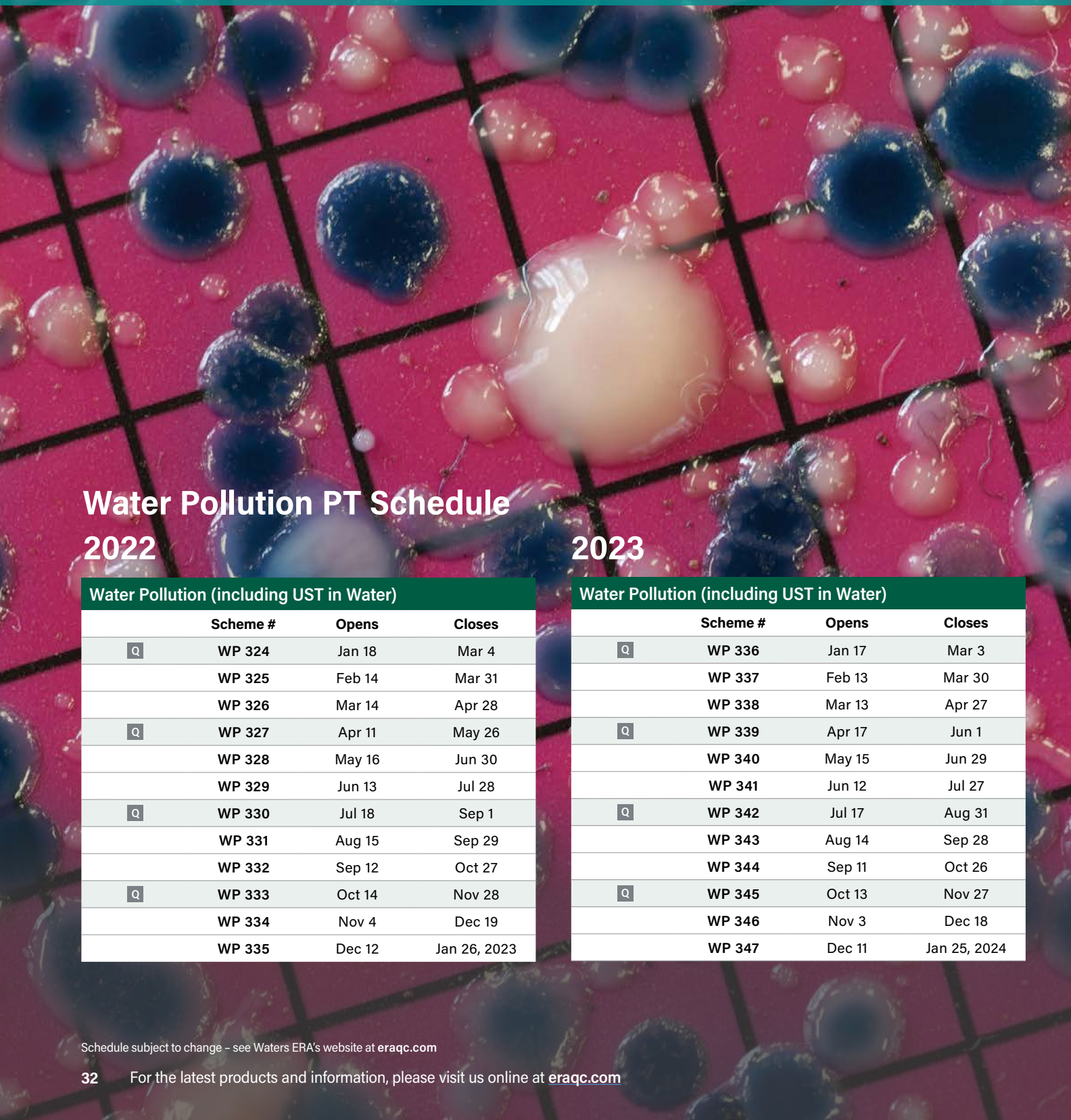
SAMPLE PREPARATION | CHEMISTRIES | COLUMNS | CHROMATOGRAPHY | MASS SPECTROMETRY

MICROBIOLOGY

Matrices with low and high concentrations of analytes for testing bacteria in drinking water and waste water. Samples are delivered as lyophilized pellets in a glass vial with phosphate buffer dilution water.



Water Pollution PT Schedule

2022

Water Pollution (including UST in Water)			
	Scheme #	Opens	Closes
Q	WP 324	Jan 18	Mar 4
	WP 325	Feb 14	Mar 31
	WP 326	Mar 14	Apr 28
Q	WP 327	Apr 11	May 26
	WP 328	May 16	Jun 30
	WP 329	Jun 13	Jul 28
Q	WP 330	Jul 18	Sep 1
	WP 331	Aug 15	Sep 29
	WP 332	Sep 12	Oct 27
Q	WP 333	Oct 14	Nov 28
	WP 334	Nov 4	Dec 19
	WP 335	Dec 12	Jan 26, 2023

2023

Water Pollution (including UST in Water)			
	Scheme #	Opens	Closes
Q	WP 336	Jan 17	Mar 3
	WP 337	Feb 13	Mar 30
	WP 338	Mar 13	Apr 27
Q	WP 339	Apr 17	Jun 1
	WP 340	May 15	Jun 29
	WP 341	Jun 12	Jul 27
Q	WP 342	Jul 17	Aug 31
	WP 343	Aug 14	Sep 28
	WP 344	Sep 11	Oct 26
Q	WP 345	Oct 13	Nov 27
	WP 346	Nov 3	Dec 18
	WP 347	Dec 11	Jan 25, 2024

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

Contents

CRM: A reference material characterized by a metrologically valid procedure for one or more specified properties, accompanied by a reference material certificate that provides the value of the specified property, its associated uncertainty, and a statement of metrological traceability.

A complete listing of ERA's CRMs can be found on our Scope of Accreditation for general requirements for competence of reference material producers available at www.eraqc.com/AboutERA/Accreditations.

PT: A Proficiency Test (PT) is an analysis of what is often referred to as a blind sample or a sample with unknown concentrations of analytes for the purpose of evaluating a laboratory's analytical performance.

QR: Similar to a Proficiency Test, a QuiK Response (QR) is a sample with unknown concentrations. However, unlike a scheduled PT, QR is on-demand and available at any time. Plus, your results are returned within two business days. QuiK Response can be used as a bilateral PT as referenced in the IUPAC/CITAC guide: Selection and use of PT schemes for a limited number of participants – chemical analytical labs.

RM: A material, sufficiently homogeneous and stable with respect to one or more specified properties, which has been established to be fit for its intended use in a measurement process.

Water Supply PT Schedule

2022

Water Supply

	Scheme #	Opens	Closes
Q	WS 306	Jan 10	Feb 24
	WS 307	Feb 7	Mar 24
	WS 308	Mar 7	Apr 21
Q	WS 309	Apr 4	May 19
	WS 310	May 9	Jun 23
	WS 311	Jun 6	Jul 21
Q	WS 312	Jul 11	Aug 25
	WS 313	Aug 8	Sep 22
	WS 314	Sep 6	Oct 21
Q	WS 315	Oct 7	Nov 21
	WS 316	Nov 1	Dec 16
	WS 317	Dec 5	Jan 19, 2023

2023

Water Supply

	Scheme #	Opens	Closes
Q	WS 318	Jan 9	Feb 23
	WS 319	Feb 6	Mar 23
	WS 320	Mar 6	Apr 20
Q	WS 321	Apr 10	May 25
	WS 322	May 8	Jun 22
	WS 323	Jun 5	Jul 20
Q	WS 324	Jul 10	Aug 24
	WS 325	Aug 7	Sep 21
	WS 326	Sep 5	Oct 20
Q	WS 327	Oct 6	Nov 20
	WS 328	Oct 31	Dec 15
	WS 329	Dec 4	Jan 18, 2024

All Waters ERA Microbiology PTs open monthly (M), quarterly (Q), or biannually (B) unless otherwise noted. Waters ERA Massachusetts Ground Water Enterococci PT is available any time. Quarterly months are January, April, July, and October.

WP Microbiology

Wastewater Coliform Microbe

CRM	PT		QR
Cat. #083	Cat. #576	M	Cat. #786QR

Each PT sample is one lyophilized quantitative standard for use with all Clean Water Act quantitative methods, including MF and MPN. If determining MPN by SM 9221 or similar multiple tube techniques, use 083A, 576A, or 786A.

CRM also includes one blank sample. Each standard can be used for total coliform, fecal coliform, and *E. coli* which are present in the range 20–2400 CFU/100 mL or MPN/100 mL.

Wastewater Coliform Microbe – 9221

CRM	PT		QR
Cat. #083A	Cat. #576A	M	Cat. #786AQR

Each PT sample is one lyophilized quantitative standard for use with Standard Methods 9221 or similar multiple tube techniques.

CRM also includes one blank sample. Each standard can be used for total coliform, fecal coliform, and *E. coli* which are present in the range of 20–2400 MPN/100 mL.

Enterococci

CRM	PT		QR
Cat. #081	Cat. #880	Q	Cat. #787QR

Each PT sample is one lyophilized standard, which can be analyzed for enterococci and/or fecal streptococci, MF or MPN in the range 20–1000 CFU/100 mL or MPN/100 mL.

CRM also includes one blank sample. Use with EPA Methods 1106.1 and 1600, ASTM Methods D5259-92, D6503-99, and Standard Methods 9230B and 9230C, and Enterolert Quantitray.

Heterotrophic Plate Count

PT	
Cat. #935	B

One lyophilized sample containing a Heterotrophic bacteria. SPC PT standards are required for laboratories seeking NELAC accreditation as well as by many other state programs.

B Offered Biannually in March and September.

State-Specific Microbiology

Massachusetts Ground Water Enterococci

CRM	PT	
Cat. #081	Cat. #077	*

Each PT sample set is composed of 10 lyophilized samples to be analyzed for presence or absence of enterococci. This sample is specifically designed for the State of Massachusetts certification for compliance with the federal Ground Water Rule. Each CRM sample set is composed of two lyophilized samples - one quantitative positive and one blank.

* Massachusetts Ground Water Enterococci PT is available any time.

WS Microbiology

Heterotrophic Plate Count

CRM	PT		QR
Cat. #084	Cat. #079	M	Cat. #084QR

Each sample is one lyophilized standard containing a heterotrophic bacteria present in the range 5–500 CFU/mL or MPN/mL. Use with the Standard Methods 9215B – Pour Plate Method, and Most Probable Number (MPN) Method (simplate).

Potable Water Coliform Microbe

CRM	PT		QR
Cat. #694	Cat. #080	M	Cat. #085QR

Each sample set consists of lyophilized standards for the presence or absence analysis of total coliform, fecal coliform, and *E. coli*. The standards are applicable to all SDWA promulgated methods-MF, MPN, presence/absence, and ONPG-MUG. The Potable Water Coliform Microbe PT standard is available in all 12-monthly WS studies.

Source Water Microbe

CRM	PT		QR
Cat. #078	Cat. #595	Q	Cat. #078QR

Each sample is one lyophilized quantitative standard containing *E. coli* in the range 20–200 CFU/100 mL or MPN/100 mL. Use with all SDWA quantitative methods. Each standard can be used for total coliform, fecal coliform, and *E. coli*. If determining MPN by SM 9221 or similar multiple tube techniques, use 078A, 595A, and 078AQR.

Source Water Microbe – 9221

CRM	PT		QR
Cat. #078A	Cat. #595A	Q	Cat. #078AQR

Each sample is one lyophilized quantitative standard containing *E. coli* in the range of 20–200 MPN/100 mL for use with Standard Methods 9221 or similar multiple tube techniques. Each standard can be used for total coliforms, fecal coliforms, and *E. coli*.

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

All Waters ERA Microbiology PTs open monthly (M) or quarterly (Q). Quarterly months are January, April, July, and October.

Learn more about Microbiology products

GOING BEYOND THE STANDARD

Supplying Proficiency Testing (PT) and Certified Reference Material (CRM) standards is not unique. What sets us apart is our commitment to being more than a standards provider. Since 1977, we've worked as your partner, helping you produce reliable, defensible data, maintain critical accreditations, and make your laboratory successful.

- **Data Tools to Help You Succeed:** eDATA online PT data management portal allows you to effectively manage your proficiency testing program, assess risk, and evaluate trends over time.
- **Expert Guidance at Your Fingertips:** Direct access to one of the most qualified Customer Service and Technical Support teams in the environmental PT and CRM industry.
- **Superior Standards for Better Results:** Waters ERA maintains ISO 17025, ISO 17034, and ISO 17043 accreditations, giving you greater confidence in your data due to the largest studies, two-day report turn-around time, and more reliable performance evaluations.

SOIL

Matrices designed to fulfill requirements for monitoring soil and solid matrices. Dried and homogenized standards of soil and sewage sludge may be used to satisfy PT requirements.

Soil (including UST in Soil) PT Schedule

2022

Soil (including UST in Soil)

	Scheme #	Opens	Closes
Q	**SOIL 117**	Jan 24	Mar 10
Q	**SOIL 118**	Apr 18	Jun 2
Q	**SOIL 119**	Jul 25	Sep 8
Q	**SOIL 120**	Oct 21	Dec 5

2023

Soil (including UST in Soil)

	Scheme #	Opens	Closes
Q	**SOIL 121**	Jan 23	Mar 9
Q	**SOIL 122**	Apr 24	Jun 8
Q	**SOIL 123**	Jul 24	Sep 7
Q	**SOIL 124**	Oct 20	Dec 4

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

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RM: A material, sufficiently homogeneous and stable with respect to one or more specified properties, which has been established to be fit for its intended use in a measurement process.

All ERA Soil PTs open quarterly (Q) or biannually (B), unless otherwise noted. Quarterly months are January, April, July, and October.

Metals

Metals in Soil

NEW ANALYTE

CRM	PT		QR
Cat. #540	Cat. #620	Q	Cat. #540QR

One 40 g soil sample in a screw-cap bottle for all ICP and AA, RCRA and Superfund Methods including EPA Digestion Methods 3050 Hot Plate and 3051 Microwave, or other applicable methods. Includes all metals shown below.

Aluminum	2500–25,000 mg/kg
Antimony	80–300 mg/kg
Arsenic	40–400 mg/kg
Barium	100–1000 mg/kg
Beryllium	40–400 mg/kg
Boron	80–800 mg/kg
Cadmium	40–400 mg/kg
Calcium	1500–25,000 mg/kg
Chromium	40–400 mg/kg
Cobalt	40–400 mg/kg
Copper	40–400 mg/kg
Iron	5000–50000 mg/kg
Lead	40–400 mg/kg
Lithium	50–250 mg/kg
Magnesium	1200–25,000 mg/kg
Manganese	100–2000 mg/kg
Mercury	1–35 mg/kg
Molybdenum	30–300 mg/kg
Nickel	40–500 mg/kg
Potassium	1400–25,000 mg/kg
Selenium	40–400 mg/kg
Silver	20–100 mg/kg
Sodium	150–15,000 mg/kg
Strontium	40–400 mg/kg
Thallium	40–400 mg/kg
Tin	50–250 mg/kg
Titanium	10–2000 mg/kg
Uranium	1–250 mg/kg
Vanadium	40–400 mg/kg
Zinc	100–1000 mg/kg

Hexavalent Chromium in Soil

CRM	PT		QR
Cat. #921	Cat. #876	Q	Cat. #921QR

One 40 g standard in a screw-cap bottle for use with all promulgated hexavalent chromium methods.

Hexavalent chromium	40–300 mg/kg

TCLP Metals in Soil

CRM	PT		QR
Cat. #544	Cat. #629	Q	Cat. #544QR

One 105 g soil standard in a screw-cap bottle designed specifically to meet all state requirements for TCLP extraction and analysis for the metals listed below. Sample is designed to be extracted with fluid #1.

Antimony	Cadmium	Nickel
Arsenic	Chromium	Selenium
Barium	Lead	Silver
Beryllium	Mercury	Zinc

Metals in Sewage Sludge

CRM	PT		QR
Cat. #160	Cat. #619	Q	Cat. #160QR

One 40 g sludge standard in a screw-cap bottle to be analyzed for the metals listed below.

Aluminum	1000–50,000 mg/kg
Antimony	80–300 mg/kg
Arsenic	50–400 mg/kg
Barium	250–2000 mg/kg
Beryllium	30–200 mg/kg
Cadmium	40–300 mg/kg
Calcium	5000–70,000 mg/kg
Chromium	40–300 mg/kg
Cobalt	5–50 mg/kg
Copper	40–1000 mg/kg
Iron	1000–50,000 mg/kg
Lead	50–250 mg/kg
Magnesium	1200–25,000 mg/kg
Manganese	100–2000 mg/kg
Mercury	1–50 mg/kg
Molybdenum	5–250 mg/kg
Nickel	40–250 mg/kg
Potassium	1400–25,000 mg/kg
Selenium	50–250 mg/kg
Silver	50–250 mg/kg
Sodium	150–15,000 mg/kg
Strontium	200–2000 mg/kg
Thallium	50–250 mg/kg
Vanadium	5–250 mg/kg
Zinc	70–1500 mg/kg

Physical Parameters

Corrosivity/pH in Soil

CRM	PT		QR
Cat. #914	Cat. #875	Q	Cat. #914QR

One 100 g soil standard in a screw-cap bottle. Use to measure corrosivity.

Corrosivity/pH	2–12 S.U.

Ignitability/Flash Point

CRM	PT		QR
Cat. #979	Cat. #874	Q	Cat. #979QR

One standard packaged in three 30 mL bottles. Use to measure ignitability.

Ignitability/flashpoint	100–200 °F

Oil & Grease

Oil & Grease in Soil

CRM	PT		QR
Cat. #549	Cat. #867	Q	Cat. #549QR

One screw-cap bottle containing 50 g of soil ready to analyze. Use with gravimetric method 9071B or infrared spectrometric analysis.

- n-Hexane extractable material (O&G) (Gravimetric) ..... 300–3000 mg/kg
- n-Hexane extractable material (O&G) (Infrared) ..... 300–3000 mg/kg

Inorganics

Anions in Soil

NEW ANALYTES

CRM	PT		QR
Cat. #543	Cat. #873	Q	Cat. #543QR

One 40 g soil standard in a screw-cap bottle designed for a DI water extraction procedure for all the anions listed below.

- Bromide ..... 10–100 mg/kg
- Chloride ..... 200–1000 mg/kg
- Fluoride ..... 25–500 mg/kg
- Nitrate as N ..... 25–500 mg/kg
- Nitrite as N ..... 0–500 mg/kg
- Nitrate + Nitrite as N ..... 0–2000 mg/kg
- Phosphate as P ..... 25–500 mg/kg
- Sulfate ..... 25–2000 mg/kg

Cyanide in Soil

CRM	PT		QR
Cat. #541	Cat. #621	Q	Cat. #541QR

One 40 g soil standard in a screw-cap bottle for all distillation/colorimetric methods.

- Total cyanide ..... 20–200 mg/kg
- Amenable cyanide ..... 0–100 mg/kg

Nutrients in Soil

CRM	PT		QR
Cat. #542	Cat. #869	Q	Cat. #542QR

One 40 g soil standard in a screw-cap bottle. Use to analyze for all the nutrients listed below.

- Ammonia as N ..... 300–3000 mg/kg
- Total Kjeldahl nitrogen as N ..... 400–4000 mg/kg
- Total organic carbon (TOC) ..... 1000–20,000 mg/kg
- Total phosphorus as P ..... 300–3000 mg/kg

Nutrients in Sludge

CRM
Cat. #545

One 40 g sludge standard in a screw-cap bottle is ready for analysis.

- Ammonia as N ..... 0.1–5% (w/w)
- Total Kjeldahl nitrogen as N ..... 2–10% (w/w)
- Total organic carbon (TOC) ..... 5–50% (w/w)
- Total phosphorus as P ..... 0.5–10% (w/w)

Volatiles

Volatiles in Soil

CRM	PT		QR
Cat. #721	Cat. #623	Q	Cat. #721QR

One 2 mL flame-sealed ampule in methanol requires spiking onto the provided ten grams of solid matrix before analysis. Use with EPA Methods 8021, 8260, or other applicable methods. Includes a subset of the analytes listed below at 20–200 µg/kg (40–400 µg/kg for total xylenes, 80–1000 for selected ketones, and 100–1000 µg/kg for acetonitrile).

- Acetone
- Acetonitrile
- Acrolein
- 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
- 1,1-Dichloroethylene
- cis-1,2-Dichloroethylene
- trans-1,2-Dichloroethylene
- 1,2-Dichloropropane
- 1,3-Dichloropropane
- 2,2-Dichloropropane
- 1,1-Dichloropropene
- cis-1,3-Dichloropropylene
- trans-1,3-Dichloropropylene
- 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

This standard is not compliant with the NELAC concentration for hexachloroethane, hexachlorobutadiene, and nitrobenzene. If a NELAC compliant sample is required for these analytes, use Ready-to-Use VOAs in Soil, or Base/Neutrals and Acids in Soil.

1,4-Dioxane in Soil

NEW PRODUCT

CRM	PT		QR
Cat. #538	Cat. #461	B	Cat. #538QR

One 2 mL flame-sealed ampule requires spiking onto the provided ten grams of solid matrix before analysis. Use with modified versions of EPA method 8260, 1624 or other applicable methods.

- 1,4-Dioxane ..... 20–200 ug/kg

Gasoline Range Organics (GRO) in Soil

CRM	PT		QR
Cat. #763	Cat. #630	Q	Cat. #763QR

One flame-sealed ampule with 20 g of soil spiked with unleaded regular gasoline in the range 100–2000 mg/kg. Use with purge and trap and modified EPA 8015 GC/FID Methods, or other applicable methods. Also use to test for BTEX in gasoline.

Note: This standard is not compliant with the NELAC concentration ranges for the BTEX analytes. If a NELAC-compliant sample for these analytes is required, use Volatiles in Soil, Cat. #623 or BTEX & MTBE Soil, Cat. #633.

All ERA Soil PTs open quarterly (Q) or biannually (B), unless otherwise noted. Quarterly months are January, April, July, and October.

Volatiles (continued)

BTEX & MTBE in Soil

CRM	PT	QR
Cat. #761	Cat. #633 Q	Cat. #761QR

One 2 mL flame-sealed ampule requires spiking onto the ten grams of provided certified clean soil. Includes the anlaytes below at 20–200 µg/kg (40–400 µg/kg for total xylenes). Use with EPA Method 8021, or other applicable methods.

- Benzene
- Ethylbenzene
- Methyl tert-butyl ether (MTBE)
- Toluene
- Xylenes, total
- m&p Xylene
- o-Xylene

Ready-to-Use VOAs in Soil

CRM	PT	QR
Cat. #924	Cat. #870 Q	Cat. #924QR

One 20 mL flame-sealed ampule containing 10 g of soil and 10 mL of methanol is ready to analyze. Use with EPA Methods 8021, 8260, or other applicable methods. Includes a subset of the analytes listed below at 1000–20,000 µg/kg.

- Acetone
- Acetonitrile
- Acrolein
- 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
- 1,1-Dichloroethene
- cis-1,2-Dichloroethylene
- trans-1,2-Dichloroethylene
- 1,2-Dichloropropane
- 1,3-Dichloropropane
- 2,2-Dichloropropane
- 1,1-Dichloropropene
- cis-1,3-Dichloropropylene
- trans-1,3-Dichloropropylene
- 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-Trichlorobenzene
- 1,2,4-Trimethylbenzene
- 1,3,5-Trimethylbenzene
- Vinyl acetate
- Vinyl chloride
- m&p-Xylene
- o-Xylene
- Xylenes, total

Total Petroleum Hydrocarbons

Total Petroleum Hydrocarbons (TPH) in Soil #1

CRM	PT	QR
Cat. #570	Cat. #632 Q	Cat. #572QR

One screw-top bottle with 50 g of soil to be analyzed for TPH. Use with EPA IR or Gravimetric Methods 8440, 9071B, or other applicable methods.

- Non-polar extractable material (TPH) (Gravimetric) ..... 300–3000 mg/kg
- Non-polar extractable material (TPH) (IR) ..... 300–3000 mg/kg

Total Petroleum Hydrocarbons (TPH) in Soil #2

CRM	PT	QR
Cat. #571	Cat. #632 Q	Cat. #572QR

One screw-top bottle with 50 g of soil to be analyzed for TPH in the presence of interfering fatty acids. Use with EPA IR or Gravimetric Methods 8440, 9071B, or other applicable methods.

- Non-polar extractable material (TPH) (Gravimetric) ..... 300–3000 mg/kg
- Non-polar extractable material (TPH) (IR) ..... 300–3000 mg/kg

TCLP

TCLP Volatiles

CRM	QR
Cat. #730	Cat. #730QR

One 2 mL flame-sealed ampule containing a subset of the analytes listed below, each at a concentration of 0.05–2.0 mg/L.

- Benzene
- 2-Butanone (MEK)
- Carbon tetrachloride
- Chlorobenzene
- Chloroform
- 1,4-Dichlorobenzene
- 1,2-Dichloroethane
- 1,1-Dichloroethylene
- Tetrachloroethylene
- Trichloroethylene
- Vinyl chloride

TCLP Semivolatiles

CRM	QR
Cat. #737	Cat. #737QR

One 2 mL flame-sealed ampule containing a subset of the analytes listed below, each at a concentration of 0.1–2.0 mg/L after dilution. All unspiked analytes are certified at <0.5 mg/L.

- 1,4-Dichlorobenzene
- 2,4-Dinitrotoluene
- Hexachlorobenzene
- Hexachlorobutadiene
- Hexachloroethane
- 2-Methylphenol
- 3 & 4-Methylphenol
- Nitrobenzene
- Pentachlorophenol
- Pyridine
- 2,4,5-Trichlorophenol
- 2,4,6-Trichlorophenol

TCLP Organochlorine Pesticides

CRM	QR
Cat. #732	Cat. #732QR

One 2 mL flame-sealed ampule containing a subset of the analytes listed below, each at a concentration of 0.01–0.2 mg/L after dilution. All unspiked analytes are certified at <0.1 mg/L.

- Endrin
- Heptachlor
- Heptachlor epoxide
- gamma-BHC (Lindane)
- Methoxychlor

Semivolatiles

Nitroaromatics & Nitramines in Soil

CRM	PT		QR
Cat. #920	Cat. #871	Q	Cat. #920QR

Two flame-sealed ampules each containing 30 g of soil are ready to analyze. Use for EPA Methods 8330, 8091, or other applicable methods. Includes a subset of the analytes listed below at 1500–15,000 µg/kg.

- 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

Per- & Polyfluoroalkyl Substances (PFAS) in Soil

NEW ANALYTES

CRM	PT		QR
Cat. #604	Cat. #462	Q	Cat. #604QR

One flame-sealed ampule containing 10 g of soil. The standard is certified for all analytes listed below. Each lot will be spiked with 6-12 of the analytes specified in the range of 20-100 µg/kg (40-100 µg/kg for HFPO-DA). Design is suitable for methods analyzing these components with LC-MS/MS techniques.

- 11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)..... 20-100 µg/kg
- 9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)..... 20-100 µg/kg
- 4,8-dioxa-3H-perfluorononanoic acid (DONA)..... 20-100 µg/kg
- N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)..... 20-100 µg/kg
- 1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid (8:2 FTS)..... 20-100 µg/kg
- 1H, 1H, 2H, 2H-Perfluorohexanesulfonic acid (4:2 FTS)..... 20-100 µg/kg
- 1H, 1H, 2H, 2H-Perfluorooctanesulfonic acid (6:2 FTS)..... 20-100 µg/kg
- Hexafluoropropylene oxide dimer acid (HFPO-DA)..... 40-100 µg/kg
- N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)..... 20-100 µg/kg
- Perfluorobutanesulfonic acid (PFBS)..... 20-100 µg/kg
- Perfluorobutanoic acid (PFBA)..... 20-100 µg/kg
- Perfluorodecane sulfonic acid (PFDS)..... 20-100 µg/kg
- Perfluorodecanoic acid (PFDA)..... 20-100 µg/kg
- Perfluorododecanoic acid (PFDoA)..... 20-100 µg/kg
- Perfluoroheptane sulfonic acid (PFHpS)..... 20-100 µg/kg
- Perfluoroheptanoic acid (PFHpA)..... 20-100 µg/kg
- Perfluorohexanesulfonic acid (PFHxS)..... 20-100 µg/kg
- Perfluorohexanoic acid (PFHxA)..... 20-100 µg/kg
- Perfluorononane sulfonic acid (PFNS)..... 20-100 µg/kg
- Perfluorononanoic acid (PFNA)..... 20-100 µg/kg
- Perfluorooctane sulfonamide (PFOSAm)..... 20-100 µg/kg
- Perfluorooctanesulfonic acid (PFOS)..... 20-100 µg/kg
- Perfluorooctanoic acid (PFOA)..... 20-100 µg/kg
- Perfluoropentanoic acid (PFPeA)..... 20-100 µg/kg
- Perfluoropentane sulfonic acid (PFPeS)..... 20-100 µg/kg
- Perfluorotetradecanoic acid (PFTDA)..... 20-100 µg/kg
- Perfluorotridecanoic acid (PFTrDA)..... 20-100 µg/kg
- Perfluoroundecanoic acid (PFUnDA)..... 20-100 µg/kg

Low-Level PAHs in Soil

CRM	PT		QR
Cat. #722	Cat. #625	Q	Cat. #722QR

Two flame-sealed ampules each containing 30 g are ready to analyze. Use for EPA HPLC Method 8310, 8270 SIM, or other applicable method. Includes a subset of the analytes listed below at 50–1000 µg/kg.

- 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

Diesel Range Organics (DRO) in Soil

CRM	PT		QR
Cat. #765	Cat. #631	Q	Cat. #765QR

One flame-sealed ampule with 20 g of soil spiked with #2 Diesel Fuel in the range 300–3000 mg/kg. Use with modified EPA Method 8015, or other applicable GC/FID methods.

Glycols in Soil

CRM	PT		QR
Cat. #928	Cat. #463	Q	Cat. #928QR

Two flame-sealed ampules each containing 30 g of soil are ready-to-use. Use with EPA Methods 8015B, 8430, 1671, or other applicable method. Includes all the analytes listed below at 75-200 mg/kg.

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

Base/Neutrals & Acids in Soil

NEW ANALYTES

CRM	PT		QR
Cat. #727	Cat. #467	Q	Cat. #727QR

Two flame-sealed ampules each containing 30 g of soil are ready-to-use. Use with EPA Method 8270, or other applicable method. Includes a subset of the analytes listed below at 500–15,000 ug/kg.

- Acenaphthene
- Acenaphthylene
- Acetophenone
- 2-Amino-1-methylbenzene (o-Toluidine)
- Aniline
- Anthracene
- Atrazine
- Benzaldehyde
- Benzidine
- Benzoic acid
- Benzo(a)anthracene
- Benzo(b)fluoranthene
- Benzo(k)fluoranthene
- Benzo(g,h,i)perylene
- Benzo(a)pyrene
- Benzyl alcohol
- Biphenyl
- 4-Bromophenyl phenyl ether
- Butyl benzyl phthalate
- Caprolactam
- Carbazole
- 4-Chloroaniline
- bis(2-Chloroethyl)ether
- bis(2-Chloroethoxy)methane
- 4-Chloro-3-methylphenol
- 1-Chloronaphthalene
- 2-Chloronaphthalene
- 2-Chlorophenol
- 4-Chlorophenyl phenyl ether
- Chrysene
- Dibenz(a,h)anthracene
- Dibenzofuran
- Di-n-butyl phthalate
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- 3,3'-Dichlorobenzidine
- 2,4-Dichlorophenol
- 2,6-Dichlorophenol
- Diethyl phthalate
- 2,4-Dimethylphenol
- Dimethyl phthalate
- 2,4-Dinitrophenol
- 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-Methyl-4,6-dinitrophenol
- 2-Methylnaphthalene
- 2-Methylphenol
- 3 & 4-Methylphenol
- Naphthalene
- 2-Nitroaniline
- 3-Nitroaniline
- 4-Nitroaniline
- Nitrobenzene
- 2-Nitrophenol
- 4-Nitrophenol
- N-Nitrosodiethylamine
- N-Nitrosodimethylamine
- N-Nitrosodiphenylamine
- N-Nitroso-di-n-propylamine
- 2,2'-Oxybis(1-Chloropropane)
- Pentachlorobenzene
- Pentachlorophenol
- Phenanthrene
- Phenol
- Pyrene
- Pyridine
- 1,2,4,5-Tetrachlorobenzene
- 2,3,4,6-Tetrachlorophenol
- 1,2,4-Trichlorobenzene
- 2,4,5-Trichlorophenol
- 2,4,6-Trichlorophenol

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Herbicides

Chlorinated Acid Herbicides in Soil

CRM	PT	QR
Cat. #723	Cat. #626 Q	Cat. #723QR

Two flame-sealed ampules, each containing 30 g of soil are ready-to-use. Use with EPA Method 8151, or other applicable methods. Includes a subset of the analytes listed below at 100–1000 µg/kg (MCPA & MCPP 1000–10,000 µg/kg).

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

This standard is not compliant with the NELAC concentration for 4-Nitrophenol. If a NELAC compliant sample is required for this analyte, use Base/Neutrals and Acids in Soil.

PCBs

PCBs in Oil

CRM	PT	QR
Cat. #563	Cat. #817 Q	Cat. #563QR

One 10 mL flame-sealed ampule is ready to analyze. Contains a different Aroclor, randomly selected from the list below at 10–50 mg/kg.

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

PCBs in Oil Standards

PCBs in oil standards are sold individually in ready-to-use flame-sealed ampules with 5 g of oil. Use with EPA Methods 8082, EPA-600/4-81-045, Sept. 1982, or other applicable methods. LOW LEVEL standards contain an aroclor in the range 10–50 ppm. HIGH LEVEL standards contain an aroclor in the range 51–500 ppm.

CRM Cat. #	Concentration	Aroclor	Range
820	Low	1242	10–50 ppm
821	High	1242	51–500 ppm
826	Low	1248	10–50 ppm
827	High	1248	51–500 ppm
822	Low	1254	10–50 ppm
823	High	1254	51–500 ppm
824	Low	1260	10–50 ppm
825	High	1260	51–500 ppm

PCBs in Soil

CRM	PT	QR
Cat. #726	Cat. #624 Q	Cat. #726QR

One screw-top bottle containing 50 grams of standard is ready to analyze. Use with EPA Method 8082, or other applicable methods. Each standard includes a different aroclor randomly selected from the list below at 1–50 mg/kg.

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

PCBs in Soil Standards

PCBs in soil standards are sold individually in screw-top bottles containing 50 g of soil. Use with EPA Methods 8082, 4020, or other applicable methods. LOW LEVEL standards contain an aroclor in the range 0.5–50 ppm. HIGH LEVEL standards contain an aroclor in the range 51–500 ppm.

CRM Cat. #	Concentration	Aroclor	Range
490	Low	1242	0.5–50 ppm
491	High	1242	51–500 ppm
496	Low	1248	0.5–50 ppm
497	High	1248	51–500 ppm
492	Low	1254	0.5–50 ppm
493	High	1254	51–500 ppm
494	Low	1260	0.5–50 ppm
495	High	1260	51–500 ppm

Learn more about Soil products

Heidi Senft
Quality Analyst

Darwin Baxter
Application Engineer

Pesticides

Organochlorine Pesticides in Soil

CRM	PT		QR
Cat. #728	Cat. #468	Q	Cat. #728QR

Two flame-sealed ampules each containing 30 g of soil are ready-to-use. Use with EPA Method 8081, or other applicable methods. Includes a subset of the analytes listed below at 50–500 µg/kg.

- 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
- Methoxychlor

Chlordane in Soil

CRM	PT		QR
Cat. #725	Cat. #628	Q	Cat. #725QR

One screw-top bottle containing 50 g of soil is ready to analyze. Use with EPA Method 8081, or other applicable methods. The standard contains technical chlordane at 100–1000 µg/kg.

Toxaphene in Soil

CRM	PT		QR
Cat. #724	Cat. #627	Q	Cat. #724QR

One screw-top bottle containing 50 g of soil is ready to analyze. Use with EPA Method 8081, or other applicable methods. The standard contains toxaphene at 200–2000 µg/kg.

Carbamate Pesticides in Soil

CRM	PT		QR
Cat. #926	Cat. #879	Q	Cat. #926QR

Two flame-sealed ampules, each containing 30 g of soil are ready to analyze. Use with EPA Methods 8318, 8321, or other applicable methods. Each standard contains a subset of the analytes listed below at 250–2500 µg/kg.

- Aldicarb
- Aldicarb sulfone
- Aldicarb sulfoxide
- Carbaryl
- Carbofuran
- Dioxacarb
- Diuron
- 3-Hydroxycarbofuran
- Methiocarb
- Methomyl
- Oxamyl
- Promecarb
- Propham
- Propoxur

Organophosphorus Pesticides (OPP) in Soil

CRM	PT		QR
Cat. #925	Cat. #878	Q	Cat. #925QR

Two flame-sealed ampules, each containing 30 g of soil are ready to analyze. Use with EPA Method 8141, or other applicable methods. Each standard contains a subset of the analytes listed below at 100–1000 µg/kg.

- Azinphos-methyl (Guthion)
- Chlorpyrifos
- Demeton
- Demeton O & S
- Diazinon
- Dichlorvos (DDVP)
- Disulfoton
- Ethyl parathion (Parathion)
- Malathion
- Methyl parathion
- Phorate
- Ronnel
- Stirophos (Tetrachlorovinphos)
- Terbufos

Blank Soil

Metals & Cyanide Blank Sand

CRM
Cat. #058

One 40 g sand sample in a screw-cap bottle. The concentrations of all EPA/NELAC including the priority pollutant metal and cyanide analytes are below the CLP Required Detection Limits (CRDLs) except iron, which is <250 mg/kg.

Metals & Cyanide Blank Soil

CRM
Cat. #057

One 40 g soil sample in a screw-cap bottle. The concentrations of all of the following analytes are below the CLP CRDL's: antimony, arsenic, beryllium, cadmium, cobalt, mercury, nickel, selenium, silver, sodium, thallium, and cyanide. The concentrations of the following analytes are below 10x the CLP CRDL's: barium, chromium, copper, lead, magnesium, potassium, and vanadium. The concentrations of manganese and zinc are <750 mg/kg. The concentration range for aluminum, calcium, and iron is 3000–25,000 mg/kg.

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UNDERGROUND STORAGE TANK

Our Underground Storage Tank (UST) products in water and soil matrices are purposefully designed to meet accreditation requirements for Petroleum Hydrocarbons analysis in various jurisdictions.

UST in Water PT Scheme Schedule

2022

UST in Water

	Scheme #	Opens	Closes
Q	WP 324	Jan 18	Mar 4
Q	WP 327	Apr 11	May 26
Q	WP 330	Jul 18	Sep 1
Q	WP 333	Oct 14	Nov 28

2023

UST in Water

	Scheme #	Opens	Closes
Q	WP 336	Jan 17	Mar 3
Q	WP 339	Apr 17	Jun 1
Q	WP 342	Jul 17	Aug 31
Q	WP 345	Oct 13	Nov 27

Soil (including UST in Soil) PT Schedule

2022

Soil (including UST in Soil)

	Scheme #	Opens	Closes
Q	SOIL 117	Jan 24	Mar 10
Q	SOIL 118	Apr 18	Jun 2
Q	SOIL 119	Jul 25	Sep 8
Q	SOIL 120	Oct 21	Dec 5

2023

Soil (including UST in Soil)

	Scheme #	Opens	Closes
Q	SOIL 121	Jan 23	Mar 9
Q	SOIL 122	Apr 24	Jun 8
Q	SOIL 123	Jul 24	Sep 7
Q	SOIL 124	Oct 20	Dec 4

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

Contents

CRM: A reference material characterized by a metrologically valid procedure for one or more specified properties, accompanied by a reference material certificate that provides the value of the specified property, its associated uncertainty, and a statement of metrological traceability.

A complete listing of ERA's CRMs can be found on our Scope of Accreditation for general requirements for competence of reference material producers available at www.eraqc.com/AboutERA/Accreditations.

PT: A Proficiency Test (PT) is an analysis of what is often referred to as a blind sample or a sample with unknown concentrations of analytes for the purpose of evaluating a laboratory's analytical performance.

QR: Similar to a Proficiency Test, a QuiK Response (QR) is a sample with unknown concentrations. However, unlike a scheduled PT, QR is on-demand and available at any time. Plus, your results are returned within two business days. QuiK Response can be used as a bilateral PT as referenced in the IUPAC/CITAC guide: Selection and use of PT schemes for a limited number of participants – chemical analytical labs.

RM: A material, sufficiently homogeneous and stable with respect to one or more specified properties, which has been established to be fit for its intended use in a measurement process.

All Waters ERA UST PTs open quarterly (Q) unless otherwise noted. Quarterly months are January, April, July, and October.

B Waters ERA NJ EPH in Soil PT opens in April and October.

UST in Soil

BTEX & MTBE in Soil

CRM	PT		QR
Cat. #761	Cat. #633	Q	Cat. #761QR

One 2 mL flame-sealed ampule requires spiking onto the ten grams of provided certified clean soil. Includes all the BTEX compounds and MTBE at 20–200 µg/kg (40–400 µg/kg for total xylenes). Use with EPA Method 8021, or other applicable methods.

Gasoline Range Organics (GRO) in Soil

CRM	PT		QR
Cat. #763	Cat. #630	Q	Cat. #763QR

One flame-sealed ampule with 20 g of soil spiked with unleaded regular gasoline in the range 100–2000 mg/kg. Use with purge and trap and modified EPA Method 8015, or other applicable GC/FID methods. Also use to test for BTEX in gasoline.

Note: This standard is not compliant with the NELAC concentration ranges for the BTEX analytes. If a NELAC-compliant sample for these analytes is required, use Volatiles in Soil, Cat. #623 or BTEX & MTBE Soil, Cat. #633.

Diesel Range Organics (DRO) in Soil

CRM	PT		QR
Cat. #765	Cat. #631	Q	Cat. #765QR

One flame-sealed ampule with 20 g of soil spiked with #2 Diesel Fuel in the range 300–3000 mg/kg. Use with modified EPA Method 8015, or other applicable GC/FID methods.

Total Petroleum Hydrocarbons (TPH) in Soil #1

CRM	PT		QR
Cat. #570	Cat. #632	Q	Cat. #572QR

One screw-top bottle with 50 g of soil to be analyzed for total petroleum hydrocarbons (TPH). Use with EPA IR, Gravimetric Methods 8440 and 9071B, or other applicable methods.

Non-polar extractable material (TPH) (Gravimetric)..... 300–3000 mg/kg
Non-polar extractable material (TPH) (IR)..... 300–3000 mg/kg

Total Petroleum Hydrocarbons (TPH) in Soil #2

CRM	PT		QR
Cat. #571	Cat. #632	Q	Cat. #572QR

One screw-top bottle contains 50 g of soil with TPH in the presence of interfering fatty acids. Use with EPA Methods 8440, 9071B, or other applicable methods.

Non-polar extractable material (TPH) (Gravimetric)..... 300–3000 mg/kg
Non-polar extractable material (TPH) (IR)..... 300–3000 mg/kg

UST in Water

BTEX & MTBE in Water

CRM	PT		QR
Cat. #760	Cat. #643	Q	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 methods. Includes all BTEX compounds and MTBE at 5–300 µg/L after dilution.

Gasoline Range Organics (GRO) in Water

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

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with both purge and trap, and modified EPA Method 8015, or other applicable GC/FID methods to test for GRO at 400–4000 µg/L. Also use to test for BTEX in gasoline.

Diesel Range Organics (DRO) in Water

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

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with modified EPA Method 8015, or other applicable GC/FID methods. Includes #2 Diesel Fuel at 800–6000 µg/L.

Total Petroleum Hydrocarbons (TPH) in Water #1

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

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

Total petroleum hydrocarbons..... 20–200 mg/L

Total Petroleum Hydrocarbons (TPH) in Water #2

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

One liter whole-volume bottle is ready to analyze for TPH in water in the presence of interfering fatty acids. Use with EPA Methods 418.1, 1664, 5520, 8440, or other applicable methods.

Total petroleum hydrocarbons..... 20–200 mg/L

Learn more about Underground Storage products

Alaska UST in Water

Alaska GRO in Water

CRM	QR
Cat. #645	Cat. #473QR

One 2 mL flame-sealed ampule. Use with method AK101 for unleaded regular gasoline at 100–500 µg/L after dilution.

Alaska DRO in Water

CRM	QR
Cat. #647	Cat. #475QR

One 2 mL flame-sealed ampule. Use with method AK102 for #2 Diesel Fuel at 800–2300 µg/L after dilution.

Alaska BTEX in Water

CRM	QR
Cat. #646	Cat. #474QR

One 2 mL flame-sealed ampule. Use with method AK101 for all BTEX analytes at 5–30 µg/L after dilution.

Alaska UST in Soil

Alaska GRO in Soil

CRM	QR
Cat. #635	Cat. #469QR

One 20 mL flame-sealed ampule with 10 g of soil and 10 mL of methanol with unleaded regular gasoline at 30–1500 mg/kg. Use with method AK101.

Alaska DRO in Soil

CRM	QR
Cat. #637	Cat. #471QR

One flame-sealed ampule with 20 g of soil spiked with #2 Diesel Fuel at 30–1500 mg/kg. Use with method AK102.

Alaska RRO in Soil

CRM	QR
Cat. #638	Cat. #472QR

One flame-sealed ampule with 20 g of soil with Residual Range Organic fuels at 150–2000 mg/kg. Use with method AK103.

Alaska BTEX in Soil

CRM	QR
Cat. #636	Cat. #470QR

One 2 mL flame-sealed ampule along with clean soil matrix for spiking. Use with method AK101 for all BTEX analytes at 5–100 mg/kg after spiking.

Arizona UST in Soil

Arizona TPH in Soil

CRM	PT		QR
Cat. #798	Cat. #488	Q	Cat. #798QR

One ready-to-use flame-sealed ampule with 30 g of soil with Oil Range Organics and #2 Diesel Fuel. Use with method 8015AZ for TPH in the range 300–400 mg/kg. Also includes two carbon ranges.

Texas TPH in Water

All Texas TPH PT standards are designed for use with TNRCC 1005 method. The standards meet the requirements of all states that accredit for these methods including Texas, Louisiana, and Oklahoma.

Texas Low-Level Fuels (TPH) in Water

CRM	PT		QR
Cat. #794	Cat. #476	Q	Cat. #794QR

One 2 mL flame-sealed ampule yields in excess of 200 mL after dilution. Contains unleaded regular gasoline and #2 Diesel Fuel resulting in TPH in the range 5–10 mg/L.

Texas High-Level Fuels (TPH) in Water

CRM	PT		QR
Cat. #795	Cat. #477	Q	Cat. #795QR

One 2 mL flame-sealed ampule yields in excess of 200 mL after dilution. Contains unleaded regular gasoline and #2 Diesel Fuel resulting in TPH in the range 20–100 mg/L.

Texas TPH in Soil

Texas Low-Level Fuels (TPH) in Soil

CRM	PT		QR
Cat. #796	Cat. #478	Q	Cat. #796QR

One ready-to-use flame-sealed ampule with 20 g of soil with unleaded gasoline and #2 Diesel Fuel for TPH in the range 50–100 mg/kg.

Texas High-Level Fuels (TPH) in Soil

CRM	PT		QR
Cat. #797	Cat. #479	Q	Cat. #797QR

One ready-to-use flame-sealed ampule with 20 g of soil with unleaded gasoline and #2 Diesel Fuel for TPH in the range 1000–20,000 mg/kg.

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

All Waters ERA UST PTs open quarterly (Q) unless otherwise noted. Quarterly months are January, April, July, and October.

Wisconsin GRO/PVOC/DRO Method UST

All Wisconsin UST PT standards are designed for use with Wisconsin GRO/PVOC or DRO Methods. The standards meet the requirements of all states that accredit for these methods including Wisconsin and Minnesota.

Wisconsin Gasoline Range Organics (GRO/PVOC) in Water

CRM	PT		QR
Cat. #773	Cat. #649	Q	Cat. #773QR

One 2 mL flame-sealed ampule yields in excess of 200 mL after dilution. Includes ten gasoline range synthetic organic compounds as defined by Wisconsin. Use with Wisconsin GRO/PVOC Method.

Wisconsin Diesel Range Organics (DRO) in Water

CRM	PT		QR
Cat. #772	Cat. #648	Q	Cat. #772QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Includes ten diesel range synthetic organic compounds in the range 200–600 µg/L. Use with the Wisconsin DRO Method.

Washington HEM/SGT-HEM Method UST

The Washington UST PT standard is designed for use with EPA Method 1664 for HEM/SGT-HEM.

Washington HEM/SGT-HEM

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

One 5 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA Method 1664 to measure HEM/SGT-HEM at 5–100 mg/L.

New Jersey EPH

The New Jersey EPH in Soil standard is designed for use with the NJ Extractable Petroleum Hydrocarbons Method.

New Jersey EPH in Soil

CRM	PT		QR
Cat. #564	Cat. #464	B	Cat. #564QR

One flame-sealed ampule with 20 g soil containing EPH in the range of 300–3000 mg/kg.

B The NJ EPH in Soil PT studies open in April and October.

Massachusetts Hydrocarbons in Water

All Massachusetts UST PT standards are designed for use with Massachusetts Volatile Petroleum Hydrocarbon or Extractable Petroleum Hydrocarbon Methods. The standards meet the requirements of all states that accredit for these methods including Massachusetts, North Carolina, and Washington when reporting the Massachusetts carbon ranges.

Massachusetts VPH in Water

CRM	PT		QR
Cat. #566	Cat. #481	Q	Cat. #566QR

One 2 mL flame-sealed ampule yields in excess of 200 mL after dilution. Contains volatile petroleum hydrocarbon fuels (VPH) in the range 400–4000 µg/L. Use with the Massachusetts Volatile Petroleum Hydrocarbon Method for multiple carbon ranges, BTEX compounds and MTBE.

Massachusetts EPH in Water

CRM	PT		QR
Cat. #567	Cat. #482	Q	Cat. #567QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Contains extractable petroleum hydrocarbon fuels (EPH) in the range 800–6000 µg/L. Use with the Massachusetts Extractable Petroleum Hydrocarbon Method for multiple carbon ranges and PAH compounds.

Massachusetts Hydrocarbons in Soil

Massachusetts VPH in Soil

CRM	PT		QR
Cat. #568	Cat. #483	Q	Cat. #568QR

One flame-sealed ampule with 20 g soil with VPH fuels. Contains volatile petroleum hydrocarbon fuels (VPH) in the range 100–2000 mg/kg. Use with the Massachusetts Volatile Petroleum Hydrocarbon Method for multiple carbon ranges, BTEX compounds and MTBE.

Massachusetts EPH in Soil

CRM	PT		QR
Cat. #569	Cat. #484	Q	Cat. #569QR

One flame-sealed ampule with 20 g soil with EPH fuels. Contains extractable petroleum hydrocarbon fuels (EPH) in the range 300–3000 mg/kg. Use with the Massachusetts Extractable Petroleum Hydrocarbon Method for multiple carbon ranges and PAH compounds.

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

All Waters ERA UST PTs open quarterly (Q) unless otherwise noted. Quarterly months are January, April, July, and October.

WE FOCUS ON QUALITY AND SERVICE, SO YOU CAN FOCUS ON YOUR BUSINESS

Unmatched Technical Expertise

As your Partner in Quality, our goal is to help you maintain successful PT performance, solve routine analysis challenges, and improve corrective actions. Whether it's organic and/or inorganic chemistry, microbiology, analytical instrumentation or methods, our experts are ready to help you with:

- Method interpretations
- Prep and analytical questions
- Instrumentation troubleshooting
- Quality control issues
- Calibration issues

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Our customer service team understands that you are faced with a myriad of requirements to maintain your laboratory accreditation. Each of our representatives has helped solve questions from customers with the same types of challenges. Your dedicated customer service representative has the experience and knowledge to help you through every step of the process.

For more information, **contact our customer service team at 800.372.0122 / +1.303.431.8454**. or **email at info@eraqc.com**.

AIR & EMISSIONS

Matrices consisting of organic, inorganic, and particulate matter for testing emissions and ambient air. Standards are designed to meet regulations of the United States Environmental Protection Clean Air Act and may be used to satisfy PT requirements worldwide.

Air & Emissions PT Schedule

2022

Air & Emissions			
	Scheme #	**Opens**	**Closes**
Q	**AE 59**	Jan 31	Mar 17
Q	**AE 60**	Apr 25	Jun 9
Q	**AE 61**	Jul 29	Sep 12
Q	**AE 62**	Oct 28	Dec 12

2023

Air & Emissions			
	Scheme #	**Opens**	**Closes**
Q	**AE 63**	Jan 30	Mar 16
Q	**AE 64**	Apr 28	Jun 12
Q	**AE 65**	Jul 28	Sep 11
Q	**AE 66**	Oct 27	Dec 11

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

Contents

CRM: A reference material characterized by a metrologically valid procedure for one or more specified properties, accompanied by a reference material certificate that provides the value of the specified property, its associated uncertainty, and a statement of metrological traceability.

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PT: A Proficiency Test (PT) is an analysis of what is often referred to as a blind sample or a sample with unknown concentrations of analytes for the purpose of evaluating a laboratory's analytical performance.

QR: Similar to a Proficiency Test, a QuiK Response (QR) is a sample with unknown concentrations. However, unlike a scheduled PT, QR is on-demand and available at any time. Plus, your results are returned within two business days. QuiK Response can be used as a bilateral PT as referenced in the IUPAC/CITAC guide: Selection and use of PT schemes for a limited number of participants – chemical analytical labs.

RM: A material, sufficiently homogeneous and stable with respect to one or more specified properties, which has been established to be fit for its intended use in a measurement process.

Q All Waters ERA Air & Emissions PTs open quarterly. Quarterly months are January, April, July, and October.

Volatiles

Volatiles in Gas Cylinder*

RM**	PT	QR
Cat. #1100	Cat. #1000 Q	Cat. #1100QR

One pressurized gas cylinder containing 87 L of gas at 1500 psig (103 bar) for use with EPA methods TO-14, TO-15, or other applicable methods. Contains at least 10 analytes, randomly selected from the list below, at 2-50 ppbv (4-100 ppbv) for Total Xylenes.

- Acetone
- Benzene
- Benzy chloride
- Bromodichloromethane
- Bromoform
- Bromomethane
- 1,3-Butadiene
- 2-Butanone (MEK)
- Methyl tert-butyl ether (MTBE)
- Carbon disulfide
- Carbon tetrachloride
- Chlorobenzene
- Chlorodibromomethane
- Chloroethane
- Chloroform
- Chloromethane
- Cyclohexane
- 1,2-Dibromoethane (EDB)
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- Dichlorodifluoromethane (Freon 12)
- 1,1-Dichloroethane
- 1,2-Dichloroethane
- 1,1-Dichloroethylene
- cis-1,2-Dichloroethylene
- trans-1,2-Dichloroethylene
- 1,2-Dichloropropane
- cis-1,3-Dichloropropylene
- trans-1,3-Dichloropropylene
- 1,2-Dichlorotetrafluoroethane (Freon 114)
- Ethyl acetate
- Ethylbenzene
- p-Ethyltoluene
- n-Heptane
- Hexachlorobutadiene
- n-Hexane
- 2-Hexanone
- Isopropyl alcohol
- Methylene chloride
- Methyl methacrylate
- 4-Methyl-2-pentanone (MIBK)
- Methyl tert-butyl ether (MTBE)
- Propylene
- Styrene
- 1,1,2,2-Tetrachloroethane
- Tetrachloroethylene
- Toluene
- Trichloroethene
- 1,2,4-Trichlorobenzene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichlorofluoromethane (Freon 11)
- Trichlorotrifluoromethane (Freon 113)
- 1,2,4-Trimethylbenzene
- 1,3,5-Trimethylbenzene
- Vinyl bromide
- Vinyl chloride
- Xylenes, total
- m&p-Xylene
- o-Xylene

*Volatiles in Gas Cylinder ships as dangerous goods.

** Reference Material (RM)

Volatiles on Sorbent

CRM	PT	QR
Cat. #1101	Cat. #1001 Q	Cat. #1101QR

One 2 mL flame-sealed ampule for spiking client-specific sorbent. Use with EPA Methods TO-17, 0030, 0031, or other applicable methods. Contains at least 24 analytes, randomly selected from the list below, at 50–2000 ng/sample (200–3000 ng/sample for Total Xylenes) after preparation.

- 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
- 1,3-Dichloropropane
- 2,2-Dichloropropane
- 1,1-Dichloropropene
- 1,2-Dibromo-3-chloropropane (DBCP)
- 1,2-Dibromoethane (EDB)
- Dibromomethane
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- Dichlorodifluoromethane (Freon 12)
- 1,1-Dichloroethane
- 1,2-Dichloroethane
- 1,1-Dichloroethene
- cis-1,2-Dichloroethene
- trans-1,2-Dichloroethene
- 1,2-Dichloropropane
- cis-1,3-Dichloropropene
- trans-1,3-Dichloropropene
- Ethylbenzene
- Hexachlorobutadiene
- Hexachloroethane
- 2-Hexanone
- Isopropylbenzene
- 4-Isopropyltoluene
- Methyl tert-butyl ether (MTBE)
- Methylene chloride
- 4-Methyl-2-pentanone (MIBK)
- 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
- Trichloroethlyene
- Trichlorofluoromethane
- 1,2,3-Trichloropropane
- 1,2,4-Trimethylbenzene
- 1,3,5-Trimethylbenzene
- Vinyl acetate
- Vinyl chloride
- Xylenes, total
- m&p-Xylene
- o-Xylene

Semivolatiles

Semivolatiles on Polyurethane Foam

CRM	PT	QR
Cat. #1110	Cat. #1010 Q	Cat. #1110QR

Two 2 mL flame-sealed ampules plus one polyurethane foam. Use with EPA Method 0010, or other applicable methods. Contains at least 42 analytes, randomly selected from the list below, at 10–225 µg/sample (200–1000 µg/sample for Benzidine) after preparation.

- Acenaphthene
- Acenaphthylene
- 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-ethylhexyl)phthalate
- 1-Chloronaphthalene
- 2-Chloronaphthalene
- 4-Chlorophenyl phenyl ether
- Chrysene
- Dibenz(a,h)anthracene
- Dibenzofuran
- Di-n-butyl phthalate
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- 3,3'-Dichlorobenzidine
- Diethyl phthalate
- Dimethyl phthalate
- 2,4-Dinitrotoluene
- 2,6-Dinitrotoluene
- Di-n-octyl 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 (NDMA)
- N-Nitrosodiphenylamine
- N-Nitroso-di-n-propylamine
- 2,2'-Oxybis(1-chloropropane)
- Pentachlorobenzene
- Phenanthrene
- Pyrene
- Pyridine
- o-Toluidine
- 1,2,4,5-Tetrachlorobenzene
- 1,2,4-Trichlorobenzene
- 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 (o-Cresol)
- 4-Methylphenol (p-Cresol)
- 2-Nitrophenol
- 4-Nitrophenol
- Pentachlorophenol
- Phenol
- 2,3,4,6-Tetrachlorophenol
- 2,4,5-Trichlorophenol
- 2,4,6-Trichlorophenol

Organochlorine Pesticides on Polyurethane Foam

CRM	PT	QR
Cat. #1111	Cat. #1011 Q	Cat. #1111QR

One 2 mL flame-sealed ampule plus one polyurethane foam. Use with EPA Methods TO-04A, TO-10A, or other applicable methods. Contains at least 16 analytes, randomly selected from the list below, at 1–20 µg/sample after preparation.

- 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

PCBs on Polyurethane Foam

CRM	PT	QR
Cat. #1112	Cat. #1012 Q	Cat. #1112QR

One 2 mL flame-sealed ampule plus one polyurethane foam. Use with EPA Methods TO-04A, TO-10A, or other applicable methods. Contains one aroclor, randomly selected from the list below, at 2–10 µg/sample after preparation.

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

PAHs on Polyurethane Foam

CRM	PT	QR
Cat. #1113	Cat. #1013 Q	Cat. #1113QR

One 2 mL flame-sealed ampule plus one polyurethane foam. Use with EPA Method TO-13A, or other applicable methods. Contains at least 13 analytes, randomly selected from the list below, at 10–200 µg/sample after preparation.

- 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
- 1-Methylnaphthalene
- 2-Methylnaphthalene
- Naphthalene
- Phenanthrene
- Pyrene

Aldehydes & Ketones on Sorbent

CRM	PT	QR
Cat. #1114	Cat. #1014 Q	Cat. #1114QR

One 2 mL flame-sealed ampule to be spiked onto sorbent. Use with EPA Method TO-11A, or other applicable methods. Contains at least four analytes, randomly selected from the list below, at 0.5–10 µg/sample after preparation.

- Acetaldehyde
- Acetone
- Benzaldehyde
- 2-Butanone (MEK)
- Butyraldehyde (Butanal)
- Crotonaldehyde
- 2,5-Dimethylbenzaldehyde
- Formaldehyde
- Hexaldehyde (Hexanal)
- Isovaleraldehyde
- Propionaldehyde (Propanal)
- o-Tolualdehyde
- m-Tolualdehyde
- p-Tolualdehyde
- Valeraldehyde (Pentanal)

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

Q All Waters ERA Air & Emissions PTs open quarterly. Quarterly months are January, April, July, and October.

Brian Stringer
Principal Proficiency Testing
Technical Specialist

Debby Updyke
Senior Proficiency Testing
Technical Specialist

Metals

Metals on Filter Paper

CRM	PT		QR
Cat. #1125	Cat. #1025	Q	Cat. #1125QR

One filter paper sample packaged in a 50 mm polystyrene petri dish containing a single 47 mm tissue quartz filter ready for use with EPA Method 29 or other applicable methods.

Antimony	25–250 µg/filter
Arsenic	20–250 µg/filter
Barium	20–250 µg/filter
Beryllium	10–250 µg/filter
Cadmium	10–250 µg/filter
Chromium	15–250 µg/filter
Cobalt	10–250 µg/filter
Copper	10–250 µg/filter
Lead	20–350 µg/filter
Manganese	10–250 µg/filter
Nickel	20–250 µg/filter
Phosphorus	10–250 µg/filter
Selenium	20–250 µg/filter
Silver	30–250 µg/filter
Thallium	30–250 µg/filter
Zinc	20–250 µg/filter

Metals in Impinger Solution

CRM	PT		QR
Cat. #1126	Cat. #1026	Q	Cat. #1126QR

One impinger solution sample packaged in a 15 mL screw-top vial containing approximately 14 mL of standard concentrate for use with EPA Method 29, or other applicable methods.

Antimony	0.25–20 µg/mL
Arsenic	0.2–20 µg/mL
Barium	0.15–25 µg/mL
Beryllium	0.05–20 µg/mL
Cadmium	0.1–20 µg/mL
Chromium	0.2–20 µg/mL
Cobalt	0.1–25 µg/mL
Copper	0.2–20 µg/mL
Lead	0.2–20 µg/mL
Manganese	0.1–20 µg/mL
Nickel	0.15–30 µg/mL
Phosphorus	0.15–25 µg/mL
Selenium	0.15–25 µg/mL
Silver	0.5–20 µg/mL
Thallium	0.15–25 µg/mL
Zinc	0.15–25 µg/mL

Mercury on Filter Paper

CRM	PT		QR
Cat. #1127	Cat. #1027	Q	Cat. #1127QR

One 2 mL flame-sealed ampule containing approximately 2 mL of standard concentrate and a 50 mm polystyrene petri dish containing a single 47 mm glass fiber filter. Sample is ready for use with EPA Method 29, or other applicable methods.

Mercury	1–75 µg/filter

Mercury in Impinger Solution

CRM	PT		QR
Cat. #1128	Cat. #1028	Q	Cat. #1128QR

One impinger solution sample packaged in a 15 mL screw-top vial containing approximately 14 mL of standard concentrate for use with EPA Methods 29, 101a, or other applicable methods.

Mercury	0.9–200 ng/mL

Lead on Filter Paper

CRM	PT		QR
Cat. #1129	Cat. #1029	Q	Cat. #1129QR

One filter paper sample packaged in a 50 mm polystyrene petri dish containing a single 47 mm tissue quartz filter spiked with lead ready-for-use with EPA Method 12 or other applicable methods.

Lead	20–350 µg/filter

Lead in Impinger Solution

CRM	PT		QR
Cat. #1130	Cat. #1030	Q	Cat. #1130QR

One impinger solution sample packaged in a 15 mL screw top vial containing approximately 14 mL of standard concentrate for use with EPA Method 12, or other applicable methods.

Lead	0.2–120 µg/mL

Chromium on Filter Paper

CRM	PT		QR
Cat. #1131	Cat. #1031	Q	Cat. #1131QR

One filter paper sample packaged in a 50 mm polystyrene petri dish containing a single 47 mm fiber film filter for use with CARB Method 425, or other applicable methods.

Total chromium	1–20 µg/filter
Hexavalent chromium	1–20 µg/filter

Hexavalent Chromium in Impinger Solution

CRM	PT		QR
Cat. #1132	Cat. #1032	Q	Cat. #1132QR

One impinger solution sample packaged in a 15 mL screw top vial containing approximately 14 mL of standard concentrate for use with EPA Method 0061/7199, or other applicable methods.

Hexavalent chromium	45–880 µg/L

Inorganics

Hydrogen Halides & Halogens in Impinger Solution

CRM	PT		QR
Cat. #1140	Cat. #1040	Q	Cat. #1140QR

Two impinger solution samples packaged in 15 mL screw-top vials containing approximately 14 mL of standard concentrate for use with EPA Methods 26, 26a, or other applicable methods.

Total halides	15–1500 mg/L
Total halogens	10–200 mg/L
Hydrogen chloride	5–500 mg/L
Hydrogen fluoride	5–500 mg/L
Hydrogen bromide	5–500 mg/L
Bromine	5–100 mg/L
Chlorine	5–100 mg/L

Fluoride in Impinger Solution

CRM	PT		QR
Cat. #1141	Cat. #1041	Q	Cat. #1141QR

One impinger solution sample packaged in a 15 mL screw-top vial containing approximately 14 mL of standard concentrate for use with EPA Methods 13a, 13b, 14, or other applicable methods.

Fluoride	1–50 mg/dscm

Nitrogen Oxide in Impinger Solution

CRM	PT		QR
Cat. #1142	Cat. #1042	Q	Cat. #1142QR

One impinger solution sample packaged in a 15 mL screw-top vial containing approximately 14 mL of standard concentrate for use with EPA Method 7, or other applicable methods.

Oxides of nitrogen (NOx)	100–2000 mg/dscm

Sulfur Dioxide in Impinger Solution

CRM	PT		QR
Cat. #1143	Cat. #1043	Q	Cat. #1143QR

One impinger solution sample packaged in a 15 mL screw-top vial containing approximately 14 mL of standard concentrate for use with EPA Method 6 and Method 8, or other applicable methods.

Sulfur dioxide	50–2000 mg/dscm

Sulfuric Acid & Sulfur Dioxide in Impinger Solution

CRM	PT		QR
Cat. #1144	Cat. #1044	Q	Cat. #1144QR

One impinger solution sample packaged in a 15 mL screw top vial containing approximately 14 mL of standard concentrate for use with EPA Method 8, or other applicable methods.

Sulfuric acid	5–150 mg/dscm

Ammonia in Impinger Solution

CRM	PT		QR
Cat. #1145	Cat. #1045	Q	Cat. #1145QR

One impinger solution sample packaged in a 15 mL screw-top vial containing approximately 14 mL of standard concentrate for use with EPA CTM 027, or other applicable methods.

Ammonium	0.1–10 mg/L

Particulate Matter on Filter Paper

CRM	PT		QR
Cat. #1150	Cat. #1050	Q	Cat. #1150QR

One filter paper sample packaged in a 50 mm polystyrene petri dish containing a single 47 mm tissue quartz filter ready for use with EPA Methods 5, 5A, 5B, 5D, 5F, or other applicable methods.

Particulate matter	50–600 mg/filter

Particulate Matter in Impinger Solution

CRM	PT		QR
Cat. #1151	Cat. #1051	Q	Cat. #1151QR

One impinger solution sample packaged in a 250 mL polyethylene bottle containing approximately 250 mL of standard ready for use with EPA Methods 5, 5A, 5B, 5D, 5F, or other applicable methods.

Particulate matter	140–675 mg/L

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PT – Proficiency Testing
QR – QuiK Response

Q All Waters ERA Air & Emissions PTs open quarterly. Quarterly months are January, April, July, and October.

Learn more about Air & Emissions products

RADIOCHEMISTRY

Matrices in soil, vegetation, air filters, and water for monitoring of radiochemicals.

Radiochemistry PT Schedule

2022

Radiochemistry			
	Scheme #	Opens	Closes
Q	RAD 128	Jan 10	Feb 24
Q	RAD 129	Apr 4	May 19
Q	RAD 130	Jul 11	Aug 25
Q	RAD 131	Oct 7	Nov 21

2023

Radiochemistry			
	Scheme #	Opens	Closes
Q	RAD 132	Jan 9	Feb 23
Q	RAD 133	Apr 10	May 25
Q	RAD 134	Jul 10	Aug 24
Q	RAD 135	Oct 6	Nov 20

MRAD PT Schedule

2022

MRAD		
Scheme #	Opens	Closes
MRAD 36	Mar 21	May 20
MRAD 37	Sep 19	Nov 18
2 schemes per year – open for 60 days		

2023

MRAD		
Scheme #	Opens	Closes
MRAD 38	Mar 20	May 19
MRAD 39	Sep 18	Nov 17
2 schemes per year – open for 60 days		

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

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QR: Similar to a Proficiency Test, a QuiK Response (QR) is a sample with unknown concentrations. However, unlike a scheduled PT, QR is on-demand and available at any time. Plus, your results are returned within two business days. QuiK Response can be used as a bilateral PT as referenced in the IUPAC/CITAC guide: Selection and use of PT schemes for a limited number of participants – chemical analytical labs.

RM: A material, sufficiently homogeneous and stable with respect to one or more specified properties, which has been established to be fit for its intended use in a measurement process.

Q All Waters ERA WS Radchem PTs open quarterly. Quarterly months are January, April, July, and October.

✱ All Waters ERA MRAD PTs open in March and September.

WS Radchem

All Radchem standards are provided as convenient, easy-to-prepare concentrates except for tritium, which is provided as a whole-volume sample.

Gamma Emitters

CRM	PT		QR
Cat. #758	Cat. #808	Q	Cat. #758QR

One 12 mL screw-top vial yields up to 2 liters after dilution.

Barium-133	10–100 pCi/L
Cesium-134	10–100 pCi/L
Cesium-137	20–240 pCi/L
Cobalt-60	10–120 pCi/L
Zinc-65	30–360 pCi/L

Gross Alpha/Beta

CRM	PT		QR
Cat. #759	Cat. #809	Q	Cat. #759QR

One 12 mL screw-top vial yields up to 1 liter after dilution.

Gross alpha as thorium-230	7–75 pCi/L
Gross beta as cesium-137	8–75 pCi/L

Naturals

CRM	PT		QR
Cat. #751	Cat. #811	Q	Cat. #751QR

One 12 mL screw-top vial yields up to 8 liters after dilution.

Radium-226	1–20 pCi/L
Radium-228	2–20 pCi/L
Uranium (Nat)	2–70 pCi/L
Uranium (Nat) mass	3–104 µg/L

Tritium

CRM	PT		QR
Cat. #752	Cat. #812	Q	Cat. #752QR

One 250 mL whole-volume bottle is ready to analyze as received. Includes tritium at 1000–24000 pCi/L.

Iodine-131

CRM	PT		QR
Cat. #750	Cat. #810	Q	Cat. #750QR

One 12 mL screw-top vial yields up to 2 liters after dilution. Contains iodine-131 within the range 3–30 pCi/L. Due to short half-life, CRMs, PTs, and QRs are available only during January, April, July, and October.

Strontium-89/90

CRM	PT		QR
Cat. #757	Cat. #807	Q	Cat. #757QR

One 12 mL screw-top vial yields up to 2 liters after dilution.

Strontium-89	10–70 pCi/L
Strontium-90	3–45 pCi/L

Learn more about Radiochemistry products

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

Q All Waters ERA WS Radchem PTs open quarterly. Quarterly months are January, April, July, and October.

Radchem Lab Control & Matrix Spiking (LCS/MS)

Radiochemistry LCS/MS standards are prepared according to your specifications at activity levels that enable you to directly fortify your batch laboratory control and matrix spike QC samples. These single-use spiking standards are verified, conveniently packaged in 2–20 mL glass vials, and very economical.

The direct benefits:

- Easy-to-use – LCS/MS spiking standards are ready-to-use – no dilutions are required.
- Reliable and consistent – Eliminate the possibility of errors from the contamination or repeated multiple dilutions of your primary stock standards.
- Independently verified – LCS/MS standards are analytically verified and traced to NIST SRMs where available.
- Save money – You no longer need to pay for microcuries of activity when you only need picocuries. You also eliminate the cost of activity loss for short-lived isotopes.
- Reduce analytical cost – You no longer need to spend valuable instrument time re-verifying standard stability. Order what you expect to use on a quarterly or annual basis – we'll do the verification.

The process is easy:

1. Select from any of the following carrier-free, single radionuclide standards.
2. Choose an activity up to the maximum listed in the table below.
3. Choose a convenient volume: 2 to 20 mL glass vials available.
4. For labs that analyze samples with more elevated activities, call for standard availability and pricing.

Single Radionuclide Spiking Standards

Cat. #	Radionuclide	Maximum Activity/Vial
AM241	Americium-241	40 pCi
BA133	Barium-133	400 pCi
CS134	Cesium-134	200 pCi
CS137	Cesium-137	400 pCi
CO60	Cobalt-60	200 pCi
GAB	Gross alpha/beta	30/40 pCi
GA	Gross alpha (Th-230)	30 pCi
GB	Gross beta (Cs-137)	40 pCi
PU238	Plutonium-238	40 pCi
PU239	Plutonium-239	40 pCi
RA226	Radium-226	20 pCi
RA228	Radium-228	Call
SR89	Strontium-89	200 pCi
SR90	Strontium-90	40 pCi
H3	Tritium	2000 pCi
UNAT	Uranium, natural	40 pCi
ZN65	Zinc-65	600 pCi

MRAD Solids

Soil Radionuclides

RM	PT	QR
Cat. #608	Cat. #802	Cat. #608QR

One 500 cc standard includes the alpha, beta, and gamma emitting radionuclides listed below.

Actinium-228	500–5000 pCi/kg
Americium-241	50–2000 pCi/kg
Bismuth-212	500–5000 pCi/kg
Bismuth-214	500–5000 pCi/kg
Cesium-134	1000–10,000 pCi/kg
Cesium-137	1000–10,000 pCi/kg
Cobalt-60	1000–10,000 pCi/kg
Lead-212	500–5000 pCi/kg
Lead-214	500–5000 pCi/kg
Plutonium-238	50–2000 pCi/kg
Plutonium-239	50–2000 pCi/kg
Potassium-40	5000–50,000 pCi/kg
Strontium-90	500–10,000 pCi/kg
Thorium-234	500–5000 pCi/kg
Uranium-234	500–5000 pCi/kg
Uranium-238	500–5000 pCi/kg
Uranium (Nat)	1000–10,000 pCi/kg
Uranium (Nat) mass	1500–15,000 µg/kg
Zinc-65	1000–10,00 pCi/kg

Vegetation Radionuclides

RM	PT	QR
Cat. #609	Cat. #803	Cat. #609QR

One 500 cc standard includes the alpha, beta, and gamma emitting radionuclides listed below.

Americium-241	50–5000 pCi/kg
Cesium-134	300–3000 pCi/kg
Cesium-137	300–3000 pCi/kg
Cobalt-60	300–3000 pCi/kg
Curium-244	50–5000 pCi/kg
Plutonium-238	50–5000 pCi/kg
Plutonium-239	50–5000 pCi/kg
Potassium-40	5000–50,000 pCi/kg
Strontium-90	500–10,000 pCi/kg
Uranium-234	50–5000 pCi/kg
Uranium-238	50–5000 pCi/kg
Uranium (Nat)	100–10,000 pCi/kg
Uranium (Nat) mass	150–15,000 µg/kg
Zinc-65	300–3000 pCi/kg

MRAD Air Filter

Air Filter Radionuclides

RM	PT	QR
Cat. #606	Cat. #800	Cat. #606QR

One 47 mm diameter glass fiber filter contains the alpha, beta, and gamma emitting radionuclides listed below.

Americium-241	2–80 pCi/filter
Cesium-134	50–1500 pCi/filter
Cesium-137	50–1500 pCi/filter
Cobalt-60	50–1500 pCi/filter
Iron-55	50–1500 pCi/filter
Plutonium-238	2–80 pCi/filter
Plutonium-239	2–80 pCi/filter
Strontium-90	5–200 pCi/filter
Uranium-234	2–80 pCi/filter
Uranium-238	2–80 pCi/filter
Uranium (Nat)	4–160 pCi/filter
Uranium (Nat) mass	6–240 µg/filter
Zinc-65	50–1500 pCi/filter

Air Filter Gross Alpha/Beta

RM	PT	QR
Cat. #607	Cat. #801	Cat. #607QR

One acrylic treated 47 mm diameter glass fiber filter contains the radionuclides listed below.

Gross alpha as thorium-230	5–100 pCi/filter
Gross beta as cesium-137	5–100 pCi/filter

Chad Lane
Chemist/RSO

Leo Muñoz
Shipping Team Lead

MRAD Water

Water Radionuclides

RM	PT	QR
Cat. #617	Cat. #804 *	Cat. #617QR

One 12 mL screw-top vial yields up to 2 liters after dilution. Includes the alpha, beta, and gamma emitting radionuclides listed below.

Americium-241	10–200 pCi/L
Cesium-134	100–3000 pCi/L
Cesium-137	100–3000 pCi/L
Cobalt-60	100–3000 pCi/L
Iron-55	100–3000 pCi/L
Plutonium-238	10–200 pCi/L
Plutonium-239	10–200 pCi/L
Strontium-90	50–1000 pCi/L
Uranium-234	10–200 pCi/L
Uranium-238	10–200 pCi/L
Uranium (Nat)	20–400 pCi/L
Uranium (Nat) mass	30–600 µg/L
Zinc-65	100–3000 pCi/L

Water Gross Alpha/Beta

RM	PT	QR
Cat. #615	Cat. #805 *	Cat. #615QR

One 12 mL screw-top vial yields up to 2 liters after dilution. Includes the radionuclides below.

Gross alpha as thorium-230	10–200 pCi/L
Gross beta as cesium-137	10–200 pCi/L

Water Tritium

RM	PT	QR
Cat. #616	Cat. #806 *	Cat. #616QR

One 125 mL whole-volume bottle is ready to analyze as received.

Tritium	3000–30,000 pCi/L

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

* All Waters ERA MRAD PTs open in March and September.

LOW-LEVEL CRMs

Synthetic drinking and wastewater matrices with low concentrations of analytes for testing water supply, drinking water, ground water, water pollution, or wastewater.

Save time diluting your standards or spending numerous hours producing them yourself with our low-level Certified Reference Materials (CRMs).

Our line of low-level CRMs are optimal for:

- Method development and validation
- System checks
- Evaluating limits of quantitation
- Minimum detection limit studies
- Detection verification
- Many other uses

Contents

CRM: A reference material characterized by a metrologically valid procedure for one or more specified properties, accompanied by a reference material certificate that provides the value of the specified property, its associated uncertainty, and a statement of metrological traceability.

A complete listing of ERA's CRMs can be found on our Scope of Accreditation for general requirements for competence of reference material producers available at www.eraqc.com/AboutERA/Accreditations.

RM: A material, sufficiently homogeneous and stable with respect to one or more specified properties, which has been established to be fit for its intended use in a measurement process.

Inorganics

Chlorine

CRM
Cat. #1358

One 2 mL flame-sealed ampule spiking concentrate and one 24 mL screw-cap vial matrix concentrate yields up to 2 liters of sample.

Total chlorine	75–500 µg/L
Free chlorine	75–500 µg/L

Color

CRM
Cat. #1353

One 125 mL whole-volume bottle sample is ready to be analyzed.

Color	5–25 pc units

Common Inorganics

CRM
Cat. #1249

One liter poly bottle whole-volume sample is ready to be analyzed.

Alkalinity	20–120 mg/L
Calcium	2–50 mg/L
Chloride	25–500 mg/L
Conductivity	80–1,000 µmhos/cm
Fluoride	0.25–5 mg/L
Magnesium	1–25 mg/L
pH	5–10 units
Potassium	2–50 mg/L
Sodium	5–100 mg/L
Sulfate	2–50 mg/L
Total dissolved solids	60–750 mg/L
Total hardness	9–250 mg/L

Common Inorganics in Hard Water

CRM
Cat. #1346

One liter poly bottle whole-volume sample is ready to be analyzed.

Alkalinity	20–100 mg/L
Calcium	10–100 mg/L
Chloride	20–250 mg/L
Conductivity	130–1400 µmhos/cm
Fluoride	0.2–2 mg/L
Magnesium	2–10 mg/L
pH	5–10 units
Potassium	2–25 mg/L
Sodium	20–250 mg/L
Sulfate	20–250 mg/L
Total dissolved solids	100–1000 mg/L
Total hardness	30–300 mg/L

Common Inorganics in Soft Water

CRM
Cat. #1347

A 1 liter poly bottle whole-volume sample is ready to be analyzed.

Alkalinity	20–100 mg/L
Calcium	2–50 mg/L
Chloride	5–50 mg/L
Conductivity	25–300 µmhos/cm
Fluoride	0.2–2 mg/L
Magnesium	0.5–5 mg/L
pH	5–10 units
Potassium	1–10 mg/L
Sodium	5–50 mg/L
Sulfate	5–50 mg/L
Total dissolved solids	20–200 mg/L
Total hardness	5–75 mg/L

Cyanide

CRM
Cat. #1345

One 15 mL screw-cap vial yields up to 2 liters of sample.

Free cyanide	5–100 µg/L
Total cyanide	5–100 µg/L

Demand

CRM
Cat. #1354

One 15 mL screw-cap vial yields up to 2 liters of sample.

5-day BOD	2–25 mg/L
COD	2–25 mg/L
DOC	1–10 mg/L
TOC	1–10 mg/L

CRM
Cat. #1242

One 15 mL screw-cap vial spiking concentrate yields up to 2 liters of sample.

5-day BOD	5–75 mg/L
COD	10–150 mg/L
DOC	2–40 mg/L
TOC	2–40 mg/L

Stanley Dunlavy
EH & S Engineer

Inorganics (continued)

High Solids

CRM
Cat. #1355

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

Total dissolved solids	100–1000 mg/L
Total suspended solids (TSS)	5–50 mg/L

Solids Concentrate

CRM
Cat. #1243

One 24 mL screw-cap vial concentrate yields up to 1 liter of sample.

Total dissolved solids	10–250 mg/L
Total suspended solids (TSS)	5–50 mg/L

Metals

Hexavalent Chromium

CRM
Cat. #1248

One 15 mL screw-cap vial spiking concentrate and one 24 mL screw-cap vial matrix concentrate yields up to 2 liters of sample.

Hexavalent chromium	5–100 µg/L

Mercury

CRM
Cat. #1341

One 15 mL screw-cap vial spiking concentrate and one 24 mL screw-cap vial matrix concentrate yields up to 2 liters of sample.

Mercury, total	0.1 to 1.2 µg/L

Metals (continued)

Metals

CRM
Cat. #1244

One 15 mL screw-cap vial spiking concentrate and one 24 mL screw-cap vial matrix concentrate yields up to 2 liters of sample.

Aluminum	200–4000 µg/L
Antimony	95–900 µg/L
Arsenic	70–900 µg/L
Barium	100–2500 µg/L
Beryllium	8–900 µg/L
Boron	800–2000 µg/L
Cadmium	8–750 µg/L
Chromium, total	17–1000 µg/L
Cobalt	28–1000 µg/L
Copper	40–900 µg/L
Iron	200–4000 µg/L
Lead	70–3000 µg/L
Manganese	70–4000 µg/L
Molybdenum	60–600 µg/L
Nickel	80–3000 µg/L
Selenium	90–2000 µg/L
Silver	26–600 µg/L
Strontium	30–300 µg/L
Thallium	60–900 µg/L
Vanadium	55–2000 µg/L
Zinc	100–2000 µg/L

The Industry Standard for over 40 years

CRM – Certified Reference Material

Nutrients

Complex Nutrients in Hard Water

CRM
Cat. #1241

One 15 mL screw-cap vial spiking concentrate yields up to 2 liters of sample.

Total Kjeldahl nitrogen	0.5–5 mg/L
Total nitrogen	1–20 mg/L
Total phosphorus	0.5–5 mg/L

Simple Nutrients

CRM
Cat. #1240

Two 15 mL screw-cap vials yields up to 2 liters of sample.

Ammonia (N)	1–20 mg/L
Nitrate (NO_3)	0.5–10 mg/L
Nitrite (NO_2)	0.5–5 mg/L
Total oxidised nitrogen	1–15 mg/L
Soluble reactive phosphorus (P)	0.5–5 mg/L

Simple Nutrients in Hard Water

CRM
Cat. #1348

Two 15 mL screw-cap vial spiking concentrates and one 24 mL screw-cap vial matrix concentrate yields up to 2 liters of sample.

Ammonium (NH_4)	0.1–1 mg/L
Nitrate (NO_3)	3–60 mg/L
Nitrite (NO_2)	0.1–1 mg/L
Soluble reactive phosphorus (P)	0.5–5 mg/L
Total oxidised nitrogen (TON)	3–60 mg/L

Simple Nutrients in Soft Water

CRM
Cat. #1349

Two 15 mL screw-cap vial spiking concentrates and one 24 mL screw-cap vial matrix concentrate yields up to 2 liters of sample.

Ammonium (NH_4)	0.1–1 mg/L
Nitrate (NO_3)	3–60 mg/L
Nitrite (NO_2)	0.1–1 mg/L
Soluble reactive phosphorus (P)	0.5–5 mg/L
Total oxidised nitrogen (TON)	3–60 mg/L

Organics

Volatiles

CRM
Cat. #1370

One 2 mL flame-sealed ampule spiking concentrate and one 24 mL screw-cap vial matrix concentrate yields up to 2 liters of sample to be analyzed for the compounds listed below at 0.1–50 µg/L.

Benzene	Ethylbenzene	o-Xylene
Carbon tetrachloride	Methylene chloride	m-Xylene
Chlorobenzene	Styrene	p-Xylene
1,2-Dichlorobenzene	Tetrachloroethene	m+p-Xylene
1,4-Dichlorobenzene	Toluene	Xylenes, total
1,2-Dichloroethane	1,2,4-Trichlorobenzene	
1,1-Dichloroethylene	1,1,1-Trichloroethane	
cis-1,2-Dichloroethylene	1,1,2-Trichloroethane	
trans-1,2-Dichloroethylene	Trichloroethene	
1,2-Dichloropropane	Vinyl chloride	

Jennifer Watson
Customer Service Representative

CRM – Certified Reference Material

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CUSTOM STANDARDS

Standards manufactured to unique specifications available with a range of analytes, concentrations, and matrices.

Experience. Speed. Reliability.

Did you know that our chemists have prepared more than 20,000 unique custom standards?

Custom projects cover a range of analytes, concentrations, and matrices. Whether it is one standard or one hundred, our chemists regularly prepare standards for a range of needs and situations including managed methodology studies, project or site-specific matrices, project or sample-specific limits, and ultra-trace to percent level concentrations.

Examples of custom standards prepared:

- 10,000 mg/kg total organic carbon in soil
- Organic mercury in fish tissue
- Pesticides in freeze-dried spinach
- XRF metals in soil
- Speciated metal standards
- Organometallic standards

Certification of Custom Standards

Three options for certification of custom standards:

- Gravimetric/volumetric
- Analytical
- ISO 17034 certified reference materials*

**Option is based on Waters ERA's ISO 17034 scope of accreditation.*

From Simple to Complex and Everything in Between

A custom standard containing any analyte from the following programs can be supplied:

- Clean Water Act (CWA)
- Safe Drinking Water Act (SDWA)
- Resource Conservation and Recovery Act (RCRA)
- Superfund Contract Laboratory Program (CLP)
- Standards Council of Canada (SCC)
- Canadian Association for Laboratory Accreditation (CALA)
- Ontario Ministry of the Environment and Climate Change (MOECC) Safe Drinking Water Act (SDWA)

To request a custom quotation, please visit us online at

eraqc.com/customstandards

or email us at **info@eraqc.com**

Custom Standards

Performance Evaluation With Double-Blind Project

Gain a level of confidence with tangible evidence that your laboratory is meeting all quality objectives through a double-blind performance evaluation.

The key to evaluating the real performance of your laboratory is in finding the proper blend of realistic sample designs and accurate, stable analyte concentrations.

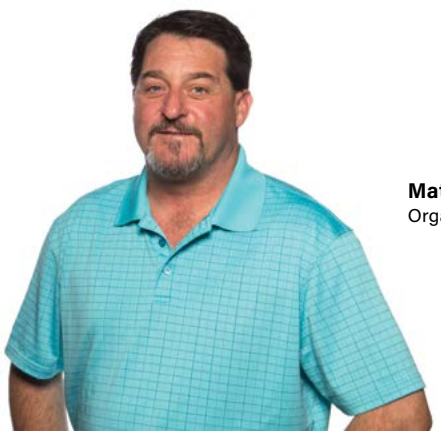
Here is how a performance evaluation program works:

1. Specify the matrices, analytes, and concentrations. If a stock standard is not available, we can design and prepare custom PE standards.
2. Send us your empty sample bottles, labels, chain-of-custody forms, and sample coolers.
3. We prepare, dilute (if necessary), and preserve the standards; fill your sample bottles; and, return the samples to you via overnight delivery service. You'll receive Waters ERA's certified values and performance acceptance limits (PALs) under separate sealed cover.
4. Integrate the standards into your sampling event or introduce them into your lab's routine sample load.
5. Your lab analyzes the blind PE standards along with routine samples.
6. Compare your lab's results to Waters ERA's certified values and performance acceptance limits.

We can help you design a double-blind project that matches your project-specific needs. Speak with a Waters ERA representative today to begin the process of understanding the real performance of your laboratory.

Learn more about Custom Standards

Tom Gilroy
North America Sales &
Customer Service Manager



Matt Graves
Organic Chemist

CUSTOM STANDARD QUOTATION REQUEST FORM

Waters™ | ERA

Contact Name: Date:

Waters ERA Customer #: Phone: Fax:

Company Name: Email:

Bill to: Ship to:

◯ (shipping address is the same as billing address) **Date Needed:**

Additional/Special Requirements (packaging, shipping, etc.):

	Analytes	CAS #	Concentrations	Units
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Sample Description (for label):

Matrix/Solvent:

Preservative:

Mass/Volume per Container: Number of Containers:

Intended Use (calibration, QC, etc.):

Prep/Analytical Method:

Select: Ready-to-use ◯ Concentrate ◯ Dilution Instructions:

Most custom standards are gravimetrically certified based on the manufacturing process.
Analytical verification may be available for your custom standard, depending upon the standard formulation. Contact Waters ERA to discuss pricing and availability.

- *A Waters ERA representative will contact you within one business day to discuss your request.*
- *Waters ERA provides blind standards to help you evaluate your laboratory's performance. Call and speak with an ERA representative to learn more.*

Email this form to info@eraqc.com or fax to 303.421.0159.

For immediate assistance with a customs quote, call Waters ERA at 800.372.0122 or 303.431.8454 and speak with a Waters ERA Customer Service Representative.

C0005 March 2022

CALIBRATION STANDARDS

A variety of inorganic standards including metals, anions, pH, and other common inorganics that can be used for primary calibration or to prepare second source calibration standards.

Contents

CRM: A reference material characterized by a metrologically valid procedure for one or more specified properties, accompanied by a reference material certificate that provides the value of the specified property, its associated uncertainty, and a statement of metrological traceability.

A complete listing of ERA's CRMs can be found on our Scope of Accreditation for general requirements for competence of reference material producers available at www.eraqc.com/AboutERA/Accreditations.

RM: A material, sufficiently homogeneous and stable with respect to one or more specified properties, which has been established to be fit for its intended use in a measurement process.

1000 mg/L Standards

Standards can be used for primary calibration or to prepare second source calibration check standards. They are analytically traceable to NIST SRM's where available, and are guaranteed stable for one year. The certification documentation includes manufacturing uncertainties, traceability summaries and densities to aid in performing gravimetric dilutions. The documentation for metal standards includes impurities.

Inorganics – 1000 mg/L

Chemical Oxygen Demand (COD)

500 mL Bottle	125 mL Bottle
Cat. #974	Cat. #042

One 1000 mg/L standard preserved with H_2SO_4 in an amber glass bottle.

Total Kjeldahl Nitrogen (TKN)

500 mL Bottle	125 mL Bottle
Cat. #996	Cat. #043

One 1000 mg/L standard preserved with HCl in a poly bottle.

MBAS/LAS Surfactants

Cat. #975

One 15 mL screw-cap vial with LAS at 1000 mg/L preserved with H_2SO_4.

Total Organic Carbon (TOC)

Cat. #978

One 500 mL amber glass bottles with TOC at 1000 mg/L preserved with H_2SO_4.

Total Organic Halides (TOX)

Cat. #976

One 2 mL flame-sealed ampule with TOX at 1000 mg/L in methanol.

Phenol

Cat. #982

One 500 mL amber glass bottle with phenol at 1000 mg/L preserved with H_2SO_4.

Sulfide

Cat. #999

One 10 mL flame-sealed ampule containing 1000 mg/L sulfide preserved with NaOH and zinc acetate.

Ions – 1000 mg/L

Parameter	Matrix	500 mL Bottle	125 mL Bottle
Acetate	H_2O	—	Cat. #78202
Ammonia as NH_3	H_2O	Cat. #986	Cat. #044
Ammonia as N	H_2O	Cat. #985	Cat. #045
Bromate	H_2O	—	Cat. #065
Bromide	H_2O	Cat. #987	Cat. #046
Chlorate	H_2O	—	Cat. #066
Chloride	H_2O	Cat. #988	Cat. #047
Chlorite	H_2O	—	Cat. #067
Complex cyanide*	NaOH	Cat. #998	Cat. #049
Cyanide (free)*	NaOH	Cat. #997	Cat. #048
Fluoride	H_2O	Cat. #989	Cat. #050
Iodide	H_2O	—	Cat. #78212
Nitrate as NO_3	H_2O	Cat. #992	Cat. #051
Nitrate as N	H_2O	Cat. #991	Cat. #052
Nitrite as N	H_2O	Cat. #990	Cat. #053
Perchlorate	H_2O	—	Cat. #068
Phosphate as PO_4	H_2O	Cat. #994	Cat. #060
Phosphate as P	H_2O	Cat. #993	Cat. #061
Sulfate	H_2O	Cat. #995	Cat. #062

*Dangerous good. Requires special shipping.

Cations by Ion Chromatography – 100 mg/L

Parameter	Matrix	125 mL Bottle
Ammonium as NH_4	H_2O	Cat. #78102
Ammonium as N	H_2O	Cat. #78104

Cations by Ion Chromatography – 1000 mg/L

Parameter	Matrix	125 mL Bottle
Calcium	H_2O	Cat. #K10
Magnesium	H_2O	Cat. #K11

Metals – 1000 mg/L

Parameter	Matrix		125 mL Bottle
Aluminum	HNO_3	DG	Cat. #011
Arsenic	HNO_3	DG	Cat. #013
Beryllium	HNO_3	DG	Cat. #015
Bismuth	HNO_3	DG	Cat. #K01
Calcium	HNO_3	DG	Cat. #018
Chromium	HNO_3	DG	Cat. #020
Chromium VI	H_2O	—	Cat. #019
Cobalt	HNO_3	DG	Cat. #021
Copper	HNO_3	DG	Cat. #022
Iron	HNO_3	DG	Cat. #023
Lead	HNO_3	DG	Cat. #024
Lithium	HNO_3	DG	Cat. #K04
Magnesium	HNO_3	DG	Cat. #025
Manganese	HNO_3	DG	Cat. #026
Mercury	HNO_3	DG	Cat. #027
Molybdenum	HNO_3	DG	Cat. #028
Nickel	HNO_3	DG	Cat. #029
Phosphorus	HNO_3	DG	Cat. #063
Potassium	HNO_3	DG	Cat. #030
Selenium	HNO_3	DG	Cat. #031
Silica	H_2O	—	Cat. #064
Silicon	HNO_3	DG	Cat. #032
Silver	HNO_3	DG	Cat. #033
Sodium	HNO_3	DG	Cat. #034
Strontium	HNO_3	DG	Cat. #035
Thallium	HNO_3	DG	Cat. #036
Tin	HCl	DG	Cat. #037
Titanium	HCl	DG	Cat. #038
Vanadium	HNO_3	DG	Cat. #039
Yttrium	HNO_3	DG	Cat. #K08
Zinc	HNO_3	DG	Cat. #040

DG – Dangerous good. Requires special shipping.

Other metals, concentrations, and volumes are also available.

Call Waters ERA Customer Service for more information.

ICP-MS Metals

These standards come with a Certificate of Traceability and Uncertainty. Use for initial as well as continuing calibration and tuning verification. Provided as convenient concentrates with densities allowing you to easily perform gravimetric dilutions.

ICP-MS Trace Metals

CRM
Cat. #TMS001*

One 125 mL screw-cap poly bottle preserved with HNO_3 and tartaric acid*

Aluminum	10.0 mg/L	Manganese	10.0 mg/L
Antimony	10.0 mg/L	Molybdenum	10.0 mg/L
Arsenic	10.0 mg/L	Nickel	10.0 mg/L
Barium	10.0 mg/L	Selenium	10.0 mg/L
Beryllium	10.0 mg/L	Silver	10.0 mg/L
Cadmium	10.0 mg/L	Thallium	10.0 mg/L
Chromium	10.0 mg/L	Thorium	10.0 mg/L
Cobalt	10.0 mg/L	Uranium	10.0 mg/L
Copper	10.0 mg/L	Vanadium	10.0 mg/L
Iron	10.0 mg/L	Zinc	10.0 mg/L
Lead	10.0 mg/L		

*Dangerous good. Requires special shipping.

ICP-MS Major Cations

CRM
Cat. #TMS002*

One 125 mL screw-cap poly bottle preserved with HNO_3*

Calcium	50.0 mg/L	Potassium	50.0 mg/L
Magnesium	50.0 mg/L	Sodium	50.0 mg/L

*Dangerous good. Requires special shipping.

Anions

Ion Chromatography

CRM
Cat. #981

One 15 mL screw-cap vial yields up to 200 mL after dilution. Designed to calibrate or verify IC calibrations.

Call for anion standards at lower levels.

Bromide	0.2–20 mg/L	Nitrate as N	0.2–20 mg/L
Chloride	0.2–20 mg/L	Phosphate as P	0.5–30 mg/L
Fluoride	0.1–10 mg/L	Sulfate	0.5–30 mg/L

Learn more about Calibration products

AA/ICP Metals

All metals standards come with a Certificate of Traceability. The ICP Trace Metals standard also includes uncertainties. Use as initial as well as continuing calibration verification.

Flame AA Trace Metals

CRM
Cat. #508

One 24 mL screw-cap vial, preserved with HNO_3, yields up to 500 mL after dilution. Designed for flame AA. Includes aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, iron, lead, manganese, molybdenum, nickel, selenium, silver, strontium, thallium, vanadium, and zinc.

Flame AA Cations

CRM
Cat. #530

One 15 mL screw-cap vial, preserved with HNO_3, yields up to 250 mL after dilution.

Use with ICP, IC, and AA methods.

Calcium	10–200 mg/L
Magnesium	10–200 mg/L
Potassium	5–100 mg/L
Sodium	10–250 mg/L

ICP Trace Metals

CRM
Cat. #524*

One 500 mL whole-volume standard, preserved with HNO_3 and HCl, is ready-to-use.*

Aluminum	10.0 mg/L
Antimony	1.0 mg/L
Arsenic	1.0 mg/L
Barium	1.0 mg/L
Beryllium	1.0 mg/L
Bismuth	1.0 mg/L
Boron	1.0 mg/L
Cadmium	1.0 mg/L
Calcium	10.0 mg/L
Chromium	1.0 mg/L
Cobalt	1.0 mg/L
Copper	1.0 mg/L
Iron	10.0 mg/L
Lanthanum	10.0 mg/L
Lead	10.0 mg/L
Magnesium	10.0 mg/L
Manganese	1.0 mg/L
Molybdenum	1.0 mg/L
Nickel	1.0 mg/L
Phosphorus	1.0 mg/L
Potassium	10.0 mg/L
Selenium	10.0 mg/L
Sodium	10.0 mg/L
Strontium	1.0 mg/L
Tin	1.0 mg/L
Titanium	1.0 mg/L
Vanadium	1.0 mg/L
Zinc	1.0 mg/L

*Dangerous good. Requires special shipping.

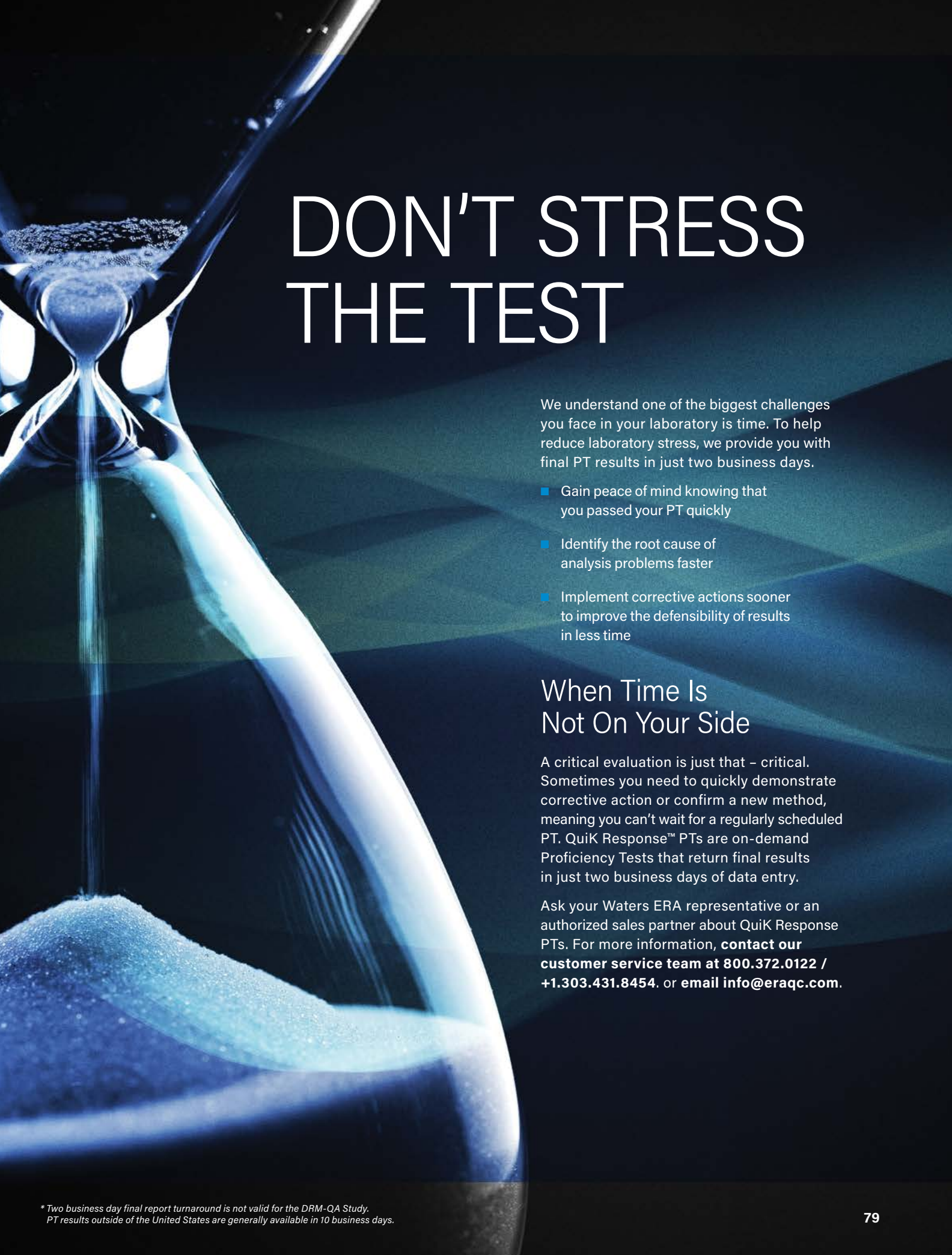
pH Buffers

Our pH Buffers are analytically traceable to NIST SRMs, mercury free, guaranteed stable for at least one year after your receipt, and are supplied with a full certificate of analysis. Choose single bottles or convenient six-bottle cases.

Value	Volume	Single Bottle	Six-Bottle Case
pH 4.00	1 pint	Cat. #127	Cat. #128
pH 7.00	1 pint	Cat. #131	Cat. #132
pH 10.00	1 pint	Cat. #135	Cat. #136
Case of 2 ea.	Pints		Cat. #141

Eric Schmidt
Production Technician

Tony Ciacco
Chemist



DON'T STRESS THE TEST

We understand one of the biggest challenges you face in your laboratory is time. To help reduce laboratory stress, we provide you with final PT results in just two business days.

- Gain peace of mind knowing that you passed your PT quickly
- Identify the root cause of analysis problems faster
- Implement corrective actions sooner to improve the defensibility of results in less time

When Time Is Not On Your Side

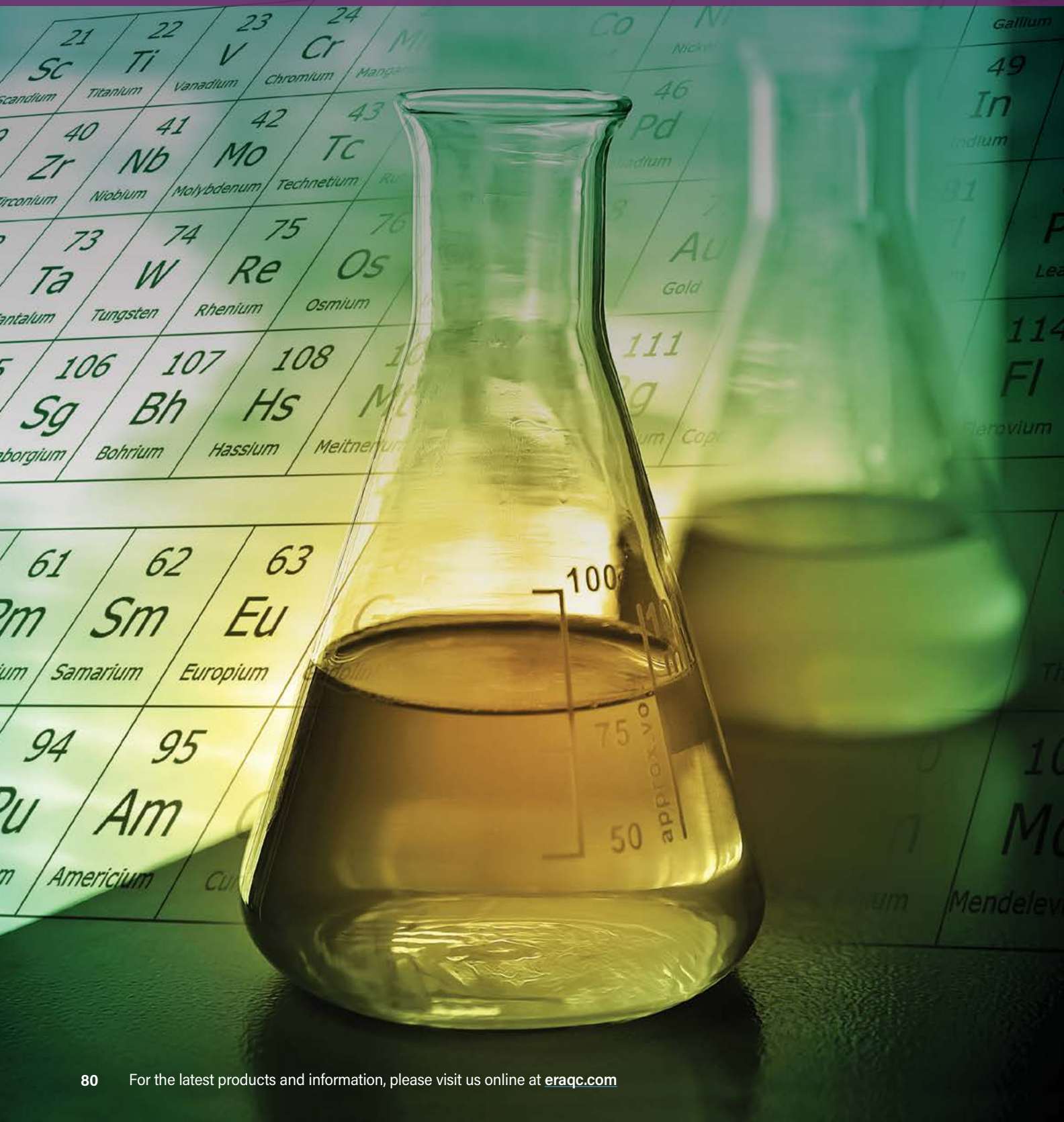
A critical evaluation is just that – critical. Sometimes you need to quickly demonstrate corrective action or confirm a new method, meaning you can't wait for a regularly scheduled PT. QuiK Response™ PTs are on-demand Proficiency Tests that return final results in just two business days of data entry.

Ask your Waters ERA representative or an authorized sales partner about QuiK Response PTs. For more information, **contact our customer service team at 800.372.0122 / +1.303.431.8454**. or **email info@eraqc.com**.

** Two business day final report turnaround is not valid for the DRM-QA Study. PT results outside of the United States are generally available in 10 business days.*

REAGENTS

Reagents for environmental and industrial analysis.



Contents

Reagents

Industrial reagents with tolerances of +/- 0.5%, and will hold the certified value lot-to-lot within 0.5%. Our reagents are shipped with a certificate of analysis and are homogeneous at a 95% confidence interval.

EDTA

0.01 M, 1 Gallon	Cat. #183160
0.02 M, 1 Gallon	Cat. #183212
0.1 M, 1 Liter	Cat. #183118
0.1 M, 1 Gallon	Cat. #183120*
0.1 M, 5 Gallon	Cat. #187525*

Hydrochloric Acid

0.01 N, 1 Liter	DG	Cat. #183026
0.01 N, 1 Gallon	DG	Cat. #183028*
0.01 N, 5 Gallon	DG	Cat. #187503*
0.1 N, 1 Liter	DG	Cat. #183030
0.1 N, 1 Liter, In IPA	DG	Cat. #184001
0.1 N, 2.5 Liter	DG	Cat. #183010*
0.1 N, 1 Gallon	DG	Cat. #183032
0.1 N, 5 Gallon	DG	Cat. #187506
0.25 N, 1 Liter	DG	Cat. #183034*
0.25 N, 1 Gallon	DG	Cat. #183036*
0.25 N, 5 Gallon	DG	Cat. #187507*
0.5 N, 1 Liter	DG	Cat. #183038*
0.5 N, 1 Gallon	DG	Cat. #183040
0.5 N, 5 Gallon	DG	Cat. #187508
0.65 N, 5 Gallon	DG	Cat. #183016
1.0 N, 1 Liter	DG	Cat. #183042
1.0 N, 1 Gallon	DG	Cat. #183044
1.0 N, 5 Gallon	DG	Cat. #187510*

DG – Dangerous good. Requires special shipping.

pH

pH 2 Buffer, No Color (1 Pint)	Cat. #183004
pH 2 Buffer, No Color (1 Liter)	Cat. #183184
pH 2 Buffer, No Color (1 Gallon)	Cat. #187027
pH 2 Buffer, No Color (5 Gallon)	Cat. #183186*
pH 4 Buffer, No Color (1 Pint)	Cat. #183005
pH 4 Buffer, No Color (1 Liter)	Cat. #183180
pH 4 Buffer, No Color (1 Gallon)	Cat. #183181*
pH 4 Buffer, No Color (5 Gallon)	Cat. #183182
pH 6 Concentrated Buffer, No Color (2.5 Liter)	Cat. #183012
pH 7 Buffer, No Color (1 Pint)	Cat. #183006
pH 7 Buffer, No Color (1 Liter)	Cat. #183187
pH 7 Concentrated Buffer, No Color (2.5 Liter)	Cat. #183013
pH 7 Buffer, No Color (1 Gallon)	Cat. #183188*
pH 7 Buffer, No Color (5 Gallon)	Cat. #183189
pH 10 Buffer, No Color (1 Pint)	Cat. #183007
pH 10 Buffer, No Color (1 Liter)	Cat. #183190
pH 10 Buffer, No Color (1 Gallon)	Cat. #183191*
pH 10 Buffer, No Color (5 Gallon)	Cat. #183192
pH 4 Buffer, Red (1 Gallon)	Cat. #187026
pH 4 Buffer, Red (5 Gallon)	Cat. #183217
pH 7 Buffer, Yellow (1 Gallon)	Cat. #187028
pH 7 Buffer, Yellow (5 Gallon)	Cat. #183218
pH 10 Buffer, Blue (1 Gallon)	Cat. #187029
pH 10 Buffer, Blue (5 Gallon)	Cat. #183219

Potassium Hydroxide

0.01 N, 1 Liter	DG	Cat. #183090
0.01 N, 1 Gallon	DG	Cat. #183092
0.01 N, 5 Gallon	DG	Cat. #187521*
0.1 N, 1 Liter	DG	Cat. #183094
In IPA, 0.1 N, 1 Gallon	DG	Cat. #183211*
0.1 N, 1 Gallon	DG	Cat. #183096*
0.1 N, 5 Gallon	DG	Cat. #187522
0.25 N, 1 Liter	DG	Cat. #183098*
0.25 N, 1 Gallon	DG	Cat. #183100*
0.25 N, 5 Gallon	DG	Cat. #187523*
0.5 N, 1 Liter	DG	Cat. #183102*
0.5 N, 1 Gallon	DG	Cat. #183104*
0.5 N, 5 Gallon	DG	Cat. #187524*

DG – Dangerous good. Requires special shipping.

* This item is a custom order product. Please contact us for ordering details.

Silver Nitrate

0.1 N, 1 Liter	DG	Cat. #183110*
0.1 N, 1 Gallon	DG	Cat. #183112*
0.25 N, 1 Liter	DG	Cat. #183114*
0.25 N, 1 Gallon	DG	Cat. #183116*

Sodium Hydroxide

0.01 N, 1 Liter	DG	Cat. #183070
0.01 N, 1 Gallon	DG	Cat. #183072*
0.01 N, 5 Gallon	DG	Cat. #187516*
0.1 N, 1 Liter	DG	Cat. #183074
0.1 N, 1 Gallon	DG	Cat. #183076
0.1 N, 5 Gallon	DG	Cat. #187517
0.25 N, 1 Liter	DG	Cat. #183078*
0.25 N, 1 Gallon	DG	Cat. #183080*
0.25 N, 5 Gallon	DG	Cat. #187518
0.5 N, 1 Gallon	DG	Cat. #183082*
0.5 N, 5 Gallon	DG	Cat. #187519
1.0 N, 1 Liter	DG	Cat. #183086
1.0 N, 1 Gallon	DG	Cat. #183088*
1.0 N, 5 Gallon	DG	Cat. #183156*

DG – Dangerous good. Requires special shipping.

Sodium Thiosulfate

0.0394 N, 1 Gallon	Cat. #182002
0.0394 N, 5 Gallon	Cat. #182003
0.1 N, 1 Liter	Cat. #183126
0.1 N, 1 Gallon	Cat. #183128
0.25 N, 1 Liter	Cat. #183130
0.25 N, 1 Gallon	Cat. #183132*

Sulfuric Acid

0.01 N, 1 Liter	DG	Cat. #183048
0.01 N, 1 Gallon	DG	Cat. #183049*
0.02 N, 1 Liter	DG	Cat. #183050
0.02 N, 1 Gallon	DG	Cat. #183052
0.02 N, 5 Gallon	DG	Cat. #187511
0.05 N, 1 Liter	DG	Cat. #183003*
0.1 N, 1 Liter	DG	Cat. #183054
0.1 N, 1 Gallon	DG	Cat. #183056*
0.1 N, 5 Gallon	DG	Cat. #187512*
0.2 N, 1 Liter	DG	Cat. #183058*
0.2 N, 1 Gallon	DG	Cat. #183060*
0.2 N, 5 Gallon	DG	Cat. #187514*
0.5 N, 1 Liter	DG	Cat. #183062*
0.5 N, 1 Gallon	DG	Cat. #183064*
1.0 N, 1 Liter	DG	Cat. #183066
1.0 N, 1 Gallon	DG	Cat. #183068*
1.0 N, 5 Gallon	DG	Cat. #187515

Miscellaneous

KOH 5 M, KCN 1 M, 5 Gallon	—	Cat. #183213
Manganese Standard, 40 g/L, 1 Liter	DG	Cat. #183008
Manganese Standard, 55 g/L, 1 Liter	DG	Cat. #183009
TISAB, Fluoride Buffer, 1 Gallon	—	Cat. #183162
Barium Perchlorate, 0.1 N, 1 Liter	—	Cat. #183017
Potassium Dichromate, 0.1 N, 1 Liter	DG	Cat. #183221
Potassium Permanganate, 0.1 N, 2.5 Liter	DG	Cat. #183001
Ferrous Ammonium Sulfate, 0.25 N, 1 Gallon	DG	Cat. #183011
Phenolphthalein, 0.5%, 1 Pint	DG	Cat. #183168*
Sodium Carbonate, 1.0 N, 1 Liter	—	Cat. #183172
Sodium Carbonate, 25 g/L, 10 Liter	—	Cat. #183002

DG – Dangerous good. Requires special shipping.

* This item is a custom order product. Please contact us for ordering details.

Learn more about Reagents

Matthew Seebeck
Quality Manager

Kathie Paulling
Project Coordinator - Customs, Reagents

CHROMATOGRAPHIC AND SAMPLE CLEANUP PRODUCTS FROM WATERS

Sample Preparation

Sample concentration and cleanup

Oasis Sample Extraction Products

Analysis of water samples often requires concentration and cleanup of "dirty" or complex matrices. Oasis™ Solid-Phase Extraction (SPE) Products allow for simple and rapid method development. With the Oasis product line, you can expect robust SPE methods that provide reproducible results and high recoveries, without having to be concerned with sorbent drying or pH limitations.

Key features/benefits

- Greater capacity.
- Excellent stability over entire pH range.
- Cleanest extracts.
- Elimination of matrix effects.
- Reduction of ion suppression.
- Superior recovery, reproducibility, retention, and selectivity for a wide variety of compounds.
- Available in cartridges or high throughput, 96-well plates.

Oasis Sample Extraction Products.

Certified cleanliness for ultra-trace level analysis

Vials

Waters Certified Vials are manufactured to exacting standards, tested and certified to give you confidence that the peaks you observe are representative of your sample, not your vials.

Key features/benefits

- Prevent ghost peaks stemming from contaminants.
- Eliminate unexplained masses in MS.
- Eliminate potential of needle damage due to tight dimensional specifications.

Reduce interference and increase sensitivity for better quality results

Certified Sep-Pak SPE Cartridges

Sep-Pak™ SPE Cartridges are widely used by scientists for trace-level analysis in water samples. Manufactured using strict performance and cleanliness specifications and QC-tested for extractables and leachables, Certified Sep-Pak Sample Preparation Products reduce interference and increase sensitivity by eliminating contaminants introduced by the cartridge hardware and sorbents.

Key features/benefits

- Superior extracts for water sample residue analysis.
- Cleanliness and reproducibly needed for demanding sample preparation methods.
- Allows for accurate, high-quality water testing results.

Sep-Pak SPE Cartridges.

Waters Certified Vials.

LC COLUMNS AND CONSUMABLES

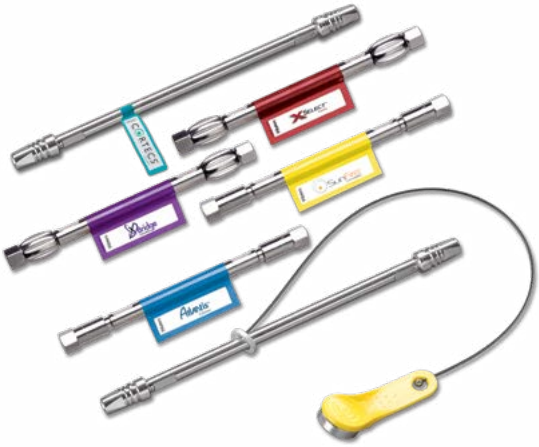
Maximize efficiency, ruggedness, and throughput

LC Columns

Featured in methods to meet regulatory requirements throughout the world, Waters columns provide cutting-edge performance. In addition to our complete selection of UHPLC, UPLC,™ and HPLC column chemistries, Waters also provides application-specific columns for optimal specificity.

Key features/benefits

- Industry leading reliability and reproducibility.
- Wide range of general purpose and application specific columns.
- Uncompromised analytical performance.



UPLC, UHPLC, and HPLC Columns.

Standardize and simplify workflows

Analytical Standards and Reagents

Waters understands that the quality of the standards and reagents you use directly correlates to the quality of your results. Our standards are precisely formulated to ensure data comparability and defensibility over time, and provide absolute traceability to meet your quality assurance requirements.

Key features/benefits

- Saves costly validation time of standards and reagents.
- Easy and convenient formulations and packaging ensure accuracy of LC and LC-MS results over time.
- Optimized kits to keep your system operating at peak performance.

Waters Analytical Standards and Reagents.

Waters

THE SCIENCE OF WHAT'S POSSIBLE.™

These and many more products are available for purchase directly from waters.com, or call 800.252.HPLC (4752)

PROCESS WATER

Products intended for use in industrial or municipal settings where water quality parameters are being monitored continuously (by in-line, on-line, or at-line instrumentation), or by frequent and routine collection of samples for laboratory analysis.

Products in this section include calibration, system suitability, and conductivity solutions and kits for TOC, Conductivity, and Turbidity devices for ultra-pure water analysis including pharmaceutical, power generation, and semiconductor manufacturing. We also offer reagents and other instrument consumables such as replacement lamps.

Contents

ANATEL TOC

All of our ANATEL Certified Reference Materials (CRMs) are prepared using carefully controlled processes that are scrutinized under Waters ERA's ISO 17034 accreditation. CRMs for the ANATEL PAT700 are formulated specifically for the unique technology inherent in that instrument and are packaged in ready-to-use RFID tagged bottles.

ANATEL PAT700

System Suitability

Sets – USP / EP	Cat. #	Availability
USP Bulk Water System Suitability Set Includes (1) Reagent Water Rw, (1) 0.5 mg/L C USP Sucrose, and (1) 0.5 mg/L USP 1,4-Benzoquinone in 60 mL bottles. *Replaces ANATEL FG7018402*	18402	Ships in 1 business day

Calibration

Kits	Cat. #	Availability
Calibration Standards Kit Includes (1) Blank, (1) 0.25 mg/L C NIST Sucrose, (1) 0.50 mg/L C NIST Sucrose, and (1) 0.75 mg/L C NIST Sucrose in 60 mL bottles. *Replaces ANATEL FG7019202*	19202	Ships in 1 business day

Conductivity

Kits	Cat. #	Availability
Conductivity Solution Kit Includes (1) 100 µS/cm Potassium Chloride (KCl) Solution in a 60 mL bottle. *Replaces ANATEL FG7002602*	02602	Ships in 1 business day

Validation

Kits	Cat. #	Availability
Validation Control Kit Includes (1) Blank, and (1) 0.50 mg/L C NIST Sucrose in 60 mL bottles. *Replaces ANATEL FG7019222*	19222	Ships in 1 business day
Validation Protocol Reagent Kit Includes (14) Blanks, (5) Conductivity Solutions, (1) Validation Control Kit, (2) Calibration Standards Kit, (1) System Suitability Set, (1) Excursion with Validation Kit, (1) 0.25 mg/L C NIST Sucrose, (1) 0.75 mg/L C NIST Sucrose, (1) USP Reagent Water Rw, (1) 0.50mg/L C USP 1,4-Benzoquinone, and (2) Excursion Bottles (all bottles are 60 mL). Does not include NIST Traceable Resistor. *Replaces ANATEL FG7019232*	19232	Ships in 5 business days

Consumables

	Cat. #	Availability
Replacement UV Lamp	20037	Ships in 1 business day
60 mL Pre-cleaned HDPE Bottles – Natural (case of 50) Case of 50: 60 mL Low TOC HDPE bottles with septa cap and dust cover.	25056	
Pre-Cleaned Caps w/Septa (100/pack)	25011	Ships in 5 business days

Individual set/kit components and/or bulk sizes may be available for the TOC and Conductivity standards. Please contact your Waters ERA sales representative if you have questions about any products that are not listed in this publication.

Waters ERA is making the most commonly requested products available within 24 hours of order receipt to consistently meet your product needs. Products that are less frequently requested will be shipped within five business days of order receipt. Please check your order confirmation for the specific ship date.

Lisa Berry
Manufacturing Manager

The following CRMs are used for calibration and validation of the ANATEL A643 on-line TOC analyzer.

ANATEL A643

System Suitability

Sets – USP / EP	Cat. #	Availability
USP Bulk Water System Suitability Set Includes (2) Reagent Water Rw, (1) 0.5 mg/L C USP Sucrose, and (1) 0.5 mg/L USP 1,4-Benzoquinone in 60 mL bottles. *Replaces Cat.# 18400*	48400	Ships in 1 business day

Calibration

Kits	Cat. #	Availability
Calibration Standards Kit Includes (2) Blanks, (1) 0.25 mg/L C NIST Sucrose, (1) 0.50 mg/L C NIST Sucrose, and (1) 0.75 mg/L C NIST Sucrose in 60 mL bottles. *Replaces Cat.# 19200*	49200	Ships in 1 business day

Conductivity

Kits	Cat. #	Availability
Conductivity Solution Kit Includes (1) 100 µS/cm Potassium Chloride (KCl) Solution in a 60 mL bottle. *Replaces ANATEL FG5010401*	02610	Ships in 1 business day

Validation

Kits	Cat. #	Availability
Validation Control Kit Includes (2) Blanks, and (1) 0.50 mg/L C NIST Sucrose in 60 mL bottles. *Replaces Cat.# 19220*	49220	Ships in 1 business day
Validation Protocol Reagent Kit Includes (10) Blanks, (3) 0.25 mg/L C NIST Sucrose, (5) 0.50 mg/L C NIST Sucrose, (3) 0.75 mg/L C NIST Sucrose, (1) 100 µS/cm Conductivity Solution Kit, and (4) USP System Suitability Sets (all bottles are 60 mL). *Replaces reference materials portion of ANATEL FG5017701. Does not include NIST Traceable Resistor.*	19230	Ships in 5 business days
Validation Kit Includes (2) Blanks, and (1) 0.25 mg/L C NIST Sucrose, (1) 0.50 mg/L C NIST Sucrose, (1) 0.750 mg/L C NIST Sucrose, (1) 100 µS/cm Conductivity Solution Kit, and (1) USP System Suitability Set in 60 mL bottles. *Replaces Cat.# 19210*	49210	Ships in 1 business day

Consumables

	Cat. #	Availability
Replacement UV Lamp *Replaces ANATEL FG6002601*	20036A	Ships in 1 business day
60 mL Pre-cleaned HDPE Bottles – Natural (case of 50) Case of 50: 60 mL Low TOC HDPE bottles with septa cap and dust cover.	25056	Ships in 1 business day
Pre-Cleaned Caps w/Septa (100/pack)	25011	Ships in 1 business day

Individual set/kit components and/or bulk sizes may be available for the TOC and Conductivity standards. Please contact your Waters ERA sales representative if you have questions about any products that are not listed in this publication.

Waters ERA is making the most commonly requested products available within 24 hours of order receipt to consistently meet your product needs. Products that are less frequently requested will be shipped within five business days of order receipt. Please check your order confirmation for the specific ship date.

ANATEL TOC

ANATEL TOC600

The following CRMs are used for calibration and validation of the ANATEL TOC600 TOC analyzer.

System Suitability

Sets – USP / EP	Cat. #	Availability
USP/EP Bulk Water System Suitability Set Includes (1) Reagent Water Rw, (1) 0.5 mg/L C USP Sucrose, and (1) 0.5 mg/L USP 1,4-Benzoquinone in 125 mL bottles. *Replaces Cat.# 18036*	48036	Ships in 1 business day

Calibration

Kits	Cat. #	Availability
Calibration Standards Kit Includes (1) Blank, (1) 0.25 mg/L C NIST Sucrose, (1) 0.50 mg/L C NIST Sucrose, and (1) 0.75 mg/L C NIST Sucrose in 125 mL bottles. *Replaces Cat.#19201*	49201	Ships in 1 business day

Conductivity

Kits	Cat. #	Availability
Conductivity Solution Kit Includes (1) 100 µS/cm Potassium Chloride (KCl) Solution in a 125 mL bottle. *Replaces ANATEL FG5002601*	02601	Ships in 1 business day

Validation

Kits	Cat. #	Availability
Validation Control Kit Includes (1) Blank, and (1) 0.50 mg/L C NIST Sucrose in 125 mL bottles. *Replaces Cat.#19221*	49221	Ships in 1 business day
Validation Protocol Reagent Kit Includes (3) TOC600 Calibration Kits, (1) TOC600 100 µS/cm Conductivity Solution Kit, (2) TOC600 Validation Control Kits, and (4) TOC600 USP System Suitability Sets (all bottles are 125 mL). *Replaces ANATEL FG5019231*	19231	Ships in 5 business days

Consumables

	Cat. #	Availability
Replacement UV Lamp *Replaces ANATEL FG6002601*	20036A	Ships in 1 business day

ANATEL A-1000

The following CRMs are used for calibration and validation of the ANATEL A-1000 TOC analyzer.

System Suitability

Sets – USP / EP	Cat. #	Availability
USP/EP Bulk Water System Suitability Set Includes (1) Reagent Water Rw, (1) 0.5 mg/L C USP Sucrose, and (1) 0.5 mg/L USP 1,4-Benzoquinone in 1000 mL HDPE bottles. *Replaces Cat.# 19030*	49030	Ships in 5 business days

The Industry Standard for over 40 years

Learn more about Total Organic Carbon products

SIEVERS

Sievers 900, 5310 C, M9, and M5310 C

All of our Sievers Certified Reference Materials (CRMs) are prepared using carefully controlled processes that are scrutinized under Waters ERA's ISO 17034 accreditation.

Contact Waters ERA at info@eraqc.com (USA) or ERA_Europe_Sales@waters.com (Europe) for availability of Sievers 800 and 400 consumables.

System Suitability

Sets - USP / EP	Cat. #	Availability
USP/EP Bulk Water System Suitability Set Includes (1) Reagent Water Rw, (1) 0.5 mg/L C USP Sucrose, and (1) 0.5 mg/L USP 1,4-Benzoquinone in 40 mL vials. *Replaces Sievers CSTD 31004-01*	18000	Ships in 1 business day
Sets - USP	**Cat. #**	**Availability**
USP Sterile Water System Suitability Set Includes (1) Reagent Water Rw, (1) 8.0 mg/L C USP Sucrose, and (1) 8.0 mg/L USP 1,4-Benzoquinone in 40 mL vials.	18061	Ships in 5 business days
Sets - JP	**Cat. #**	**Availability**
JP System Suitability Set Includes (1) Reagent Water, and (1) 0.50 mg/L C from Sodium Dodecylbenzene Sulfonate in 40 mL vials. *Replaces Sievers CSTD 90039-01*	18000J	Ships in 5 business days

Consumables

	Cat. #	Availability
Replacement UV Lamp	20045	Ships in 1 business day
Replacement Pump Tubing	20060	Ships in 1 business day
Model 900/5310 C Resin Bed	20075	Ships in 1 business day
Service Kit for Sievers Model 900/5310C Annual Service Kit for Sievers Model 900/5310C includes Cat # 20075 (Replacement Resin Bed), Cat # 20045 (Relpacement UV Lamp), and Cat # 20060 (Replacement Pump Tubing).	20095	Ships in 1 business day
Phosphoric Acid Reagent Cartridge –150 mL*	21010	Ships in 5 business days
Phosphoric Acid Reagent Cartridge – 300 mL*	21001	Ships in 5 business days
Persulfate Oxidizer Reagent Cartridge – 150 mL	21015	Ships in 5 business days
Persulfate Oxidizer Reagent Cartridge – 300 mL	21006	Ships in 5 business days
40 mL Ultra-Low TOC Vials, 80/case	25025	Ships in 1 business day
60 Micron In-Line Stainless Filter	25035	Ships in 5 business days

* Dangerous good. Requires special shipping.

Calibration & Validation

Kits	Cat. #	Availability
Linearity Set Includes (1) Blank, (1) 0.25 mg/L C NIST Sucrose, (1) 0.50 mg/L C NIST Sucrose and (1) 0.75 mg/L C NIST Sucrose in 40 mL vials. *Replaces CSTD 31012-01*	19515	Ships in 5 business days
Calibration & Verification Set Includes (2) Blanks, (2) 1.0 mg/L IC NIST $NaHCO_3$, (1) 1.0 mg/L C NIST KHP, and (1) 1.0 mg/L C NIST Sucrose in 40 mL vials. *Replaces CSTD 90016-01*	19600	Ships in 1 business day
Multi-Point Calibration Set Includes (1) Blank, (1) each of 1.0, 5.0, 10.0, 25.0 and 50.0 mg/L C NIST KHP, and (1) each of 1.0, 5.0, 10.0, 25.0 and 50.0 mg/L IC NIST $NaHCO_3$ in 40 mL vials. *Replaces CSTD 90000-01*	19610	Ships in 5 business days
Autoreagents Calibration Set Includes (1) Blank, (1) 25.0 mg/L C NIST KHP, (1) 25.0 mg/L IC NIST $NaHCO_3$, and (1) 50.0 mg/L C from Nicotinamide in 40 mL vials. . *Replaces CSTD 90036-01*	19611	Ships in 5 business days
Autoreagents Calibration & Verification Set Includes (2) Blanks, (1) 25.0 mg/L C NIST KHP, (1) 25.0 mg/L IC NIST $NaHCO_3$, (1) 50.0 mg/L C from Nicotinamide, (1) 25.0 mg/L C NIST Sucrose, (1) 50.0 mg/L C NIST Sucrose, and (1) 50 mg/L IC $NaHCO_3$ in 40 mL vials. *Replaces CSTD 90028-01*	19616	Ships in 5 business days
Specificity Verification Set Includes (1) Blank, (1) 0.50 mg/L C from Methanol, (1) 0.50 mg/L C from Nicotinamide, and (1) 0.50 mg/L C from KHP in 40 mL vials.	19615	Ships in 5 business days
Validation Set with Calibration & Verification Includes (28) 40 mL vials, (2) Blanks, (2) 1.0 mg/L C NIST KHP, (2) 1.0 mg/L IC $NaHCO_3$; (1) Blank, (1) 0.50 mg/L C NIST Sucrose, (1) 0.50 mg/L IC $NaHCO_3$; (2) Reagent Water Rw, (2) 0.50 mg/L C from USP Sucrose Rs and (2) 0.50 mg/L C from USP 1,4-Benzoquinone Rss; (1) Blank, (1) 0.25 mg/L C NIST Sucrose, (1) 0.50 mg/L C NIST Sucrose, (1) 0.75 mg/L C NIST Sucrose; (1) Reagent Water, (1) 0.50 mg/L C from USP Sucrose; (1) Blank; (1) 0.50 mg/L C from Methanol; (1) 0.50 mg/L C from Nicotinamide; (1) 0.50 mg/L C from NIST KHP; (1) Reagent Water Rw; (1) 0.50 mg/L C from USP Sucrose Rs; and (1) 0.50 mg/L C from USP 1,4-Benzoquinone Rss. *Replaces Sievers CSTD90025*	19617	Ships in 5 business days
Calibration Kit Includes (1) Blank, and (1) 1.0 mg/L IC NIST $NaHCO_3$, (1) 1.0 mg/L C NIST KHP in 40 mL vials. *Replaces CSTD 90001-01*	19620	Ships in 1 business day

Individual set/kit components and/or bulk sizes may be available for the TOC and Conductivity standards. Please contact your Waters ERA sales representative if you have questions about any products that are not listed in this publication.

Waters ERA is making the most commonly requested products available within 24 hours of order receipt to consistently meet your product needs. Products that are less frequently requested will be shipped within five business days of order receipt. Please check your order confirmation for the specific ship date.

SIEVERS

Sievers 500 RL

The following CRMs are designed to use on Sievers 500 RL TOC instruments for calibration, validation, and to satisfy regulatory requirements.

Contact Waters ERA at info@eraqc.com (USA) or ERA_Europe_Sales@waters.com (Europe) for availability of Sievers 800 and 400 consumables.

System Suitability

Sets – USP / EP	Cat. #	Availability
USP/EP Bulk Water System Suitability Set Includes (1) Reagent Water Rw, (1) 0.5 mg/L C USP Sucrose, and (1) 0.5 mg/L USP 1,4-Benzoquinone in 40 mL vials. *Replaces Sievers CSTD 74403*	15105	Ships in 1 business day
Sets – USP	**Cat. #**	**Availability**
USP Sterile Water System Suitability Set Includes (1) Reagent Water Rw, (1) 8.0 mg/L C USP Sucrose Rs, and (1) 8.0 mg/L USP 1,4-Benzoquinone Rss in 40 mL vials.	18061	Ships in 5 business days
Sets – JP	**Cat. #**	**Availability**
JP System Suitability Set Includes (1) Reagent Water, and (1) 0.50 mg/L C from Sodium Dodecylbenzene Sulfonate in 40 mL vials. *Replaces Sievers CSTD 90039-01*	18000J	Ships in 5 business days

Consumables

	Cat. #	Availability
Replacement UV Lamp	20045	Ships in 1 business day
40 mL Ultra-Low TOC Vials, 80/case	25025	Ships in 1 business day
60 Micron In-Line Stainless Filter	25035	Ships in 5 business days

Individual set/kit components and/or bulk sizes may be available for the TOC and Conductivity standards. Please contact your Waters ERA sales representative if you have questions about any products that are not listed in this publication.

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Calibration & Validation
RL (Standard IOS) Single-Use CRMs

Kits	Cat. #	Availability
Single-Point Calibration Set Includes (2) Blanks, (1) 1.5 mg/L C NIST KHP in 40 mL glass vials, and (1) 25.0 µS/cm Conductivity standard in 30 mL HDPE vial. *Replaces CSTD 74401*	15100	Ships in 5 business days
Single-Point Calibration/Verification Kit Includes (2) Blanks, (1) 1.5 mg/L C NIST KHP in 40 mL glass vials, (1) 25.0 µS/cm Conductivity standard in 30 mL HDPE vial, (1) Verification Blank, (1) 0.50 mg/L C NIST Sucrose in 40 mL glass vials, and (1) 25.0 µS/cm Conductivity standard in 30 mL HDPE vial. *Replaces CSTD 74612*	15101	Ships in 5 business days
Accuracy/Precision/Verification Set Includes (1) Verification Blank, (1) 0.5 mg/L C NIST Sucrose in 40 mL glass vials, and (1) 25.0 µS/cm Conductivity standard in 30 mL HDPE vial. *Replaces CSTD 74402*	15104	Ships in 5 business days
Linearity Set Includes (1) Linearity Blank, (1) each 0.25 mg/L, 0.50 mg/L, and 0.75 mg/L C NIST KHP in 40 mL glass vials. *Replaces CSTD 74406*	15106	Ships in 5 business days
Single-Point Calibration Set – TOC Only Includes (2) Calibration Blanks and (1) 1.5 mg/L C NIST KHP in 40 mL glass vials. *Replaces CSTD 74405*	15109	Ships in 5 business days
Accuracy/Precision/Verification Set – TOC Only Includes (1) Verification Blank and (1) 0.5 mg/L C NIST Sucrose in 40 mL glass vials. Conductivity standard is not included in this set. *Replaces CSTD 74407*	15110	Ships in 5 business days
Single-Point Calibration/Verification Set – TOC Only Includes (2) Blanks, (1) 1.5 mg/L C NIST KHP, (1) Verification Blank, and (1) 0.50 mg/L C NIST Sucrose in 40 mL glass vials. Conductivity standards are not included in this set. *Replaces CSTD 74622*	15111	Ships in 5 business days

ANALYTIK JENA

All of our Analytik Jena Certified Reference Materials (CRMs) are prepared using carefully controlled processes that are scrutinized under Waters ERA's ISO 17034 accreditation.

The following CRMs are designed to use on Analytik Jena TOC instruments for calibration, validation, and to satisfy regulatory requirements.

System Suitability

Sets – USP/EP	Cat. #	Availability
USP/EP Bulk Water System Suitability Set Includes (1) Reagent Water Rw, (1) 0.5 mg/L C USP Sucrose, and (1) 0.5 mg/L USP 1,4-Benzoquinone in 40 mL vials. *For use with AJ multi N/C pharma HS and IL550*	18000	Ships in 1 business day
USP/EP Bulk Water System Suitability Set Includes (1) Reagent Water Rw, (1) 0.5 mg/L C USP Sucrose, and (1) 0.5 mg/L USP 1,4-Benzoquinone in 40 mL vials. *For use with AJ multi N/C UV HS and IL500*	18004	Ships in 1 business day
Sets – USP	**Cat. #**	**Availability**
USP Sterile Water System Suitability Set Includes (1) Reagent Water Rw, (1) 8.0 mg/L C USP Sucrose Rs, and (1) 8.0 mg/L USP 1,4-Benzoquinone Rss in 40 mL vials.	18061	Ships in 5 business days
Sets – JP	**Cat. #**	**Availability**
JP System Suitability Set Includes (1) Reagent Water, and (1) 0.50 mg/L C from Sodium Dodecylbenzene Sulfonate in 40 mL vials.	18000J	Ships in 5 business days
Sets – Low-Level System Suitability	**Cat. #**	**Availability**
Low-Level System Suitability Set Includes (1) Reagent Water, (1) 0.30 mg/L C USP Sucrose, and (1) 0.30 mg/L C USP 1,4-Benzoquinone in 40 mL vials.	18040	Ships in 5 business days

Calibration & Cleaning Validation

Kits	Cat. #	Availability
Cleaning Validation Kit Includes (1) Calibration Blank, (1) each 0.25 mg/L, 0.50 mg/L, 0.75 mg/L, and 1.0 mg/L C NIST Sucrose in 40 mL vials.	19901	Ships in 5 business days
Full TOC Calibration Kit Includes (1) Calibration Blank, (1) each 1.0 mg/L, 2.50 mg/L, 5.0 mg/L, 10.0 mg/L, 25.0 mg/L, 50.0 mg/L, and 100 mg/L C NIST KHP in 250 mL amber glass bottles.	19970	Ships in 5 business days
Limited TOC Calibration Kit Includes (1) Calibration Blank and (1) 0.6 mg/L C NIST Sucrose in 250 mL amber glass bottles.	19985	Ships in 5 business days

Individual set/kit components and/or bulk sizes may be available for the TOC and Conductivity standards. Please contact your Waters ERA sales representative if you have questions about any products that are not listed in this publication.

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Anne Lang
Customer Service Representative

Dale Shallenberger
Senior Buyer

OI ANALYTICAL

The Certified Reference Materials (CRMs) listed below are commonly purchased for use with OI Analytical TOC instruments, including the very popular Aurora® model. All Waters ERA Certified Reference Materials (CRMs) are prepared using carefully controlled processes that are scrutinized under Waters ERA's ISO 17034 accreditation.

The following CRMs are designed to use on OI Analytical TOC instruments for calibration, validation, and to satisfy regulatory requirements.

System Suitability

Sets – USP/EP	Cat. #	Availability
USP/EP Bulk Water System Suitability Set Includes (1) Reagent Water Rw, (1) 0.5 mg/L C USP Sucrose, and (1) 0.5 mg/L USP 1,4-Benzoquinone in 40 mL vials.	18004	Ships in 1 business day
Sets – USP	**Cat. #**	**Availability**
USP Sterile Water System Suitability Set Includes (1) Reagent Water Rw, (1) 8.0 mg/L C USP Sucrose Rs, and (1) 8.0 mg/L USP 1,4-Benzoquinone Rss in 40 mL vials.	18061	Ships in 5 business days
Sets – JP	**Cat. #**	**Availability**
JP System Suitability Set Includes (1) Reagent Water, and (1) 0.50 mg/L C from Sodium Dodecylbenzene Sulfonate in 40 mL vials.	18000J	Ships in 5 business days

Calibration & Validation

Kits	Cat. #	Availability
Ultra Low-Level CRMs Kit Includes (3) Calibration Blanks, (1) each 0.050 mg/L, 0.060 mg/L, 0.070 mg/L, 0.080 mg/L, 0.090 mg/L, 0.10 mg/L, 0.25 mg/L, 0.50 mg/L, and 1.0 mg/L C NIST KHP in 40 mL vials.	14203	Ships in 5 business days
Validation Set – Aurora Includes (6) Water Blanks, (1) 0.50 mg/L C NIST KHP, (3) 1.0 mg/L C NIST KHP, (1) 5.0 mg/L C NIST KHP, (1) 10.0 mg/L C NIST KHP, (1) 25.0 mg/L C NIST KHP, (1) 5.0 mg/L C NIST KHP/50.0 mg/L IC NIST $NaHCO_3$, (4) 0.50 mg/L C USP Sucrose, and (1) 0.50 mg/L C USP 1,4-Benzoquinone in 40 mL vials.	19007	Ships in 5 business days

Aurora is a registered trademark of Xylem, Incorporated.

Consumables

Kits	Cat. #	Availability
Phosphoric Acid Reagent (1 Liter)*	21016	Ships in 5 business days
Phosphoric Acid Reagent (2 Liter)*	21018	Ships in 5 business days
Persulfate Oxidizer Reagent (1 Liter)*	21017	Ships in 5 business days
Persulfate Oxidizer Reagent (2 Liter)*	21019	Ships in 5 business days

*Dangerous goods.

Individual set/kit components and/or bulk sizes may be available for the TOC and Conductivity standards. Please contact your Waters ERA sales representative if you have questions about any products that are not listed in this publication.

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Paul Fabrizio
Systems Engineer

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Turbidity and total organic carbon (TOC) are two key indicators in the measurement of water quality. Whether it is environmental testing or municipal drinking water testing, accurate measurement of turbidity and TOC help ensure compliance with government regulations and are essential components of water treatment.

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eraqc.com/processwater-products

SHIMADZU

Certified Reference Materials (CRMs) listed are commonly purchased for use with Shimadzu TOC instruments. ***Please specify at time of order whether you have a chemical or combustion Shimadzu TOC***. All of our Shimadzu Certified Reference Materials (CRMs) are prepared using carefully controlled processes that are scrutinized under Waters ERA's ISO 17034 accreditation.

The following CRMs are designed to use on Shimadzu TOC instruments for calibration, validation, and to satisfy regulatory requirements.

System Suitability

Sets – USP/EP	Cat. #	Availability
USP/EP Bulk Water System Suitability Set Includes (1) Reagent Water Rw, (1) 0.5 mg/L C USP Sucrose, and (1) 0.5 mg/L USP 1,4-Benzoquinone in 40 mL vials.	18000	Ships in 1 business day
Sets – USP	**Cat. #**	**Availability**
USP Sterile Water System Suitability Set Includes (1) Reagent Water Rw, (1) 8.0 mg/L C USP Sucrose Rs, and (1) 8.0 mg/L USP 1,4-Benzoquinone Rss in 40 mL vials.	18061	Ships in 5 business days
Sets – JP	**Cat. #**	**Availability**
JP System Suitability Set Includes (1) Reagent Water, and (1) 0.50 mg/L C from Sodium Dodecylbenzene Sulfonate in 40 mL vials.	18000J	Ships in 5 business days
Sets – Low-Level System Suitability	**Cat. #**	**Availability**
Low-Level System Suitability Set Includes (1) Reagent Water, (1) 0.30 mg/L C USP Sucrose, and (1) 0.30 mg/L C USP 1,4-Benzoquinone in 40 mL vials.	18040	Ships in 5 business days

Calibration & Validation

Kits	Cat. #	Availability
TOC-V and TOC-L Validation Kit Includes (1) Water Blank, and (2) 100.0 mg/L C NIST KHP in 125 mL amber glass bottles.	11002	Ships in 5 business days
TOC-V and TOC-L HS Validation Kit Includes (1) Water Blank, and (2) 10.0 mg/L C NIST KHP in 125 mL amber glass bottles.	11003	Ships in 5 business days
TOC-V and TOC-L Wet Chem Validation Kit Includes (3) Water Blanks, (2) 0.50 mg/L C NIST KHP, and (4) 1.0 mg/L C NIST KHP in 40 mL vials.	11004	Ships in 5 business days
TOC-V and TOC-L Multi Calibration Kit Includes (2) Calibration Blanks, (2) each 0.10 mg/L, 0.25 mg/L, 0.50 mg/L C NIST KHP, and (1) each 0.75 mg/L and 1.0 mg/L C NIST KHP in 40 mL vials.	11005	Ships in 5 business days

Consumables

Kits	Cat. #	Availability
Phosphoric Acid Reagent (1 Liter)*	21016	Ships in 5 business days
Phosphoric Acid Reagent (2 Liter)*	21018	Ships in 5 business days
Persulfate Oxidizer Reagent (1 Liter)*	21017	Ships in 5 business days
Persulfate Oxidizer Reagent (2 Liter)*	21019	Ships in 5 business days

*Dangerous goods.

Individual set/kit components and/or bulk sizes may be available for the TOC and Conductivity standards. Please contact your Waters ERA sales representative if you have questions about any products that are not listed in this publication.

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Loretta Baca
Customer Service Representative

TELEDYNE TEKMAR

All of our Teledyne Tekmar Certified Reference Materials (CRMs) are prepared using carefully controlled processes that are scrutinized under Waters ERA's ISO 17034 accreditation.

The following CRMs are designed to use on Teledyne Tekmar TOC instruments for calibration, validation, and to satisfy regulatory requirements.

System Suitability

Sets - USP/EP	Cat. #	Availability
USP/EP Bulk Water System Suitability Set Includes (1) Reagent Water Rw, (1) 0.5 mg/L C USP Sucrose, and (1) 0.5 mg/L USP 1,4-Benzoquinone in 40 mL vials.	18000	Ships in 1 business day
Sets - USP	**Cat. #**	**Availability**
USP Sterile Water System Suitability Set Includes (1) Reagent Water Rw, (1) 8.0 mg/L C USP Sucrose Rs, and (1) 8.0 mg/L USP 1,4-Benzoquinone Rss in 40 mL vials.	18061	Ships in 5 business days
Sets - JP	**Cat. #**	**Availability**
JP System Suitability Set Includes (1) Reagent Water, and (1) 0.50 mg/L C from Sodium Dodecylbenzene Sulfonate in 40 mL vials.	18000J	Ships in 5 business days
Sets - Low-Level System Suitability	**Cat. #**	**Availability**
Low-Level System Suitability Set Includes (1) Reagent Water, (1) 0.30 mg/L C USP Sucrose, and (1) 0.30 mg/L C USP 1,4-Benzoquinone in 40 mL vials.	18040	Ships in 5 business days

Calibration & Validation

Kits	Cat. #	Availability
Ultra Low-Level CRMs Kit Includes (3) Calibration Blanks, and (1) each 0.050 mg/L, 0.060 mg/L, 0.070 mg/L, 0.080 mg/L, 0.090 mg/L, 0.10 mg/L, 0.25 mg/L, 0.50 mg/L, and 1.0 mg/L C NIST KHP in 40 mL vials.	14203	Ships in 5 business days
Validation Set – Phoenix Includes (2) Water Blanks, (3) 0.50 mg/L C NIST KHP, (6) 1.0 mg/L C NIST KHP, (1) 2.0 mg/L C NIST KHP, (1) 5.0 mg/L C NIST KHP, (1) 50.0 mg/L C NIST KHP, (1) 100 mg/L IC NIST $NaHCO_3$, (1) Reagent Water Rw, (1) 0.50 mg/L C USP Sucrose Rs, and (1) 0.50 mg/L C USP 1,4-Benzoquinone Rss in 40 mL vials.	19002	Ships in 5 business days
Validation Set – Phoenix Includes (5) Water Blanks, (1) 0.50 mg/L C NIST KHP, (5) 1.0 mg/L C NIST KHP, (1) 5.0 mg/L C NIST KHP, (1) 50.0 mg/L C NIST KHP, (1) 1.0 mg/L IC NIST $NaHCO_3$, (1) Reagent Water Rw, (1) 0.50 mg/L C USP Sucrose Rs, and (1) 0.50 mg/L C USP 1,4-Benzoquinone Rss in 40 mL vials.	19003	Ships in 5 business days
Validation Set – Fusion Includes 15 x 40 mL vials & 2 125 mL bottles: (4) TOC Blank, (3) 1.00 mg C/L NIST KHP, (1) 10.0 mg C/L NIST KHP, (1) 25.0 mg IC/L $NaHCO_3$, (1) Reagent Water Rw, (1) 0.500 mg/L C from USP Sucrose Rs, (1) 0.500 mg/L C from USP 1,4-Benzoquinone Rss, (1) Reagent Water Rw, (1) 8.0 mg/L C from USP Sucrose Rs, (1) 8.0 mg/L C from USP 1,4-Benzoquinone Rss, (1) 10.0 mg C/L NIST KHP - 125 mL, (1) 5.00 mg C/L NIST KHP - 125 mL	19004	Ships in 5 business days

Consumables

Reagents	Cat. #	Availability
Phosphoric Acid Reagent (1 Liter)*	21016	Ships in 5 business days
Phosphoric Acid Reagent (2 Liter)*	21018	Ships in 5 business days
Persulfate Oxidizer Reagent (1 Liter)	21017	Ships in 5 business days
Persulfate Oxidizer Reagent (2 Liter)	21019	Ships in 5 business days

*Dangerous goods.

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OTHER TOC INSTRUMENTS

All of our Certified Reference Materials (CRMs) are prepared using carefully controlled processes that are scrutinized under Waters ERA's ISO 17034 accreditation.

The following CRMs are designed to use on various brands of TOC instruments for calibration and to satisfy regulatory requirements.

If you do not see your brand of TOC instrument listed below, please contact us for availability.

Swan Analytical and Comet Analytics

System Suitability

Sets – USP/EP	Cat. #	Availability
USP/EP Bulk Water System Suitability Set Includes (1) Reagent Water Rw, (1) 0.5 mg/L C USP Sucrose, and (1) 0.5 mg/L USP 1,4-Benzoquinone in 250 mL HDPE containers.	18055	Ships in 5 business days
Sets – USP	**Cat. #**	**Availability**
USP Sterile Water System Suitability Set Includes (1) Reagent Water Rw, (1) 8.0 mg/L C USP Sucrose, and (1) 8.0 mg/L USP 1,4-Benzoquinone in 250 mL HDPE containers.	18056	Ships in 5 business days
Sets – Low-Level System Suitability	**Cat. #**	**Availability**
Low-Level System Suitability Set Includes (1) Reagent Water, (1) 0.30 mg/L C USP Sucrose, and (1) 0.30 mg/L C USP 1,4-Benzoquinone in 250 mL HDPE containers.	18059	Ships in 5 business days

Calibration & Other

Kits	Cat. #	Availability
Swan Calibration Kit Includes (1) Calibration Blank and (1) 1.0 mg/L C NIST Sucrose in 250 mL HDPE containers.	10035S	Ships in 5 business days
Swan Function Test Kit Includes (1) 20.0 mg/L C Sucrose and (1) 20.0 mg/L C 1,4-Benzoquinone in 125 mL HDPE containers.	19700	Ships in 5 business days

Calibration

Kits	Cat. #	Availability
Calibration Kit Includes (1) Calibration Blank and (1) each 0.25 mg/L, 0.50 mg/L, and 0.75 mg/L C NIST Sucrose in 60 mL HDPE containers.	19202	Ships in 1 business day

MembraPure

System Suitability

Sets – USP/EP	Cat. #	Availability
USP/EP Bulk Water System Suitability Set Includes (1) Reagent Water Rw, (1) 0.5 mg/L C USP Sucrose, and (1) 0.5 mg/L USP 1,4-Benzoquinone in 500 mL HDPE containers.	18140	Ships in 5 business days
Individual – USP Sterile Water (500 mL HDPE Container)	**Cat. #**	**Availability**
USP Reagent Water (Rw)	18144	Ships in 5 business days
8.0 mg/L C USP Sucrose (Rs)	18147	Ships in 5 business days
8.0 mg/L C USP 1,4-Benzoquinone (Rss)	18148	Ships in 5 business days

Calibration

Individual Standards (500 mL HDPE Container)	Cat. #	Availability
Calibration Blank	10110	Ships in 1 business day
0.5 mg/L C NIST Sucrose	10710	Ships in 1 business day

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CONSUMABLES

Ever wonder what the USP means by: "Use labware and containers that have been scrupulously cleaned of organic residues"?

Just like the USP, we demand scrupulously cleaned vials for our TOC standards. All of our vials, whether glass or polymer, represent the most consistently clean sample vials available anywhere. They are the perfect vial for your purified water (PW) or water for injection (WFI) sample analysis.

We offer consumable products for various TOC instruments as detailed below.

Vials and Bottles

	Cat. #	Availability
40mL Ultra-Low TOC Glass Vials (80/case)	25025	Ships in 1 business day
60 mL Low TOC HDPE Bottle – Natural (50/case)	25056	Ships in 1 business day

UV Lamps

Replacement UV Lamps for ANATEL and Sievers models.

	Cat. #	Availability
ANATEL A643/TOC600	20036A	Ships in 1 business day
ANATEL PAT700	20037	Ships in 1 business day
Sievers 400/800	20040	Ships in 1 business day
Sievers 500/900	20045	Ships in 1 business day

Reagent Cartridges for Sievers

	Cat. #	Availability
Phosphoric Acid Reagent Cartridge for Sievers 800/900 (150 mL)*	21000	Ships in 5 business days
Phosphoric Acid Reagent Cartridge for Sievers 800/900 (300 mL)*	21001	Ships in 5 business days
Persulfate Oxidizer Reagent Cartridge for Sievers 800/900 (150 mL)	21005	Ships in 5 business days
Persulfate Oxidizer Reagent Cartridge for Sievers 800/900 (300 mL)	21006	Ships in 5 business days
Sievers Ion Exchange Resin Bed	20075	Ships in 1 business day
Sievers 900 Service Kit Includes resin bed, UV lamp and replacement tubing.	20095	Ships in 1 business day

*Dangerous goods.

Reagents

	Cat. #	Availability
Phosphoric Acid Reagent (1 Liter)*	21016	Ships in 5 business days
Phosphoric Acid Reagent (2 Liter)*	21018	Ships in 5 business days
Persulfate Oxidizer Reagent (1 Liter)*	21017	Ships in 5 business days
Persulfate Oxidizer Reagent (2 Liter)*	21019	Ships in 5 business days

*Dangerous goods.

Tubing

Replacement Pump Tubing for Sievers models.

	Cat. #	Availability
Sievers 400	20055	Ships in 1 business day
Sievers 800	20050	Ships in 1 business day
Sievers 900	20060	Ships in 1 business day

Filters

	Cat. #	Availability
60 Micron In-Line Stainless Filter	25035	Ships in 5 business days
Fan Filter for Sievers 800	25040	Ships in 5 business days

Learn more about Consumables

United States Pharmacopeia Monographs, Chapter <643> - Total Organic Carbon.

CLEANING VALIDATION

Waters ERA is the premier manufacturer of specialty cleaning validation products – coupons, certified clean sample vials and swabs for swab recovery studies as well as kits that can be customized to suit your laboratory, analyst and validation needs.

Sampling Kit with Vial and Swab

	Cat. #	Availability
Vial and Swab Sampling Kit – Small Includes (20) certified clean swabs and (10) certified clean vials.	CV10000TX	Ships in 5 business days
Vial and Swab Sampling Kit – Large Includes (160) certified clean swabs and (80) certified clean vials.	CV10005TX	Ships in 5 business days

Swabbing Templates

Pre-cleaned Teflon® square swabbing templates are a simple way to ensure accuracy and precision in your cleaning validation sampling. Each pack comes with a Certificate of Analysis for residual HPLC and TOC levels. Swabbing templates can be custom made to your needs. Stainless steel templates are available upon request. Call for pricing, availability, and custom sizing.

	Cat. #	Availability
16 cm^2 (25/pack)	30028	Call for delivery
25 cm^2 (25/pack)	30029	Call for delivery
100 cm^2 (25/pack)	30032	Call for delivery

Swabs

Large polyester swabs with snap-off head for ultra-low interference levels.

	Cat. #	Availability
TOC Swabs (< 50.0 ppb TOC) Includes (20) swabs (1 total bag)	30033TX	Ships in 5 business days
TOC Swabs (< 50.0 ppb TOC) Includes (100) swabs (20/bag, 5 total bags)	30031TX	Ships in 5 business days
HPLC Swabs (Abs 254: 0.1 au max) Includes (100) swabs (50/bag, 2 total bags)	30030	Ships in 5 business days

Custom Coupons

Waters ERA can accommodate your custom requests for coupons of just about any size, shape or material. Please use the general catalog numbers below and provide the information at the bottom to your customer service representative.

	Cat. #	Availability
Polymer	30024	Call for delivery
Metal	30025	Call for delivery
Glass	30027	Call for delivery

Call 800.372.0122 or 303.431.8454 for a quote on your custom coupon needs in the U.S. Contact your sales partner or e-mail your inquiry to ERA_Europe_Sales@waters.com in Ireland. Please have the following information available:

Material	Metal, plastic, rubber, or glass type (stainless steel, polyethylene, etc.).
Grade	Specific grade of material (i.e., 316 stainless, HDPE or borosilicate glass).
Finish	Arguably the most important factor for metals. The finish refers to the surface roughness and is generally stated in units of "Ra". It is most often measured using a profilometer.
Coating	Some materials can be coated to offer desirable surface properties.
Etching	Some materials can be etched with serial numbers, swabbing areas or other information.
Dimensions	Size and shape of the coupon.
Quantity	The quantity of coupons needed.

Learn more about Cleaning Validation products

REFERENCE STANDARDS

Inorganic Carbon

All of Waters ERA's Certified Reference Materials (CRMs) are prepared using carefully controlled processes that are scrutinized under Waters ERA's ISO 17034 accreditation. Inorganic Carbon (IC) is derived from non-living sources and it exists in pharmaceutical waters as carbonate, bicarbonate, and dissolved carbon dioxide (CO_2). Whether your instrument quantifies IC as part of a differential calculation or removes it as part of a "non-purgeable" method of TOC determination, your instrument's ability to remove and/or measure IC must be validated. Below are the most commonly requested IC concentrations for calibration and validation of TOC instrumentation.

Individual CRMs for Inorganic Carbon

	Volume	Cat. #	Availability
0.5 mg/L IC from NIST $NaHCO_3$	40 mL	15990	Ships in 1 business day
1.0 mg/L IC from NIST $NaHCO_3$	40 mL	16000	Ships in 1 business day
5.0 mg/L IC from NIST $NaHCO_3$	40 mL	16300	Ships in 1 business day
10.0 mg/L IC from NIST $NaHCO_3$	40 mL	16600	Ships in 1 business day
25.0 mg/L IC from NIST $NaHCO_3$	40 mL	16900	Ships in 1 business day
50.0 mg/L IC from NIST $NaHCO_3$	40 mL	17130	Ships in 1 business day

Bulk sizes may be available for the Inorganic Carbon standards. Please contact your sales representative if you have questions about any products that are not listed in this publication.

We make the most commonly requested products available within 24 hours of order receipt to consistently meet your product needs. Products that are less frequently requested will be shipped within five business days of order receipt. Please check your order confirmation for the specific ship date.

Turbidity

Turbidity products are designed specifically for pharmaceutical turbidimetric validation, calibration and monitoring applications including performing particle content/concentration testing, monitoring for fermentation progress, or filter break monitoring.

Custom turbidity products are available if you need a standard. Please contact us to inquire about custom turbidity reference materials.

REFERENCE STANDARDS

High-Purity Water

Certified Low-TOC Water suitable for use with your TOC or liquid chromatography system. All of our waters are prepared with the highest level of care throughout the Ion-Exchange-Filtration-RO-UV purification process. Our water must pass a rigorous testing scheme and we guarantee the analysis of each bottle as well as your satisfaction.

USP Purified – Certified Low-TOC Water

	Cat. #	Availability
USP Purified Low-TOC Water – 4 Liter	PW10000	Ships in 5 business days
USP Purified Low-TOC Water – 4 x 4 Liter Case	PW10005	Ships in 5 business days

pH Buffers

Three color-coded pH Buffers that are prepared under our ISO 17034 accreditation. The buffers are mercury free, guaranteed stable for one year, and they are analytically traceable to NIST Standard Reference Materials (SRMs). Waters ERA pH Buffers are designed for routine calibration and/or verification of pH meters and they are supplied with a full certificate of analysis.

pH Buffer Products in 500 mL HDPE Containers

	Cat. #	Availability
pH 4 (Red) 1 Bottle	127	Ships in 1 business day
pH 4 (Red) Case of 6 Bottles	128	Ships in 1 business day
pH 7 (Yellow) 1 Bottle	131	Ships in 1 business day
pH 7 (Yellow) Case of 6 Bottles	132	Ships in 1 business day
pH 10 (Blue) 1 Bottle	135	Ships in 1 business day
pH 10 (Blue) Case of 6 Bottles	136	Ships in 1 business day
(2) Each of pH 4, pH 7, and pH 10	141	Ships in 1 business day

For other pH buffers please contact us at 800.372.0122 and inquire about our custom pH buffers or our line of environmental reagents.


Learn more about Conductivity products

CONDUCTIVITY

Conductivity solutions and kits that support accurate, verifiable, and approved approaches to validating/verifying your conductivity sensors. Whether you are validating detection limits, determining accuracy and precision, or constructing a low-level linearity curve, Waters ERA has the conductivity products and services to support your efforts.

All Waters ERA Conductivity standards are manufactured in a water matrix , and are scrutinized under Waters ERA's ISO 17034 accreditation.

Conductivity Kits

	Cat. #	Availability
Conductivity Validation Kit – Multiple Use Includes (1) 25 µS/cm, (1) 100 µS/cm, (1) 146.93 µS/cm (Solution D), and (1) Reagent Blank for use with Solution D in 500 mL HDPE bottles.	02900	Ships in 5 business days
Solution 25 Test Kit Includes (1) 25 µS/cm standard in a 500 mL HDPE bottle and (5) pre-cleaned 125 mL HDPE wide-mouth bottles.	01100	Ships in 1 business day
Solution 25 Test Kit Includes (1) 25 µS/cm standard in a 1 Liter HDPE bottle and (5) pre-cleaned 125 mL HDPE wide-mouth bottles.	01001	Ships in 1 business day

Low-Level Conductivity (in HDPE bottles)

Our Low-Level conductivity is an excellent verification solution once you have calibrated your system using our ASTM Solution D.

	Cat. #	Availability
25 µS/cm (500 mL)	01300	Ships in 5 business days
25 µS/cm (1 Liter)	01200	Ships in 5 business days

Mid-Level Conductivity (in HDPE bottles)

Manufactured using NIST traceable materials and certified. This potassium chloride (KCl) solution is an excellent calibration or calibration verification solution. This solution is certified by analysis and it does not require the use of a reference blank for accurate calibration or validation.

	Cat. #	Availability
100 µS/cm (125 mL)	02600	Ships in 5 business days
100 µS/cm (250 mL)	02250	Ships in 5 business days
100 µS/cm in (500 mL)	02500	Ships in 5 business days
100 µS/cm (1 Liter)	02400	Ships in 5 business days

Mid-Level Conductivity ASTM Solution D (in HDPE bottles)

ASTM Solution D is the lowest level solution that can be made following a NIST protocol for conductivity solution preparations. This standard makes an excellent calibration or verification solution together with our 25 µS/cm solution. All Solution D products include an associated Reference Blank.

	Cat. #	Availability
Solution D at 146.93 µS/cm (1 Liter)	01700	Ships in 5 business days
Solution D at 146.93 µS/cm (500 mL)	01800	Ships in 5 business days
Solution D at 146.93 µS/cm (125 mL)	01900	Ships in 5 business days
Solution D Test Kit (1 Liter) Includes (1) Solution D, (1) Reference Blank, and (20) pre-cleaned 125 mL wide-mouth HDPE containers.	01500	Ships in 5 business days
Solution D Test Kit (500 mL) Includes (1) Solution D, (1) Reference Blank, and (10) pre-cleaned 125 mL wide-mouth HDPE containers.	01600	Ships in 5 business days

CONDUCTIVITY (continued)

High-Level Conductivity (in HDPE bottles)

ASTM Solutions C and D are prepared prescriptively from KCl and offer superior accuracy at mid- to high-levels for conductivity sensor validation and verification.

	Cat. #	Availability
ASTM Solution C at 1408.8 µS/cm (125 mL)	01610	Ships in 5 business days
ASTM Solution C at 1408.8 µS/cm (1 Liter)	01620	Ships in 5 business days
1000 µS/cm (125 mL)	01410	Ships in 5 business days
1000 µS/cm (500 mL)	01420	Ships in 5 business days
1000 µS/cm (1 Liter)	01430	Ships in 5 business days
10,000 µS/cm (125 mL)	01630	Ships in 5 business days
10,000 µS/cm (1 Liter)	01640	Ships in 5 business days
100,000 µS/cm (125 mL)	01650	Ships in 5 business days
100,000 µS/cm (500 mL)	01655	Ships in 5 business days
100,000 µS/cm (1 Liter)	01660	Ships in 5 business days
200,000 µS/cm (125 mL)	01661	Ships in 5 business days
200,000 µS/cm (500 mL)	01662	Ships in 5 business days
300,000 µS/cm (125 mL)*	01663	Ships in 5 business days
300,000 µS/cm (500 mL)*	01664	Ships in 5 business days
400,000 µS/cm (125 mL)*	01665	Ships in 5 business days
400,000 µS/cm (500 mL)*	01666	Ships in 5 business days
500,000 µS/cm (125 mL)*	01667	Ships in 5 business days
500,000 µS/cm (500 mL)*	01668	Ships in 5 business days

*Dangerous goods.

WATERS ERA GLOBAL DISTRIBUTORS AND SALES PARTNERS

Waters ERA currently serves customers in more than 80 countries through an extensive network of knowledgeable distributors and sales partners. Please visit eraqc.com/globalpartners to find the name of an authorized distributor in your area or country. Click on the Global Sales Partner link in the About Waters ERA pull down menu. You may also request distributor information by sending an e-mail to ERA_Europe_Sales@waters.com in Europe or info@eraqc.com in the U.S. and the rest of the world. See our website for all of our best-in-class partners across the world.

Waters ERA Subscription Services

We can setup subscription orders to meet your specific needs if your internal quality control program requires regularly scheduled analyses for compliance monitoring or routine instrument maintenance. Subscriptions eliminate the need to place recurring orders. Products are delivered on a regular schedule and they will always be available when you need them. Some of the benefits include:

- Subscriptions can be designed to match your specific needs (e.g., weekly, monthly, etc.)
- Billing occurs for each individual shipment regardless of how you normally pay for vendor supplied materials
- Changes can be made if necessary during the length of the subscription
- You will have the maximum amount of expiration period for your required reference materials
- Subscriptions can be designed for custom products

Please contact Waters ERA to set up a subscription order or if you have any questions about these services.

Sylvia Lowe
Senior International Customer Support

Nicole Cotta
Director of International Channels

A	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Acetate		76								
Acidity									13	
Acids							41		16	
Air Filter					62					
Aldehydes & Ketones	55									
Aluminum		77								
Americium-241					61					
Ammonia	57	76								
Ammonia as N										25
Ammonium		76								
Anions		77					39			
Aromatics									16	
Arsenic		77								

B	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Barium					61					
Base/Neutrals							41		16	
Beryllium		77								
Biochemical Oxygen Demand (BOD)	See Demand									
Bismuth		77								
Boron									14	
Boston Round Oil & Grease									11	
Bromate		76								
Bromide		76							14	
BTEX & MTBE							40	48, 49	14	

C	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Calcium		76, 77								
Carbamate							43		17	28
Cations		76, 77, 78								
Cesium					61					
Chemical Oxygen Demand (COD)*		76								
Chloral Hydrate										25
Chlorate		76								
Chlordane							43		17	28
Chloride		76								
Chlorinated Acid							42		15	30
Chlorine			66						14	25
Chlorite		76								
Chromium	56	77								
Cobalt		77								
Cobalt-60					61					
Color			66						13	26
Complex Cyanide		76								
Complex Nutrients			68						10, 18	
Copper		77								
Corrosivity							38			26
Cyanide		76	66				39, 43		13, 20	26

*See Demand

D	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Demand			66						12, 18, 19	
Diesel Range Organics (DRO)							41	48, 49	16	
1,4-Dioxane										27
Dioxin										30
Dissolved Oxygen									13	

E	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
EDB/DBCP/TCP									16	30
EDTA						82				
Massachusetts EPH								50		
New Jersey EPH								50		
Enterococci				34						

F	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Fluoride	57	76							19	

G	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Gamma Emitters					60					
Gasoline Additives										27
Gasoline Range Organics (GRO)							39	48, 49, 50	15	
Glycols							41		16	
Gross Alpha/Beta					60, 61, 62, 63					

H	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Haloacetic Acids (HAA)										25
Halomethanes (THMs)										27
Hardness									10, 18	24
HCl						82				
HEM/SGT-HEM									11	
Herbicides							41		15	30
Heterotrophic Plate Count				34						
Hexavalent Chromium	56		67				38		12, 19	24
Hydrogen Halides & Halogens	57									

I	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
ICP-MS Trace Metals/ Major Cations		77								
Ignitability/Flash Point							38			
Inorganic Disinfection										25
Inorganics	57	76	66, 67				39			24
Iodide		76								
Iodine-131					60					
Ion Chromatography		76, 77								
Iron		77								

L	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Lead	56	77								
Lithium		77							12	
Low-Level 1,2,3-TCP										30
Low-Level Mercury									12	
Low-Level Nitroaromatics & Nitramines									16	
Low-Level PAHs							41		16	
Low-Level Total Residual Chlorine (TRC)									14	

M	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Magnesium		76, 77								
Manganese		77				83				
Massachusetts Ground Water Enterococci				34						
Mercury	56	77	67						12	24
Metals	56	77, 78	67				38, 43			24
Minerals									12, 18	24
Molybdenum		77								

N	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Naturals					60					
Nickel		77								
Nitrate		76								
Nitrite		76							10	25
Nitroaromatics & Nitramines							41		16	
Nitrogen Oxide	57									
Nitrogen Pesticides									17	
Nutrients			68				39		10, 18, 19	25

O	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Oil & Grease							39		11, 18, 19	
Oil & Grease Concentrate									11	
o-Phosphate Nutrients										25
Organic Carbon										26
Organochlorine Pesticides	55						41, 43		17	
Organophosphorus Pesticides (OPP)							43		17	

P	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
PAHs	55						41		16	
Particulate Matter	57									
PCBs	55						42		15	30
Perchlorate		76				83			13	26, 30
Pesticides	55						41, 43		17	28
PFAS							41		15	28
pH		78				82	38		14, 18, 19	26
Phenol		76							13, 20	
Phosphate		76								
Phosphorus		77								
Plutonium					61					
Potable Water Coliform Microbe				34						
Potassium		77				82, 83				

Q	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
QC-Plus									19, 20	

R	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Radium					61					
Radionuclides					62, 63					
Ready-to-Use VOAs in Soil							40			
Regulated Volatiles										27
Residual Chlorine									14, 20	25
Residual Range Organic fuels (RRO)								49		

S	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Selenium		77								
Semivolatiles	55						40		16	30
Settleable Solids									10	
Silica		77							13	26
Silicon		77								
Silver		77								
Silver Nitrate						83				
Simple Nutrients			68						10, 18, 19	
Sodium		77				83				
Sodium Hydroxide						83				
Sodium Thiosulfate						83				
Solids/Solids Concentrate			67						10, 18, 20	24
Source Water Microbe				34						
Strontium		77			60, 61					
Sulfate		76								
Sulfide		76							13	
Sulfite									13	
Sulfur Dioxide	57									
Sulfuric Acid	57					83				
Surfactants-MBAS		76							13	26

T	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
TCLP							40			
Thallium		77								
Tin		77								
Tin & Titanium									12	
Titanium		77							12	
Total Cyanide									20	
Total Kjeldahl Nitrogen (TKN)		76								
Total Organic Carbon (TOC)		76*								
Total Organic Halides (TOX)		76							13	
Total Petroleum Hydrocarbons (TPH)							40	48, 49	11	
Total Phenolics			67						13, 20	
Total Residual Chlorine									14, 20	
Toxaphene							43		17	28
Trace Metals		77, 78							12, 18	24
Tritium					60, 61, 63					
Turbidity									13	26

*See Demand

U	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Unregulated Volatiles										27
Uranium					61				12	24
UV 248 Absorbance										26

V	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Vanadium		77								24
Volatiles	54		68				39, 40		14	27
Volatile Aromatics									14	
Volatile Solids									10	
VPH								50		

W	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Washington HEM/SGT-HEM								50		

Y	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Yttrium		77								

Z	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Zinc		77			61					

AE Air & Emissions
Cal Calibration
LLCRM Low-Level CRMs
MB Microbiology
RChem Radiochemistry
RGT Reagents
Soil Soil
UST Underground Storage Tank
WP Water Pollution
WS Water Supply

A	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Acenaphthene	55						41		16	30
Acenaphthylene	55						41		16	30
Acetaldehyde	55									
Acetate		76								
Acetone	54-55						39-40		14	
Acetonitrile	54						39-40		14	
Acetophenone							41		16	
Acidity as $CaCO_3$									13	
Acifluorfen							42		15	30
Acrolein	54						39-40		14	
Acrylonitrile	54								14	
Actinium					62					
Alachlor									17	28
Aldicarb							43		17	28
Aldicarb sulfone							43		17	28
Aldicarb sulfoxide							43		17	28
Aldrin	55						43		17	28
Alkalinity			66						10, 18, 19	24
Aluminum		77-78	67				38		12, 18, 20	24
Americium-241					62-63					
Ametryn									17	
2-Amino-1-methylbenzene (o-Toluidine)							41		16	
4-Amino-2,6-dinitrotoluene							41		16	
2-Amino-4,6-dinitrotoluene							41		16	
Ammonia as N		76	68				39		10, 18, 19	
Ammonia as NH_3		76								
Ammonium	57		68							
Ammonium as N	76									
Ammonium as NH_4		76	68							
tert-Amyl methyl ether (TAME)										27
Anilazine									17	
Aniline	55						41		16	
Anthracene	57						41		16	30
Antimony	56	77-78	67				38		12, 18, 20	24
Aroclor	55						42		15	30
Arsenic	56	77-78	67				38		12, 18, 20	24
Atraton									17	
Atrazine							41		16, 17	28
Azinphos-methyl (Guthion)							42		17	
Azobenzene									16	

B	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Barium	56	77-78	67		60-61		38		12, 18, 20	24
Barium Perchlorate						83				
Baygon									17	28
Bentazon							41		15	30
Benzaldehyde	55						41		16	
Benzene	54		68				39-40		14	27
Benzidine	55						41		16	
Benzo(a)anthracene	55						41		16	30
Benzo(a)pyrene	55						41		16	30
Benzo(b)fluoranthene	55						41		16	30
Benzo(g,h,i)perylene	55						41		16	30
Benzo(k)fluoranthene	55						41		16	30
Benzoic acid							41		15, 16	
Benzyl alcohol	55						41		16	
Beryllium	56	77-78	67				38		12, 18, 20	24
alpha-BHC	55						43		17	
beta-BHC	55						43		17	
delta-BHC	55						43		17	
gamma-BHC (Lindane)	55		70				42 45		17	28
Biochemical oxygen demand (BOD)			66						12, 18, 19	
Biphenyl							41			
1,1-Biphenyl									16	
Bismuth		77-78			62					
Boron		78	67				38		12, 14, 18	24
Bromacil									17	28
Bromate		76								25
Bromide	57	76					39		14	25
Bromine	57									
Bromobenzene							39-40		14	27

B (continued)	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Bromochloroacetic acid										25
Bromochloromethane							39-40		14	27
Bromodichloromethane	54		69				39-40		14	27
Bromoform	54		69				39-40		14	27
Bromomethane	54						39-40		14	27
4-Bromophenyl phenyl ether	55						41		16	
BTEX							39	48-49	15	
BTEX & MTBE							39	48	14	
Butachlor									17	28
2-Butanone (MEK)	54-55						39-40		14	
tert-Butyl Alcohol										27
Butylate									17	
Butyl benzyl phthalate	55						41		16	30
Butyraldehyde (butanal)	55									
2,2'-Oxybix (1-Chloropropane)							41			

C	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Cadmium	56	77-78	67				38		12, 18, 20	24
Calcium		77-78	66				38		10, 18, 19	24
Calcium hardness as $CaCO_3$									10, 18, 19	24
Caprolactam							41		16	
Carbaryl							43		17	28
Carbazole	55						41		16	
Carbofuran							43		17	28
Carbon disulfide	54						39-40		14	
Carbon tetrachloride	54		68				39-40		14	27
Carbophenothion									17	
Chemical oxygen demand (COD)		76	66						12, 18, 19	
Chloral Hydrate										25
Chloramben							41		15	29
Chlorate		76								25
Chlordane	55						43		17	28
alpha-Chlordane									17	
gamma-Chlordane									17	
Chloride		76-77	66				39		10, 18, 19	24
Chlorine	57		66							25
Chlorite		76								25
4-Chloro-3-methylphenol	55						41		16	
4-Chloroaniline	55						41		16	
Chlorobenzene	54		68				39-40		14	27
Chlorodibromomethane	54						39-40		14	27
Chloroethane	54						39-40		14	27
bis(2-Chloroethoxy)methane	55						41		16	
2-Chloroethyl vinyl ether	54						38-40		14	
bis(2-chloroethyl)ether	55						41		16	
Chloroform	54						39-40		14	27
Chloromethane	54						39-40		14	27
1-Chloronaphthalene	55						41		16	
2-Chloronaphthalene	55						41		16	
2-Chlorophenol	55						41		16	
4-Chlorophenyl phenyl ether	55						41		16	
2-Chlorotoluene	54						39-40		14	27
2-Chlorotoluene	54						39-40		14	27
Chlorpyrifos							43		17	26
Chlortoluron										
Chromium	56	77-78	67				38		12, 18, 20	24
Chrysene	55						41		16	30
Cobalt	56	77-78	67		61, 62, 63		38		12, 18, 20	
Coliforms				34						
Color			66						13	26
Specific conductance at 25 °C									10,18	24
Conductivity			66						19	
Copper	56	77-78	67				38		12, 18, 20	24
Corrosivity										26
Corrosivity/pH							38			
Crotonaldehyde	55									
Curium					64					
Cyanazine									17	
Cyanide		76	66				39		13, 20	25
Cyclohexane	54									

D	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
2,4-D							41		15	30
Dacthal diacid (DCPA)							41		15	30
Dalapon							42		15	30
2,4-DB							41		15	30
4,4'-DDD	57						43		17	
4,4'-DDE	55		70				43		17	
2,4-DDT										
4,4'-DDT	55						43		17	
Decachlorobiphenyl										30
n-Decane									16	
Deethyl atrazine									17	
Deisopropyl atrazine									17	
Demeton O & S							43		17	
Diaminoatrazine									17	
Diazinon							43		17	28
Dibenz(a,h)anthracene	55						41		16	30
Dibenzofuran	55						41		16	
1,2-Dibromo-3-chloropropane (DBCP)	54						39-40		14-16	30
Dibromoacetic Acid										25
1,2-Dibromoethane (EDB)	54						39-40		14-16	
Dibromomethane	54						39-40		14	27
Dicamba							41		15	30
Dichloroacetic Acid										25
2,3-Dichloroaniline									16	
1,2-Dichlorobenzene	54-55		68				39-41		14, 16	27
1,3-Dichlorobenzene	54-55						39-41		14, 16	27
1,4-Dichlorobenzene	54-55		68				41		14, 16	30
3,3'-Dichlorobenzidine	55						41		16	
3,5-Dichlorobenzoic Acid										30
Dichlorodifluoromethane	54						39-40		14	27
1,1-Dichloroethane	54						39-40		14	27
1,1-Dichloroethene	54						39-40		14	
1,2-Dichloroethane	54		68				39-40		14	27
cis-1,2-Dichloroethene	54								14	
trans-1,2-Dichloroethene	54								14	
1,1-Dichloroethylene	54		68				39-40			27
cis-1,2-Dichloroethylene	54		68				39-40			27
trans-1,2-Dichloroethylene	54		68				39-40			27
2,4-Dichlorophenol	55						41		16	
2,6-Dichlorophenol	55						41		16	
1,2-Dichloropropane	54		68				39-40		14	27
1,3-Dichloropropane							39-40		14	27
2,2-Dichloropropane							39-40		14	27
1,1-Dichloropropene							39-40		14	27
cis-1,3-Dichloropropene	54								14	27
trans-1,3-Dichloropropene	54								14	27
cis-1,3-Dichloropropylene	54						39-40			
trans-1,3-Dichloropropylene	54						39-40			
1,2-Dichlorotetrafluoroethane	54									
Dichlorprop							41		15	30
Dichlorvos (DDVP)							43		17	
1,1-Dichloroethylene	56		72				42, 43			30
Dieldrin	55						43		17	28
Diesel range organics (DRO)							41	48, 49, 50	16	
Diethylene glycol							41		16	
Diethyl phthalate	55						41		16	30
Di-isopropylether (DIPE)										27
Dimethoate									17	
Dimethyl phthalate	55						41		16	30
2,5-Dimethylbenzaldehyde	55									
2,4-Dimethylphenol	55						41		16	
Di-n-butyl phthalate	55						41		16	30
1,3-Dinitrobenzene							41		16	
2,4-Dinitrophenol	55						41		16	
2,4-Dinitrotoluene	55						41		16	
2,6-Dinitrotoluene	55						41		16	
Di-n-octyl phthalate	55						41		16	30
Dinoseb							41		15	30
Dioxacarb							43			
1,4 Dioxane							39		14	27
Dioxathion									17	
Dioxin										30
1,2-Diphenylhydrazine									16	
Diquat										30
Dissolved organic carbon (DOC)			66							26
Dissolved Oxygen									13	
Disulfoton							43		17	
Diuron							43		17	

E	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
E. coli				34						
Endosulfan I and II	55						43		17	
Endosulfan sulfate	55						43		17	
Endothall										30
Endrin	55						43		17	28
Endrin aldehyde	55						43		17	
Endrin ketone	55						43		17	
EPTC (Eptam)									17	
Ethion									17	
Ethoprop									17	26
Ethyl tert-butyl ether (ETBE)										27
Ethylbenzene	54		68				39-40		14	27
Ethylene dibromide (EDB)										30
Ethylene glycol							41		16	
bis(2-Ethylhexyl)adipate										30
bis(2-Ethylhexyl)phthalate	55						41		16	30
p-Ethyltoluene	54									

F	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Famphur									17	
Fecal Coliform WP				34						
Fecal Coliform WP				34						
Ferrous Ammonium Sulfate						83				
Flashpoint							38			
Fluoranthene	55						41		16	30
Fluorene	55						41		16	30
Fluoride	57	76-77	66				39		10, 18, 19	24
Fluoride Buffer						83				
Fluorotrichloromethane										27
Fonofos									17	
Formaldehyde	55								14	
Free Residual Chlorine									14	25

G	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Gasoline range organics (GRO)							39	48, 50	15	
Glyphosate										30
Gross Alpha					60, 62, 63					
Gross Alpha/Beta					60, 62, 63					
Gross Beta					60, 62, 63					

H	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Halides	57								13	
Halogens	57									
HEM								50	13	
Heptachlor	55						40-43		17	28
Heptachlor epoxide	55						40-43		17	28
n-Heptane	54									
Heterotrophic				37						
Hexachlorobenzene	55						40, 41		16	28
Hexachlorobutadiene	54-55						40-41		14, 16	27
Hexachlorocyclopentadiene	55						41		16	28
Hexachloroethane	55						40-41		14, 16	
Hexaldehyde (hexanal)	55									
n-Hexane	54						39			
n-Hexane extractable material							39			
2-Hexanone	54						39, 40		14	
Hexavalent chromium	56		67				38		14,21	24
Hexazinone									17	
HMX							41		16	
Hydrogen bromide	57									
Hydrogen chloride	57									
Hydrogen fluoride	57									
3-Hydroxycarbofuran							43		17	28

AE	Air & Emissions	RChem	Radiochemistry	WP	Water Pollution
Cal	Calibration	RGT	Reagents	WS	Water Supply
LLCRM	Low-Level CRMs	Soil	Soil		
MB	Microbiology	UST	Underground Storage Tank		

I	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Ignitability/Flashpoint							38			
Indeno(1,2,3-cd)pyrene	55						41		16	30
Iodide		76								
Iron		77,78	67		62, 63		38, 43		12, 18, 20	24
Isophorone	55						41		16	
Isopropylbenzene	54						39, 40		14	27
Isopropyltoluene	54						39, 40		14	27
Isovaleraldehyde	55									
Isovaleraldehyde	57									

L	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Lanthanum		78								
Lead	56	77,78	67		62		38, 43		12, 18, 20	24
Lithium		77					38		12	

M	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Magnesium		76, 77, 78	66				38, 43		10, 18, 19	24
Malathion							43		17	
Manganese	55	77,78	67		62, 63	83	38, 43		12, 18, 20	24
MBAS-Surfactants		76							13	26
MCPA							42		15	
MCPB										
MCPP							42		15	
Mercury	56	77	67				38, 43		12, 20	24
Metals & Cyanide Blank Sand							43			
Metals & Cyanide Blank Soil							43			
Methiocarb							43		17	28
Methomyl							45		17	28
Methoxychlor	55						40, 43		17	28
Methyl ethyl ketone (MEK)	55, 55						39, 40		17	27
Methyl tert-butyl ether (MTBE)	54						39, 40		14	27
4-Methyl-2-pentanone (MIBK)	54						39, 40		14	
2-Methyl-4,6-dinitrophenol	55						41		16	
Methylene chloride	54		68				39, 40		14	27
1-Methylnaphthalene									16	
2-Methylnaphthalene	55						41		16	
2-Methylphenol	55						40, 41		16	
3 & 4-Methylphenol							40, 41		16	
2-Methylphenol (o-Cresol)	55									
4-Methylphenol (p-Cresol)	55									
Metolachlor									17	28
Metribuzin									17	28
Mevinphos										
Molinate (Ordram)										28
Molybdenum		77,78	67				38		12, 18, 20	24
Monochloroacetic Acid										25

N	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Naphthalene	54, 55						39, 40, 41		14, 16	27, 30
Napropamide									17	
Nickel	56	77,78	67				38, 43		12, 18, 20	24
Nitrate as N		76,77					38, 43		10, 18	24
Nitrate as NO_3		76	68							
Nitrate plus nitrite as N							39		10, 18	24
Nitrite as N		76					39		10, 18	24
Nitrite as NO_2			68							
2-Nitroaniline	55						41		16	
3-Nitroaniline	55						41		16	
4-Nitroaniline	55						41		16	
Nitrobenzene	54, 55						39, 40, 41		14, 16	
2-Nitrophenol	55						41		16	
4-Nitrophenol	55						41		15, 16	30
n-Butylbenzene							39-40		14	27
N-Nitrosodiethylamine	55						41		16	

N (continued)	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
N-Nitrosodimethylamine (NDMA)	55						41		16	
N-Nitroso-di-n-propylamine	55						41		16	
N-Nitrosodiphenylamine	55						41		16	
2-Nitrotoluene							41		16	
3-Nitrotoluene							41		16	
4-Nitrotoluene							41		16	

O	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
n-Octadecane									16	
Oil & Grease							39		11, 18, 19	
ortho-Phosphate as P									10, 11, 19	27
Organophosphorus Pesticides							43		17	28
Oxamyl							43		17	28
Oxides of nitrogen	57									
2,2'-Oxybis(1-Chloropropane)									16	

P	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Paraquat										30
Parathion							43		17	
Particulate matter	57									
PCBs in Oil							42		15	
PCBs in Soil							42			
PCBs in Water									15	30
Pentachlorobenzene	55						41		16	
Pentachlorophenol	55						40, 41		15, 16	30
Petroleum Hydrocarbons Fuels							40	48, 50	11	
Perchlorate		76								26
PFAS Analytes							43		15	30
pH		78	66			82	38		14, 18, 19	26
Phenanthrene	55						41		16	30
Phenol	55	76					41		13, 16	
Phenolphthalein						83				
Phorate							43		17	
Phosmet									17	
ortho-Phosphate as P									10, 18, 19	25
Phosphate as P		76, 77					39			
Phosphate as PO_4		76								
Phosphorus	56	77, 78	68							
Picloram							42		15	30
Plutonium					61, 62, 63					
Potassium		77,78	66		62		38		10, 18, 19	24
Potassium Cyanide (KCN)						83				
Potassium Dichromate						83				
Potassium Hydroxide (KOH)						82, 83				
Potassium Permanganate						82				
Promecarb							43			
Prometon									17	28
Prometryn									17	
Pronamide									17	
Propachlor									17	28
Propazine									17	
Propham							43		17	
Propionaldehyde (propanal)	55									
Propoxur							43			
n-Propylbenzene	55						39, 40		14	27
Propylene	54									
Propylene glycol							41		16	
Pyrene	55						41		16	30
Pyridine	55						40, 41		16	

R	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Radium					60, 61					
RDX							41		16	
Residual Range Organic (RRO)								49		
Ronnel							43		17	

S	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
sec-Butylbenzene							39, 40		14	27
Selenium	56	77, 78	67				38		12, 18, 20	24
Settleable solids									10	
SGT-HEM								50	11	
Silica		77							11, 13	26
Silicon		77								
Silver	56	77, 78	67				38, 43		12, 18, 20	24
Silver Nitrate						83				
Simazine									17	28
Sodium		77, 78	66				38, 42		10, 18, 19	24
Sodium Carbonate						83				
Sodium Hydroxide						83				
Sodium Thiosulfate						83				
Stirophos (tetrachlorovinphos)							43		17	
Strontium		77, 78	67		60, 61, 62, 63		38		12, 18, 20	
Styrene	54		68				39, 40		14	27
Sulfate		76, 77	66				39		10, 18, 19	24
Sulfur dioxide	57									
Sulfuric acid	57									

T	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
2,4,5-T									15	30
Terbacil									17	
Terbufos							43		17	
Tert-Butylbenzene									14	
1,2,4,5-Tetrachlorobenzene	55						39, 40		16	
1,1,1,2-Tetrachloroethane	54						41		14	27
1,1,2,2-Tetrachloroethane	54						41		14	27
Tetrachloroethene	54		68				39		14	
Tetrachloroethylene	54						40		14	27
2,3,4,6-Tetrachlorophenol	55						41		16	
Tetraethylene glycol							41		16	
Tetryl							41		16	
Thallium	56	77, 78	67				38, 43		12, 18, 20	24
Thiobencarb										28
Thorium		77			60, 62, 63					
Tin		77, 78					38		12	
Titanium		77, 78					38		12, 20	
TISAB						83				
Tolualdehyde	55									
Toluene	54		68				39, 40		14	27
o-Toluidine	55						41		16	
Total Coliform WP									34	
Total Coliform WS									342	
Total dissolved solids			66, 67						10, 18, 19, 20	24
Total hardness			66						10, 18, 19	24
Total Kjeldahl Nitrogen		76	68				39		10, 18, 19	
Total Nitrogen			68						10	
Total Organic Carbon (TOC)		76	66				39		12, 18, 19	
Total Organic Halides (TOX)		76							13	
Total Oxidized Nitrogen (TON)			68							
Total Phenolics (4-AAP)			67						13, 20	
Total Phosphorus			68				39		10, 18, 19	
Total solids at 105 °C									10, 18, 20	24
Total suspended solids (TSS)			67						10, 18, 20	24
Total volatile solids									10	

T (continued)	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Toxaphene							43		17	28
2,4,5-TP (Silvex)							41		15	30
TPH							40	48, 49	11	
Trichloroacetic Acid										25
1,2,3-Trichlorobenzene	54						39, 40		14	27
1,2,4-Trichlorobenzene	54, 55		68				39, 40, 41		14, 16	27
1,1,1-Trichloroethane	54		68				39, 40		14	27
1,1,2-Trichloroethane	54		68				39, 40		14	27
Trichloroethene	54		68				39, 40		14	
Trichloroethlyene	54						40			27
Trichlorofluoromethane	54						39, 40		14	27
2,4,5-Trichlorophenol	55						40, 41		16	
2,4,6-Trichlorophenol	55						40, 41		16	
1,2,3-Trichloropropane	54						39		14, 16	27, 28, 30
Trichlorotrifluoromethane	54									
Triethylene glycol							41		16	
Trifluralin									17	28
1,2,4-Trimethylbenzene	54						39, 40		14	27
1,3,5-Trimethylbenzene	54						39, 40		14	27
1,3,5-Trinitrobenzene							41		16	
2,4,6-Trinitrotoluene							41		16	
Tritium					60, 61, 63					
Turbidity									13	26

U	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Uranium		77			60, 61, 62, 63		38		12	24
UV 254 Absorbance										26

V	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Valeraldehyde (pentanal)	55									
Vanadium		77, 78	67				38, 43		12, 18, 20	24
Vinyl acetate	54						39		14	
Vinyl bromide	54									
Vinyl chloride	54		68				39, 40		14	27

X	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Xylenes, total	54		68				39, 40		14,	27

Y	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Yttrium		77								

Z	AE	Cal	LLCRM	MB	RChem	RGT	Soil	UST	WP	WS
Zinc	56	77, 78	67		60, 61, 62, 63		38, 43		12, 18,	24

AE Air & Emissions
Cal Calibration
LLCRM Low-Level CRMs
MB Microbiology
RChem Radiochemistry
RGT Reagents
Soil Soil
UST Underground Storage Tank
WP Water Pollution
WS Water Supply

A	ANATEL PAT700	ANATEL A643	ANATEL TOC600	ANATEL A-1000	SIEVERS 900, 5310 C, M9, M5310 C	SIEVERS 500	ANALYTIK JENA	OI ANALYTICAL	SWAN	LIGHTHOUSE	MEMBRAPURE	CONSUMABLES	CLEANING VALIDATION	REFERENCE STANDARDS	CONDUCTIVITY
Accuracy/Precision Sets						92									
Autoreagent Sets					91										

B	ANATEL PAT700	ANATEL A643	ANATEL TOC600	ANATEL A-1000	SIEVERS 900, 5310 C, M9, M5310 C	SIEVERS 500	ANALYTIK JENA	OI ANALYTICAL	SWAN	LIGHTHOUSE	MEMBRAPURE	CONSUMABLES	CLEANING VALIDATION	REFERENCE STANDARDS	CONDUCTIVITY
Bottles												99			

C	ANATEL PAT700	ANATEL A643	ANATEL TOC600	ANATEL A-1000	SIEVERS 900, 5310 C, M9, M5310 C	SIEVERS 500	ANALYTIK JENA	OI ANALYTICAL	SWAN	LIGHTHOUSE	MEMBRAPURE	CONSUMABLES	CLEANING VALIDATION	REFERENCE STANDARDS	CONDUCTIVITY
Calibration Kits	88	89	90	90	91	92	93	94	98		98				
Caps	88	89													
Cleaning Validation							93						100		
Conductivity Kits	88	89	90		91	92									103
Conductivity - High-Level															103
Conductivity - Low-Level															103
Conductivity - Mid-Level															103
Conductivity - Mid-Level ASTM Solution															103
Conductivity- High Level															104
Consumables	88	89	90		91	92		94				99			
Custom Coupons													100		

F	ANATEL PAT700	ANATEL A643	ANATEL TOC600	ANATEL A-1000	SIEVERS 900, 5310 C, M9, M5310 C	SIEVERS 500	ANALYTIK JENA	OI ANALYTICAL	SWAN	LIGHTHOUSE	MEMBRAPURE	CONSUMABLES	CLEANING VALIDATION	REFERENCE STANDARDS	CONDUCTIVITY
Filters					91	92						99			
Function Test Kit									98						
Full Cal Kit							93								

H	ANATEL PAT700	ANATEL A643	ANATEL TOC600	ANATEL A-1000	SIEVERS 900, 5310 C, M9, M5310 C	SIEVERS 500	ANALYTIK JENA	OI ANALYTICAL	SWAN	LIGHTHOUSE	MEMBRAPURE	CONSUMABLES	CLEANING VALIDATION	REFERENCE STANDARDS	CONDUCTIVITY
High-Purity Water Reference Standards														102	

I	ANATEL PAT700	ANATEL A643	ANATEL TOC600	ANATEL A-1000	SIEVERS 900, 5310 C, M9, M5310 C	SIEVERS 500	ANALYTIK JENA	OI ANALYTICAL	SWAN	LIGHTHOUSE	MEMBRAPURE	CONSUMABLES	CLEANING VALIDATION	REFERENCE STANDARDS	CONDUCTIVITY
Inorganic Carbon CRMs														102	N/A
Individual CRMs														102	N/A

L	ANATEL PAT700	ANATEL A643	ANATEL TOC600	ANATEL A-1000	SIEVERS 900, 5310 C, M9, M5310 C	SIEVERS 500	ANALYTIK JENA	OI ANALYTICAL	SWAN	LIGHTHOUSE	MEMBRAPURE	CONSUMABLES	CLEANING VALIDATION	REFERENCE STANDARDS	CONDUCTIVITY
Limited Cal Kit							93								
Linearity Sets					91	92									
Multipoint Cal Sets					91										

P	ANATEL PAT700	ANATEL A643	ANATEL TOC600	ANATEL A-1000	SIEVERS 900, 5310 C, M9, M5310 C	SIEVERS 500	ANALYTIK JENA	OI ANALYTICAL	SWAN	LIGHTHOUSE	MEMBRAPURE	CONSUMABLES	CLEANING VALIDATION	REFERENCE STANDARDS	CONDUCTIVITY
pH Buffer Products														102	

R	ANATEL PAT700	ANATEL A643	ANATEL TOC600	ANATEL A-1000	SIEVERS 900, 5310 C, M9, M5310 C	SIEVERS 500	ANALYTIK JENA	OI ANALYTICAL	SWAN	LIGHTHOUSE	MEMBRAPURE	CONSUMABLES	CLEANING VALIDATION	REFERENCE STANDARDS	CONDUCTIVITY
Reagents					91			94				99			
Reagent Cartridges					91			94				99			
Resin Beds					91										

S	ANATEL PAT700	ANATEL A643	ANATEL TOC600	ANATEL A-1000	SIEVERS 900, 5310 C, M9, M5310 C	SIEVERS 500	ANALYTIK JENA	OI ANALYTICAL	SWAN	LIGHTHOUSE	MEMBRAPURE	CONSUMABLES	CLEANING VALIDATION	REFERENCE STANDARDS	CONDUCTIVITY
Sampling Kit w/Vial and Swab													100		
Specififfity Sets					91	92									
Service Kits					91										
Swabs													100		
Swabbing Templates													100		
System Suitability Kits	88	89	90	90	91	92	93	94	98	98	98				

T	ANATEL PAT700	ANATEL A643	ANATEL TOC600	ANATEL A-1000	SIEVERS 900, 5310 C, M9, M5310 C	SIEVERS 500	ANALYTIK JENA	OI ANALYTICAL	SWAN	LIGHTHOUSE	MEMBRAPURE	CONSUMABLES	CLEANING VALIDATION	REFERENCE STANDARDS	CONDUCTIVITY
Tubing					91	92						99		101	

U	ANATEL PAT700	ANATEL A643	ANATEL TOC600	ANATEL A-1000	SIEVERS 900, 5310 C, M9, M5310 C	SIEVERS 500	ANALYTIK JENA	OI ANALYTICAL	SWAN	LIGHTHOUSE	MEMBRAPURE	CONSUMABLES	CLEANING VALIDATION	REFERENCE STANDARDS	CONDUCTIVITY
Ultra Low CRM Kits								94							
UV Lamps	88	89	90		91	92						99			

V	ANATEL PAT700	ANATEL A643	ANATEL TOC600	ANATEL A-1000	SIEVERS 900, 5310 C, M9, M5310 C	SIEVERS 500	ANALYTIK JENA	OI ANALYTICAL	SWAN	LIGHTHOUSE	MEMBRAPURE	CONSUMABLES	CLEANING VALIDATION	REFERENCE STANDARDS	CONDUCTIVITY
Validation Kits	88	89	90		91	92		94							
Vials	88	89			91	92						99			

A - C

A	4-AAP	4 - Aminoantipyrene
	A2LA	American Association for Laboratory Accreditation
	AE	Air & emissions
B	BCH	Benzene hexachloride
	BOD	Biochemical oxygen demand
	BTEX	Benzene, toluene, ethylbenzene, and xylenes
C	CALA	Canadian Association for Laboratory Accreditation
	CFU	Colony-forming unit
	CLP	Contract laboratory program
	COD	Chemical oxygen demand
	CofA	Certificate of analysis
	CRDL	Contract required detection limit
	CRM	Certified reference material
	CVAFS	Cold vapor atomic fluorescence spectroscopy
	CVAA	Cold vapor atomic absorption
	CWA	Clean Water Act

D - F

D	DBCP	Dibromochloropropane
	DI	Deionized
E	EDB	Ethylene dibromide also known as 1,2-Dibromoethane
	EDD	Electronic data deliverable
	ELAP	Environmental Laboratory Accreditation Program
	EPA	Environmental Protection Agency
	EPTIS	European Proficiency Testing Information System
	ERA	Environmental Resource Associates
F	FAQ	Frequently asked question
	FID	Flame ionization detector
	FoPT	Field of Proficiency Testing

G - I

G	GC	Gas chromatography
H	HCH	Hexachlorocyclohexane
	HEM	Hexane extractable material
	HMX	Nitroamine high explosive
	HPC	Heterotrophic plate count
	HPLC	High performance liquid chromatography
I	IC	Ion chromatography
	ICP	Inductively coupled plasma
	IR	Infrared
	ISE	Ion selective electrode
	ISO	International Organization for Standardization

L - N

L	LAS	Linear alkylbenzene sulphonates
	LIMS	Laboratory information management system
M	MBAS	Methylene blue active substances
	MCPA	2-methyl-4-chlorophenoxyacetic acid
	MCPP	Mecoprop (chlorophenoxy herbicide)
	MEK	Methyl ethyl ketone
	MF	Membrane filtration
	mg	Milligrams
	mg/dscm	Milligrams per dry standard cubic meter
	MIBK	Methyl isobutyl ketone
	MOE	Ministry of the Environment (Ontario)
	MPN	Most probable number
	MRAD	Multi-media radiochemistry
	MTBE	Methyl tert-butyl ether
N	NELAC	National Environmental Laboratory Accreditation Conference
	NELAP	National Environmental Laboratory Accreditation Program
	NIST	National Institute of Standards and Technology (U.S.)
	NPDES	National Pollutant Discharge Elimination System
	NQA	National Quality Assurance
	NTU	Nephelometric turbidity unit

O - Q

O	OES	Optical emission spectrometry
P	PAH	Polycyclic aromatic hydrocarbons
	PC units	Platinum-cobalt
	PCB	Polychlorinated biphenyls
	pci/kg	Picocuries per kilogram
	PE	Performance evaluation
	pg	Picogram
	PT	Proficiency test(ing)
	PUF	Polyurethane foam
Q	QC	Quality control
	QR	QuiK Response

R - T

R	RCRA	Resource Conservation and Recovery Act
	RDX	Research department explosive (an explosive nitroamine)
	RM	Reference material
	RTU	Ready-to-use
S	SCC	Standards Council of Canada
	SDWA	Safe Drinking Water Act
	SGTheM	Silica gel treated hexane extractable materials
	SI unit	International System of units
	SPE	Solid-phase extraction
	SU	Standard units
T	TCDD	Tetrachlorodibenzo-p-dioxin
	TCLP	Toxicity characteristic leaching procedure
	TCP	Trichloropropane
	TKN	Total Kjeldahl (kel'dahl) Nitrogen
	TNI	The NELAC Institute
	TOC	Total organic carbon
	TOX	Total organic halides
	TPH	Total petroleum hydrocarbons
	TSS	Total suspended solids

U - Z

U	UCMR	Unregulated contaminant monitoring rule
	UKAS	United Kingdom Accreditation Service
	µmhos	Micromhos (measure of electrical conductivity of a solution)
	UPLC	Ultra performance liquid chromatography
V	VOA	Volatile organic analysis
	VOC	Volatile organic compounds
W	WP	Water pollution
	WS	Water supply
	WWTP	Wastewater treatment plant
Z	Z-score	Statistical measurement of a score's relationship to the mean in a group of scores

Notes

Notes

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