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# IT'S THE STANDARD

Environmental Proficiency Testing and Reference Materials



**2011** Global

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## HOW TO USE THIS CATALOG

As an introduction, this example is intended as a general guide for catalog use; should you have questions however, please contact ERA customer service for assistance. Using Nitrite as our example:

<p><b>CRM</b></p> <p>To order a certified reference material for Nitrite, the catalog number would be 770.</p>	<p><b>PT Standard</b></p> <p>To order a Nitrite sample for proficiency testing requirements, the catalog number would be 888.</p>	<p><b>Frequency</b></p> <p>All ERA PT programs are available monthly or quarterly unless otherwise noted.</p> <p><b>M</b> Opens Monthly <b>Q</b> Opens Quarterly</p>	<p><b>QR Standard</b></p> <p>In the unfortunate event you should receive an “unacceptable result” for your Nitrite evaluation, you can order a QuiK™ Response make-up test. That sample would be 770QR in this example. Call for QR pricing.</p>
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<b>Nitrite</b>		
CRM	PT <b>M</b>	QR
Cat. #770	Cat. #888	Cat. #770QR
One 15 mL screw-top vial yields up to 2 liters after dilution.		
Nitrite as N.....0.4-4 mg/L		

**Additional Levels**

Additional Level PTs allow you to meet specific regulatory or internal quality assurance requirements. If you need 2, 3, 4 or more levels of any PT sample in a study, please contact your sales representative.

Additional levels (AL) are available for most products - see cross reference sections.

# Water Pollution



## QUICK REFERENCE GUIDE

Description	CRM	PT	QR	Page
Acidity	915	885	915QR	10
Acids	712	834	712QR	13
Boron	919	886	919QR	10
Base/Neutrals	711	833	711QR	13
Bromide	769	887	769QR	10
BTEX & MTBE	760	643	760QR	12
Carbamate Pesticides	908	899	908QR	14
Chlordane	716	837	716QR	14
Chlorinated Acid Herbicides	718	829	718QR	12
Color	070	882	070QR	9
Complex Nutrients	525	579	525QR	6
Cyanide & Phenol	502	588	502QR	9
Demand	516	578	516QR	7
Diesel Range Organics	764	641	764QR	13
Gasoline Range Organics	762	640	762QR	12
Hardness	507	580	507QR	6
HEM/SGT-HEM	519	489	519QR	7
Hexavalent Chromium	984	898	984QR	8
Lithium	4992	4990	4992QR	8
Low-Level Mercury	931	896	931QR	8
Low-Level Nitroaromatics & Nitramines	677	932	677QR	13
Low-Level PAHs	715	836	715QR	13
Low-Level TRC	917	881	917QR	10
Mercury	514	574	514QR	8
Minerals	506	581	506QR	6
Nitrite	770	888	770QR	6
Nitrogen Pesticides	674	487	674QR	14
Oil & Grease	see page 7 for options			
Organochlorine Pesticides	713	831	713QR	14
Organophosphorous Pesticides	665	934	665QR	14
PAHs-GC/GCMS	4882	4880	4882QR	13
PCBs in Oil	729S	835S	729SQR	12
PCBs in Water	734S	832S	734SQR	12
pH	977	577	977QR	6
QC Plus	see pages 15-16 for options			
Ready-to-Use Wastewater	see page 13 for options			
Settleable Solids	911	883	911QR	6
Silica	775	890	775QR	9

Description	CRM	PT	QR	Page
Simple Nutrients	505	584	505QR	6
Solids	499	241	499QR	6
Solids Concentrate	4032	4030	4032QR	6
Surfactants - MBAS	776	892	776QR	9
Sulfide	071	891	071QR	9
Tin & Titanium	517	573	517QR	8
Total Organic Halides (TOX)	670	895	670QR	9
Total Phenolics	515	589	515QR	9
Total Residual Chlorine (TRC)	501	587	501QR	10
Toxaphene	717	838	717QR	14
TPH in Water	600/601	642	602QR	7
Trace Metals	500	586	500QR	8
Turbidity	777	893	777QR	9
Uranium	4402	4400	4402QR	8
Volatile Aromatics	4452	4450	4452QR	12
Volatiles	710	830	710QR	12
Volatile Solids	913	884	913QR	6

WP	2011 Water Pollution PT Study Schedule		
	Study #	Study Opens	Study Closes
	WP-192	January 17	March 3
	WP-193	February 14	March 31
	WP-194	March 14	April 28
	WP-195	April 11	May 26
	WP-196	May 16	June 30
	WP-197	June 13	July 28
	WP-198	July 11	August 25
	WP-199	August 15	September 29
	WP-200	September 12	October 27
	WP-201	October 14	November 28
	WP-202	November 14	December 29
	WP-203	December 12	January 26, 2012

The four quarterly months are shown in red. Schedule subject to change - see ERA's web site at [www.eraqc.com](http://www.eraqc.com).

**AL** Additional Level PTs available

**MINERALS/SOLIDS**

Minerals		
CRM	PT <b>M</b>	QR
Cat. #506	Cat. #581	Cat. #506QR

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

Total alkalinity as CaCO <sub>3</sub> .....	10-120 mg/L
Chloride.....	35-275 mg/L
Fluoride.....	0.3-4 mg/L
Potassium.....	4-40 mg/L
Sodium.....	6-100 mg/L
Specific conductance at 25 °C.....	200-930 µmhos/cm
Sulfate.....	5-125 mg/L
Total dissolved solids at 180 °C.....	140-650 mg/L
Total solids at 105 °C.....	140-675 mg/L

Hardness		
CRM	PT <b>M</b>	QR
Cat. #507	Cat. #580	Cat. #507QR

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

Calcium.....	3.5-110 mg/L
Calcium hardness as CaCO <sub>3</sub> .....	8.7-275 mg/L
Total hardness as CaCO <sub>3</sub> .....	17-440 mg/L
Magnesium.....	2-40 mg/L
Non-filterable residue (TSS).....	23-100 mg/L

pH		
CRM	PT <b>M</b>	QR
Cat. #977	Cat. #577	Cat. #977QR

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

pH.....	5-10 units
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Settleable Solids		
CRM	PT <b>M</b>	QR
Cat. #911	Cat. #883	Cat. #911QR

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

Settleable solids.....	5-100 mL/L
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Volatile Solids		
CRM	PT <b>M</b>	QR
Cat. #913	Cat. #884	Cat. #913QR

One 12 mL screw-top vial with a solid yields 1 liter after dilution. Use with EPA method 160.4 and Standard Methods 2540E.

Volatile solids.....	100-500 mg/L
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Solids Concentrate		
CRM	PT <b>M</b>	QR
Cat. #4032	Cat. #4030	Cat. #4032QR

Provided as one sample in 23 mL glass screw-top vial yielding 1 liter of solution.

Total solids at 105 °C.....	140-675 mg/L
Total dissolved solids at 180 °C.....	140-650 mg/L
Non-filterable residue (TSS).....	23-100 mg/L

Solids		
CRM	PT <b>M</b>	QR
Cat. #499	Cat. #241	Cat. #499QR

One 500 mL whole-volume bottle is ready to analyze. The CRM is also certified for pH. For a pH PT, order Cat. #577.

Total solids at 105 °C.....	140-675 mg/L
Total dissolved solids at 180 °C.....	140-650 mg/L
Non-filterable residue (TSS).....	23-100 mg/L

**NUTRIENTS**

Simple Nutrients		
CRM	PT <b>M</b>	QR
Cat. #505	Cat. #584	Cat. #505QR

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

Ammonia as N.....	0.65-19 mg/L
Nitrate as N.....	0.25-40 mg/L
Nitrate plus nitrite as N.....	0.25-40 mg/L
ortho-Phosphate as P.....	0.5-5.5 mg/L

Complex Nutrients		
CRM	PT <b>M</b>	QR
Cat. #525	Cat. #579	Cat. #525QR

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

Total Kjeldahl-nitrogen as N.....	1.5-35 mg/L
Total phosphorus as P.....	0.5-10 mg/L

Nitrite		
CRM	PT <b>M</b>	QR
Cat. #770	Cat. #888	Cat. #770QR

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

Nitrite as N.....	0.4-4 mg/L
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**M** **Q** All ERA WPPTs open monthly or quarterly unless otherwise noted.

**OIL & GREASE/TPH**

When ordering Oil and Grease or TPH PTs, please specify if you need a sample compatible with SPE.

Oil & Grease		
CRM	PT	QR
Cat. #504		

One 250 mL whole-volume bottle is ready to analyze. Use with EPA method 1664. Certified values are provided for IR and gravimetric methods.

Oil & Grease ..... 20-100 mg/bottle

Oil & Grease Concentrate		
CRM	PT	QR
Cat. #4122	Cat. #4120	Cat. #4122QR

One 23 mL screw-cap vial yields up to 2 liters after dilution. Use with EPA method 1664.

Oil & Grease ..... 20-100 mg/L

1 liter Oil & Grease		
CRM	PT	QR
Cat. #518	Cat. #582	Cat. #518QR

One liter whole-volume glass bottle with a 33-430 thread is ready to analyze. Use with EPA method 1664.

Oil & Grease ..... 20-100 mg/L

1 liter Boston Round Oil & Grease		
CRM	PT	QR
Cat. #818	Cat. #582	Cat. #818QR

One liter whole-volume bottle is ready to analyze. Designed for SPE equipment with Boston Round glass bottles with a 33-400 thread. Use with EPA method 1664.

Oil & Grease ..... 20-100 mg/L

HEM / SGT-HEM		
CRM	PT	QR
Cat. #519	Cat. #489	Cat. #519QR

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

HEM ..... 5-100 mg/L  
SGT-HEM ..... 5-100 mg/L

Total Petroleum Hydrocarbons (TPH) in Water #1		
CRM	PT	QR
Cat. #600	Cat. #642	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 and 5520.

Total Petroleum Hydrocarbons ..... 20-170 mg/L

Total Petroleum Hydrocarbons (TPH) in Water #2		
CRM	PT	QR
Cat. #601	Cat. #642	Cat. #602QR

One liter whole-volume bottle is ready to analyze for total petroleum hydrocarbons in the presence of interfering fatty acids. Use with EPA methods 418.1, 1664 and 5520.

Total Petroleum Hydrocarbons ..... 20-170 mg/L

**DEMAND**

Demand		
CRM	PT	QR
Cat. #516	Cat. #578	Cat. #516QR

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

5-day BOD ..... 15-250 mg/L  
Carbonaceous BOD ..... 15-250 mg/L  
COD ..... 30-250 mg/L  
TOC ..... 6-100 mg/L



From Left to Right:  
**Graham Roscoe**,  
Managing Director,  
ERA - United Kingdom  
**Sylvia Lowe**,  
International Customer  
Service Representative

**TRACE METALS**

**Trace Metals**

CRM	PT <b>M</b>	QR
Cat. #500	Cat. #586	Cat. #500QR

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

Aluminum.....	200-4,000 µg/L
Antimony.....	95-900 µg/L
Arsenic.....	70-900 µg/L
Barium.....	100-2,500 µg/L
Beryllium.....	8-900 µg/L
Boron.....	800-2,000 µg/L
Cadmium.....	8-750 µg/L
Chromium.....	17-1,000 µg/L
Cobalt.....	28-1,000 µg/L
Copper.....	40-900 µg/L
Iron.....	200-4,000 µg/L
Lead.....	70-3,000 µg/L
Manganese.....	70-4,000 µg/L
Molybdenum.....	60-600 µg/L
Nickel.....	80-3,000 µg/L
Selenium.....	90-2,000 µg/L
Silver.....	26-600 µg/L
Strontium.....	30-300 µg/L
Thallium.....	60-900 µg/L
Vanadium.....	55-2,000 µg/L
Zinc.....	100-2,000 µg/L



**Mercury**

CRM	PT <b>M</b>	QR
Cat. #514	Cat. #574	Cat. #514QR

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

Mercury, total.....	2-30 µg/L
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**Low-Level Mercury**

CRM	PT <b>Q</b>	QR
Cat. #931	Cat. #896	Cat. #931QR

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

Mercury, total.....	20-100 ng/L
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**Hexavalent Chromium**

CRM	PT <b>M</b>	QR
Cat. #984	Cat. #898	Cat. #984QR

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

Hexavalent chromium.....	45-880 µg/L
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**Tin and Titanium**

CRM	PT <b>M</b>	QR
Cat. #517	Cat. #573	Cat. #517QR

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

Tin.....	1,000-5,000 µg/L
Titanium.....	80-300 µg/L

**Uranium**

CRM	PT <b>M</b>	QR
Cat. #4402	Cat. #4400	Cat. #4402QR

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

Uranium.....	25-200 µg/L
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**Lithium**

CRM	PT*	QR
Cat. #4992	Cat. #4990	Cat. #4992QR

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

Lithium.....	50-500 µg/L
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\*ERA WP Lithium PTs open in February and August.

**PHYSICAL PROPERTY**

Color		
CRM	PT <b>Q</b>	QR
Cat. #070	Cat. #882	Cat. #070QR

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

Color.....10-75 PC units

Turbidity		
CRM	PT <b>M</b>	QR
Cat. #777	Cat. #893	Cat. #777QR

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

Turbidity..... 1-20 NTU

**MISCELLANEOUS CHEMISTRY**

Cyanide & Phenol		
CRM	PT <b>M</b>	QR
Cat. #502	Cat. #588	Cat. #502QR

One 15 mL screw-cap vial yields up to 2 liters after dilution. Analyze for total cyanide using distillation followed by colorimetric, titrimetric or ISE methods. The CRM is also certified for Total Phenolics at 0.06-5 mg/L. For a Total Phenolics PT, order Cat. #589.

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

Total Organic Halides (TOX)		
CRM	PT <b>Q</b>	QR
Cat. #670	Cat. #895	Cat. #670QR

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

TOX..... 300-1,500 µg/L

Total Phenolics (4-AAP)		
CRM	PT <b>M</b>	QR
Cat. #515	Cat. #589	Cat. #515QR

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

Total phenolics by 4-AAP ..... 0.06-5 mg/L

Silica		
CRM	PT <b>Q</b>	QR
Cat. #775	Cat. #890	Cat. #775QR

One 60 mL poly bottle yields up to 1 liter after dilution. Analyze for silica as SiO<sub>2</sub> with colorimetric or ICP methods.

Silica as SiO<sub>2</sub> .....50-250 mg/L

Sulfide		
CRM	PT <b>M</b>	QR
Cat. #071	Cat. #891	Cat. #071QR

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

Sulfide ..... 1-10 mg/L

Surfactants-MBAS		
CRM	PT <b>Q</b>	QR
Cat. #776	Cat. #892	Cat. #776QR

One 10 mL flame-sealed ampule yields up to 2 liters after dilution. Analyze for Surfactants-MBAS with EPA method 425.1.

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



MISCELLANEOUS CHEMISTRY

**Acidity**

CRM	PT <b>Q</b>	QR
Cat. #915	Cat. #885	Cat. #915QR

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

Acidity as CaCO<sub>3</sub>.....650-1,800 mg/L

**Boron**

CRM	PT <b>Q</b>	QR
Cat. #919	Cat. #886	Cat. #919QR

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

Boron.....800-2000 µg/L

**Bromide**

CRM	PT <b>Q</b>	QR
Cat. #769	Cat. #887	Cat. #769QR

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

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

**Total Residual Chlorine**

CRM	PT <b>M</b>	QR
Cat. #501	Cat. #587	Cat. #501QR

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

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

**Low-Level Total Residual Chlorine**

CRM	PT <b>Q</b>	QR
Cat. #917	Cat. #881	Cat. #917QR

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

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



**READY-TO-USE CRMs**

The following whole-volume standards are ready to use as provided and require no dilution before analysis. These standards are guaranteed stable for a minimum of one month after receipt at your facility.

**Minerals**  
CRM  
Cat. #506

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

Total alkalinity as CaCO <sub>3</sub> .....	10-120 mg/L
Chloride.....	35-275 mg/L
Fluoride.....	0.3-4 mg/L
Potassium.....	4-40 mg/L
Sodium.....	6-100 mg/L
Specific conductance at 25 °C.....	200-930 µmhos/cm
Sulfate.....	5-125 mg/L
Total dissolved solids at 180 °C.....	140-650 mg/L
Total solids at 105 °C.....	140-675 mg/L

**Hardness**  
CRM  
Cat. #507

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

Calcium.....	3.5-110 mg/L
Calcium hardness as CaCO <sub>3</sub> .....	8.7-275 mg/L
Total hardness as CaCO <sub>3</sub> .....	17-440 mg/L
Magnesium.....	2-40 mg/L
Non-filterable residue (TSS).....	23-100 mg/L

**pH**  
CRM  
Cat. #977

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

pH.....	5-10 units
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**Oil & Grease**  
CRM  
Cat. #504

One 250 mL whole-volume bottle is ready to analyze. Use with EPA hexane extraction method 1664. Certified values are provided for IR and gravimetric methods. For additional Oil & Grease CRMs see page 7.

Oil & Grease.....	20-100 mg/bottle
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**Solids**  
CRM  
Cat. #499

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

Total solids at 105 °C.....	140-675 mg/L
Total dissolved solids at 180 °C.....	140-650 mg/L
Non-filterable residue (TSS).....	23-100 mg/L
pH.....	5-10 units

**Trace Metals**  
CRM  
Cat. #740

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

Aluminum.....	200-4,000 µg/L
Antimony.....	95-900 µg/L
Arsenic.....	70-900 µg/L
Barium.....	100-2,500 µg/L
Beryllium.....	8-900 µg/L
Boron.....	800-2,000 µg/L
Cadmium.....	8-750 µg/L
Chromium.....	17-1,000 µg/L
Cobalt.....	28-1,000 µg/L
Copper.....	40-900 µg/L
Iron.....	200-4,000 µg/L
Lead.....	70-3,000 µg/L
Manganese.....	70-4,000 µg/L
Molybdenum.....	60-600 µg/L
Nickel.....	80-3,000 µg/L
Selenium.....	90-2,000 µg/L
Silver.....	26-600 µg/L
Strontium.....	30-300 µg/L
Thallium.....	60-900 µg/L
Vanadium.....	55-2,000 µg/L
Zinc.....	100-2,000 µg/L

**Demand**  
CRM  
Cat. #743

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

5-day BOD.....	15-250 mg/L
Carbonaceous BOD.....	15-250 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.....	0.65-19 mg/L
Nitrate as N.....	0.25-40 mg/L
Nitrate plus nitrite as N.....	0.25-40 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.....	1.5-35 mg/L
Total phosphorus as P.....	0.5-10 mg/L

## VOLATILES

Volatiles		
CRM	PT <b>M</b>	QR
Cat. #710	Cat. #830	Cat. #710QR

One 2 mL flame-sealed ampule yields in excess of 200 mL after dilution. Use with EPA methods 601, 602, 8021, 624 and 8260. Contains at least 60% of the EPA/NELAC analytes in the required range 5-300 µg/L and a percentage of the additional analytes, all randomly selected from the list below.

Acetone	1,2-Dibromoethane (EDB)	Methyl tert-butyl ether (MTBE)
Acetonitrile	Dibromomethane	4-Methyl-2-pentanone (MIBK)
Acrylonitrile	1,2-Dichlorobenzene	Naphthalene
Acrolein	1,3-Dichlorobenzene	Styrene
Benzene	1,4-Dichlorobenzene	1,1,1,2-Tetrachloroethane
Bromodichloromethane	Dichlorodifluoromethane	1,1,2,2-Tetrachloroethane
Bromoform	1,1-Dichloroethane	Tetrachloroethene
Bromomethane	1,2-Dichloroethane	Toluene
2-Butanone (MEK)	1,1-Dichloroethene	1,2,4-Trichlorobenzene
Carbon disulfide	cis-1,2-Dichloroethene	1,1,1-Trichloroethane
Carbon tetrachloride	trans-1,2-Dichloroethene	1,1,2-Trichloroethane
Chlorobenzene	1,2-Dichloropropane	Trichloroethene
Chlorodibromomethane	cis-1,3-Dichloropropene	Trichlorofluoromethane
Chloroethane	trans-1,3-Dichloropropene	1,2,3-Trichloropropane
2-Chloroethyl vinyl ether	Ethylbenzene	Vinyl acetate
Chloroform	Hexachlorobutadiene	Vinyl chloride
Chloromethane	2-Hexanone	Xylenes, total
1,2-Dibromo-3-chloropropane (DBCP)	Methylene chloride	

### Volatiles Aromatics

CRM	PT <b>Q</b>	QR
Cat. #4452	Cat. #4450	Cat. #4452QR

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

1,2-Dichlorobenzene	Benzene	Toluene
1,3-Dichlorobenzene	Ethylbenzene	Total Xylenes
1,4-Dichlorobenzene		

### BTEX & MTBE in Water

CRM	PT <b>Q</b>	QR
Cat. #760	Cat. #643	Cat. #760QR

One 2 mL flame-sealed ampule yields in excess of 200 mL after dilution. Use with EPA methods 602 and 8021. Includes all BTEX compounds and MTBE in the EPA/NELAC required range 7-300 µg/L after dilution.

### Gasoline Range Organics (GRO) in Water

CRM	PT <b>Q</b>	QR
Cat. #762	Cat. #640	Cat. #762QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with both purge & trap and modified EPA 8015 GC/FID methods to test for GRO in the EPA/NELAC required range 200-4,000 µg/L. Also use to test for BTEX in gasoline.

## HERBICIDES

### Chlorinated Acid Herbicides

CRM	PT <b>M</b>	QR
Cat. #718	Cat. #829	Cat. #718QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA methods 615 and 8151. Contains all of the EPA/NELAC analytes in the required range 2-10 µg/L (except MCPA and MCPP at 10-100 µg/L) and a percentage of the additional analytes, all randomly selected from the list below.

*Note: 4-nitrophenol and pentachlorophenol are not within the EPA/NELAC range. Use the Acids standard (pg. 15) for these compounds in the EPA/NELAC range.*

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

## PCBs

### PCBs in Water

CRM	PT <b>M</b>	QR
Cat. #734S	Cat. #832S	Cat. #734SQR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA methods 608 and 8082. Contains a different Aroclor, randomly selected from the list below, in the EPA/NELAC required range 1-15 µg/L.

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

### PCBs in Oil

CRM	PT <b>M</b>	QR
Cat. #729S	Cat. #835S	Cat. #729SQR

One 10 mL flame-sealed ampule is ready to analyze. Use with EPA method 8082. Contains a different Aroclor, randomly selected from the NELAC list, in the EPA/NELAC required range 12-50 mg/kg.

Aroclor 1016	Aroclor 1254	Aroclor 1260
Aroclor 1242		

**M** **Q** All ERA WPPTs open monthly or quarterly unless otherwise noted.

**SEMIVOLATILES**

**Base/Neutrals**

CRM	PT <b>M</b>	QR
Cat. #711	Cat. #833	Cat. #711QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA methods 625 and 8270. Contains at least 60% of the EPA/NELAC analytes in the required range 10-225 µg/L (except Benzidine at 200-1,000 µg/L) and a percentage of the additional analytes, all randomly selected from the list below.

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

**Acids**

CRM	PT <b>M</b>	QR
Cat. #712	Cat. #834	Cat. #712QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA methods 604, 625, 8041 and 8270. Contains at least 80% of the EPA/NELAC analytes in the required range 30-200 µg/L and a percentage of the additional analytes, all randomly selected from the list below.

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

**Diesel Range Organics (DRO) in Water**

CRM	PT <b>Q</b>	QR
Cat. #764	Cat. #641	Cat. #764QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with modified EPA 8015 GC/FID methods. Includes #2 Diesel in the EPA/NELAC required range 500-4,000 µg/L.

**Low-Level Nitroaromatics & Nitramines**

CRM	PT <b>Q</b>	QR
Cat. #677	Cat. #932	Cat. #677QR

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

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

**Low-Level PAHs**

CRM	PT <b>Q</b>	QR
Cat. #715	Cat. #836	Cat. #715QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA HPLC methods 610 and 8310 and GC/MS method 8270 SIM. Contains at least 80% of the EPA/NELAC analytes, randomly selected from the list below, in the required range 0.3-10 µg/L.

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

**PAHs - GC/GCMS**

CRM	PT <b>Q</b>	QR
Cat. #4882	Cat. #4880	Cat. #4882QR

One 2 mL flame sealed ampule yields up to 2 liters after dilution. Use with EPA methods 625, 8100 and 8270. Each standard contains at least 80% of the EPA/NELAC analytes, randomly selected from the list provided, in the required range 10-200 µg/L.

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

**PESTICIDES**

**Organochlorine Pesticides**

CRM	PT <b>M</b>	QR
Cat. #713	Cat. #831	Cat. #713QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA methods 608 and 8081. Contains at least 80% of the EPA/NELAC analytes, randomly selected from the list below, in the required range 0.5-20 µg/L.

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

**Chlordane**

CRM	PT <b>M</b>	QR
Cat. #716	Cat. #837	Cat. #716QR

One 2 mL flame-sealed ampule yields up to 2 liters of sample after dilution. Use with EPA methods 608 and 8081. Contains technical chlordane in the EPA/NELAC required range 3-25 µg/L.

**Toxaphene**

CRM	PT <b>M</b>	QR
Cat. #717	Cat. #838	Cat. #717QR

One 2 mL flame-sealed ampule yields up to 2 liters of sample after dilution. Use with EPA methods 608 and 8081. Contains toxaphene in the EPA/NELAC required range 20-100 µg/L.

**Carbamate Pesticides**

CRM	PT <b>Q</b>	QR
Cat. #908	Cat. #899	Cat. #908QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA method 632. Contains a random selection of analytes from the list below in the required range 5-200 µg/L.

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

**Nitrogen Pesticides**

CRM	PT <b>Q</b>	QR
Cat. #674	Cat. #487	Cat. #674QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA methods 619, 633, 8141 and 8270 for pesticides at 2-20 µg/L. Contains a random selection of analytes from the list below.

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

**Organophosphorus Pesticides (OPP)**

CRM	PT <b>Q</b>	QR
Cat. #665	Cat. #934	Cat. #665QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA methods 614, 622 and 8141. Contains all of the EPA/NELAC analytes in the required range 2-20 µg/L and a percentage of the additional analytes all randomly selected from the list below.

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



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

Each sample level is designed for wastewater and industrial analysis. These QC samples 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**

**QC**  
Cat. #4013

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

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**

**QC**  
Cat. #4183

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

Chromium, Hexavalent .....	100-1000 µg/L
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**QC Plus - Minerals**

**QC**  
Cat. #4053

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

Alkalinity as CaCO <sub>3</sub> .....	10.0-300 mg/L
Calcium .....	5.00-150 mg/L
Calcium Hardness as CaCO <sub>3</sub> .....	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 <sub>3</sub> .....	15.0-600 mg/L

**QC Plus - Nutrients**

**QC**  
Cat. #4023

Two 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
Orthophosphate 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**

**QC**  
Cat. #4123

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

Oil & Grease.....	10.0-100 mg/L
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**QC Plus - pH**

**QC**  
Cat. #4063

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

pH.....	2.00-12.0 Units
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**QC Plus - Fluoride**

**QC**  
Cat. #4423

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

Fluoride.....	5-20 mg/L
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**QC Plus - Solids**

**QC**  
Cat. #4033

One screw-cap vial yields 1 liter after dilution.

Total Dissolved Solids at 180 °C.....	500-2000 mg/L
Total Solids.....	600-2500 mg/L
Total Suspended Solids .....	100-500 mg/L

**QC Plus - Total Cyanide**

**QC**  
Cat. #4093

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

Total Cyanide .....	1.00-5.00 mg/L
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**QC Plus - Total Phenolics**

**QC**  
Cat. #4083

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

Total Phenolics (4-AAP).....	0.0500-0.500 mg/L
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**QC Plus - Total Residual Chlorine**

**QC**  
Cat. #4103

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

Total Residual Chlorine.....	0.100-1.00 mg/L
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**QC Plus - Trace Metals**

**QC**  
Cat. #4073

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

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



**From Left to Right:**

**Curtis Wood,**  
Senior Market Manager,  
Environmental

**Melissa Neu,**  
Marketing Communications  
Specialist

**Shawn Kassner,**  
Senior Product Specialist

# CUSTOM MADE

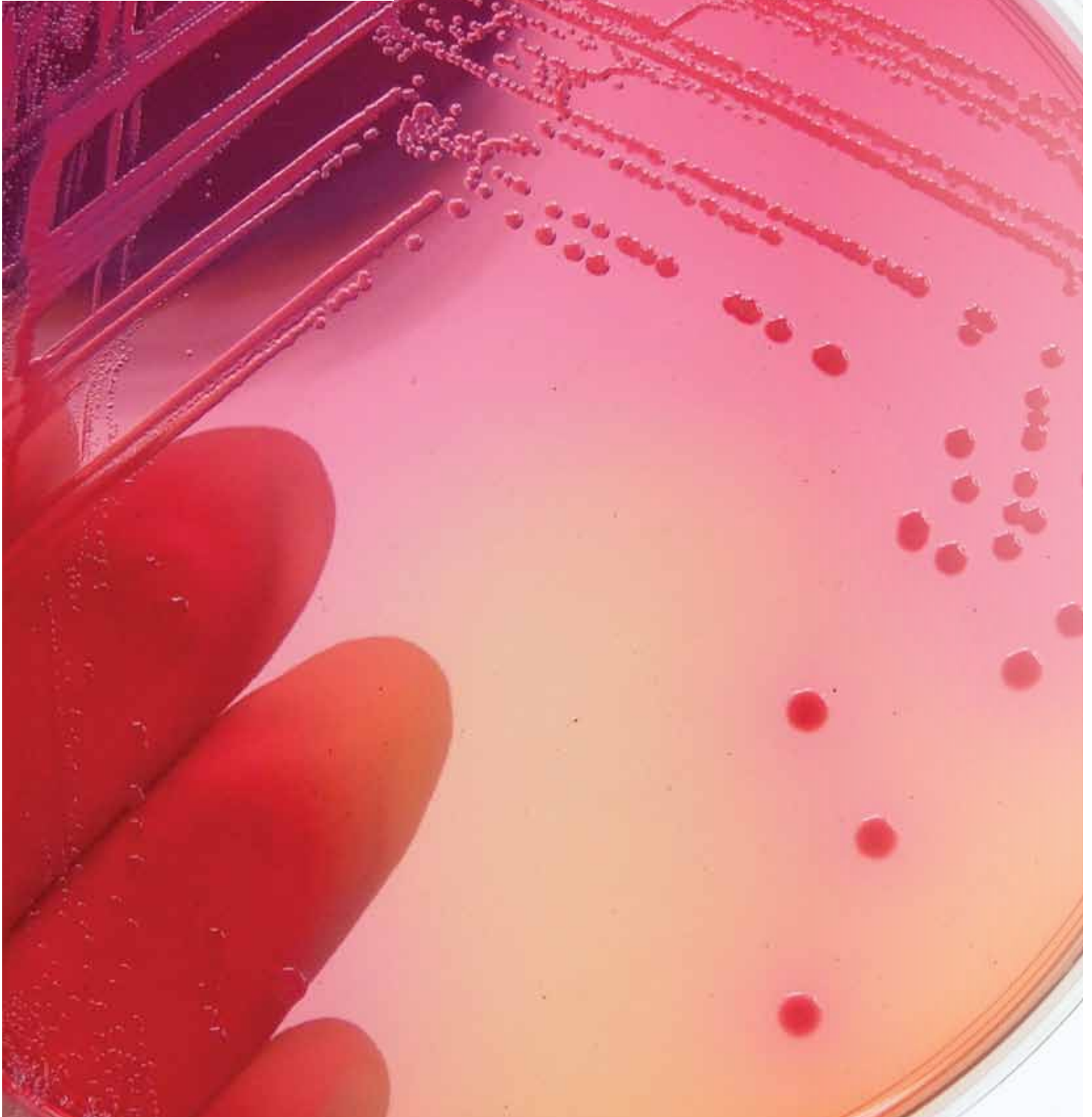
ERA has a staff of chemists focused entirely on meeting your custom standards needs. Our scientists prepare over 1000 custom projects each year covering a vast range of analytes, concentrations and matrices. From calibration standards to quality control materials to matrix spikes, we are ready to prepare the solution you need to give you confidence in your critical applications.



Whether you are a lab user and want to evaluate every aspect of their performance or you just want to know what customers experience when working with your lab, ERA's double blind PT service is made for you. Based on your specifications, we will design a program that gives you exactly the level of detail you need about the performance of any laboratory.



# Microbiology



## QUICK REFERENCE GUIDE

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Enterococci	081	880	787QR	20
Massachusetts Ground Water Enterococci	081	077		20
Waste Water Coliforms	083	576	786QR	20

Description	CRM	PT	QR	Page
Heterotrophic Plate Count	084	079	084QR	21
Potable Water Coliform MicrobE™	694	080	085QR	21
Source Water Microbe	078	595	078QR	21

**AL**

**Additional Level PTs available**



**WP MICROBIOLOGY**

**Waste Water Coliform MicroBE™**

<b>CRM</b> Cat. #083	<b>PT <span style="border: 1px solid black; padding: 0 2px;">M</span></b> Cat. #576	<b>QR</b> Cat. #786QR
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Each PT sample is one lyophilized quantitative standard for use with all Clean Water Act quantitative methods, including MF and MPN.  
*Note: CRM also includes one negative sample. Each standard can be used for Total Coliform, Fecal Coliform and E. coli which are present in the range 20-2,400 CFU/100 mL or MPN/100 mL.*

**Enterococci**

<b>CRM</b> Cat. #081	<b>PT <span style="border: 1px solid black; padding: 0 2px;">M</span></b> Cat. #880	<b>QR</b> Cat. #787QR
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Each PT sample is one lyophilized standard, which can be analyzed for Enterococci and/or Fecal Streptococci, MF or MPN in the range 20-1,000 CFU/100 mL or MPN/100 mL.  
*Note: CRM also includes one negative sample. Use with EPA methods 1106.1 and 1600, ASTM methods D5259-92, D6503-99 and Standard Methods 9230B and 9230C and Enterolert Quantitray.*

**STATE-SPECIFIC MICROBIOLOGY**

**Massachusetts Ground Water Enterococci**

<b>CRM</b> Cat. #081	<b>PT*</b> Cat. #077
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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 2 lyophilized samples- one quantitative positive and one negative.

\*Massachusetts Ground Water Enterococci PT is available any time.

WP	2011 Water Pollution PT Study Schedule	
Study #	Study Opens	Study Closes
WP-192	January 17	March 3
WP-193	February 14	March 31
WP-194	March 14	April 28
WP-195	April 11	May 26
WP-196	May 16	June 30
WP-197	June 13	July 28
WP-198	July 11	August 25
WP-199	August 15	September 29
WP-200	September 12	October 27
WP-201	October 14	November 28
WP-202	November 14	December 29
WP-203	December 12	January 26, 2012
The four quarterly months are shown in red. Schedule subject to change - see ERA's web site at <a href="http://www.eraqc.com">www.eraqc.com</a> .		



**From Left to Right:**  
**Patrick Yast,**  
 Shipping and Receiving  
**Mike Mendoza,**  
 Shipping and Receiving  
**Stan Dunlavy,**  
 Product Line Manager

M Q All ERA Microbiology PTs open monthly or quarterly unless otherwise noted.

**WS MICROBIOLOGY**

**Potable Water Coliform MicrobE™**

<b>CRM</b> (5 sample set) Cat. #694	<b>PT M</b> (10 sample set) Cat. #080	<b>QR</b> (10 sample set) Cat. #085QR
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Each sample set consists of lyophilized standards for the presence or absence analysis of total, fecal and E. coli coliforms. 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 as well as the six mini-micro 11-day studies.

**Source Water Microbe**

<b>CRM</b> Cat. #078	<b>PT Q</b> Cat. #595	<b>QR</b> Cat. #078QR
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Each sample is one lyophilized quantitative standard containing E. coli in the range 20-200 CFU/100mL or MPN/100mL. Use with all SDWA quantitative methods. Each standard can be used for Total Coliform, Fecal Coliform and E. coli.

**Heterotrophic Plate Count**

<b>CRM</b> Cat. #084	<b>PT M</b> Cat. #079	<b>QR</b> Cat. #084QR
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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).



The Potable Water Coliform MicrobE™ PT standard is available in all 12 monthly WS studies as well as the six mini-micro 11-day studies.

<b>WS</b>	<b>2011 Water Supply PT Study Schedule</b>	
<b>Study #</b>	<b>Study Opens</b>	<b>Study Closes</b>
WS-174	January 10	February 24
WS-175	February 7	March 24
WS-176	March 7	April 21
WS-177	April 4	May 19
WS-178	May 9	June 23
WS-179	June 6	July 21
WS-180	July 5	August 19
WS-181	August 8	September 22
WS-182	September 6	October 21
WS-183	October 7	November 21
WS-184	November 7	December 22
WS-185	December 5	January 19, 2012

The four quarterly months are shown in red. Schedule subject to change - see ERA's web site at [www.eraqc.com](http://www.eraqc.com).

<b>#080</b>	<b>2011 Exclusive WS Coliform PT Study Schedule</b>	
<b>Study #</b>	<b>Study Opens</b>	<b>Study Closes</b>
WS - 530	January 17	January 28
WS - 531	March 14	March 25
WS - 532	May 16	May 27
WS - 533	July 11	July 22
WS - 534	September 12	September 23
WS - 535	November 7	November 18

Schedule subject to change - see ERA's web site at [www.eraqc.com](http://www.eraqc.com).

## Water Supply



## QUICK REFERENCE GUIDE

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Carbamates/ Carbamoxylloxime Pesticides	707	846	707QR	28
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Chlordane	705	845	705QR	28
Chlorinated Acid Herbicides	704	851	704QR	29
Corrosivity	980	900	980QR	26
Cyanide	983	556	983QR	26
Dioxin	663	857	663QR	29
EDB/DBCP/TCP	706	847	706QR	28
Gasoline Additives	909	905	909QR	27
Hardness	693	555	693QR	24
Haloacetic Acids	684	852	684QR	27
Halomethanes (THMs)	702	842	702QR	27
Hexavalent Chromium	658	854	658QR	24
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Inorganic Disinfection #1	5272	5270	5272QR	25
Inorganic Disinfection #2	5262	5260	5262QR	25
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Nitrite	695	594	695QR	25
Organic Carbon	669	557	669QR	26
o-Phosphate Nutrients	667	558	667QR	25
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Perchlorate	910	903	910QR	26
Pesticides	709	850	709QR	28
pH	779	552	779QR	24
Regulated Volatiles	703	840	703QR	27
Residual Chlorine	696	593	696QR	26

Description	CRM	PT	QR	Page
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Surfactants - MBAS	784	901	784QR	26
Toxaphene	700	844	700QR	28
Turbidity	699	592	699QR	26
UCMR 2	see page 30 for options			
Unregulated Volatiles	683	841	683QR	27
Uranium	930	858	930QR	24
UV254 Absorbance	662	904	662QR	26
Vanadium	660	856	660QR	24

WS		2011 Water Supply PT Study Schedule	
Study #	Study Opens	Study Closes	
WS-174	January 10	February 24	
WS-175	February 7	March 24	
WS-176	March 7	April 21	
WS-177	April 4	May 19	
WS-178	May 9	June 23	
WS-179	June 6	July 21	
WS-180	July 5	August 19	
WS-181	August 8	September 22	
WS-182	September 6	October 21	
WS-183	October 7	November 21	
WS-184	November 7	December 22	
WS-185	December 5	January 19, 2012	

The four quarterly months are shown in red. Schedule subject to change - see ERA's web site at [www.eraqc.com](http://www.eraqc.com).

**AL** Additional Level PTs available

**MINERALS/SOLIDS**

Hardness		
CRM	PT <b>M</b>	QR
Cat. #693	Cat. #555	Cat. #693QR

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

Calcium.....	30-90 mg/L
Calcium hardness as CaCO <sub>3</sub> .....	75-375 mg/L
Total hardness as CaCO <sub>3</sub> .....	83-307 mg/L
Magnesium.....	2-20 mg/L
Sodium.....	12-24 mg/L

Inorganics		
CRM	PT <b>M</b>	QR
Cat. #698	Cat. #591	Cat. #698QR

One 500 mL whole-volume bottle is ready to analyze. The CRM is also certified for Sodium. For a Sodium PT, order Hardness, Cat. #555.

Alkalinity as CaCO <sub>3</sub> .....	25-200 mg/L
Chloride.....	5-100 mg/L
Fluoride.....	1-8 mg/L
Nitrate as N.....	3-10 mg/L
Nitrate plus Nitrite as N.....	3.5-9 mg/L
Potassium.....	10-40 mg/L
Specific Conductance at 25 °C.....	250-2,500 µmhos/cm
Sulfate.....	5-500 mg/L
Total filterable residue (TDS) at 180 °C.....	200-450 mg/L

pH		
CRM	PT <b>M</b>	QR
Cat. #779	Cat. #552	Cat. #779QR

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

pH.....	5-10 units
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Solids Concentrate		
CRM	PT <b>M</b>	QR
Cat. #5152	Cat. #5150	Cat. #5152QR

One 23 mL screw-cap vial yields 1 liter after dilution.

Total filterable residue (TDS) at 180 °C.....	200-450 mg/L
Total solids (TS).....	223-550 mg/L
Non filterable residue (TSS).....	23-100 mg/L

**TRACE METALS**

Metals		
CRM	PT <b>M</b>	QR
Cat. #697	Cat. #590	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.....	130-2,500 µg/L
Antimony.....	6-50 µg/L
Arsenic.....	5-50 µg/L
Barium.....	500-3,000 µg/L
Beryllium.....	1-10 µg/L
Boron.....	800-2,000 µg/L
Cadmium.....	2-50 µg/L
Chromium.....	10-200 µg/L
Copper.....	50-2,000 µg/L
Iron.....	100-1,800 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.....	315-2,500 µg/L
Zinc.....	400-2,500 µg/L

Mercury		
CRM	PT <b>M</b>	QR
Cat. #666	Cat. #551	Cat. #666QR

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

Mercury, total.....	0.5-10 µg/L
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Hexavalent Chromium		
CRM	PT <b>Q</b>	QR
Cat. #658	Cat. #854	Cat. #658QR

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

Hexavalent chromium.....	5-50 µg/L
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Uranium		
CRM	PT <b>Q</b>	QR
Cat. #930	Cat. #858	Cat. #930QR

One 15 mL screw-cap vial yields up to 2 liters after dilution. Use with ICP/MS methods EPA 200.8, ASTM D5673-03 and Standard Methods 3125.

Uranium.....	3-104 µg/L
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Vanadium		
CRM	PT <b>Q</b>	QR
Cat. #660	Cat. #856	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
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**M Q** All ERA WS PTs open monthly or quarterly.

**DISINFECTION BY-PRODUCTS**

**Inorganic Disinfection #1**

CRM	PT <b>M</b>	QR
Cat. #5272	Cat. #5270	Cat. #5272QR

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

Chlorate.....60-180 µg/L  
 Chlorite.....100-1,000 µg/L

**Inorganic Disinfection #2**

CRM	PT <b>M</b>	QR
Cat. #5262	Cat. #5260	Cat. # 5262QR

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

Bromate.....7-50 µg/L  
 Bromide.....75-500 µg/L

**NUTRIENTS**

**Nitrite**

CRM	PT <b>M</b>	QR
Cat. #695	Cat. #594	Cat. #695QR

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

Nitrite as N.....0.4-2 mg/L

**o-Phosphate Nutrients**

CRM	PT <b>M</b>	QR
Cat. #667	Cat. #558	Cat. #667QR

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

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





**MISCELLANEOUS INORGANIC**

Residual Chlorine		
CRM	PT <b>M</b>	QR
Cat. #696	Cat. #593	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 <b>M</b>	QR
Cat. #983	Cat. #556	Cat. #983QR

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

Free Cyanide.....0.1-0.5 mg/L

Organic Carbon		
CRM	PT <b>M</b>	QR
Cat. #669	Cat. #557	Cat. #669QR

One 15 mL screw-cap vial yields up to 1 liter after dilution. Use with combustion or persulfate oxidation procedures.

Total Organic Carbon.....1.2-4.9 mg/L  
Dissolved Organic Carbon.....1.2-4.9 mg/L

Perchlorate		
CRM	PT <b>Q</b>	QR
Cat. #910	Cat. #903	Cat. #910QR

One 15 mL screw-top vial yields up to 2 liters after dilution. Use with IC or IC/MS/MS and LC/MS/MS methods. Call for ng/L level perchlorate PTs.

Perchlorate.....4-20 µg/L

Silica		
CRM	PT <b>Q</b>	QR
Cat. #785	Cat. #902	Cat. #785QR

One 60 mL poly bottle yields 1 liter after dilution. Use with colorimetric or ICP methods.

Silica as SiO<sub>2</sub>.....5-50 mg/L

Surfactants-MBAS		
CRM	PT <b>Q</b>	QR
Cat. #784	Cat. #901	Cat. #784QR

One 10 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA method 425.1.

Surfactants – MBAS.....0.05-1 mg/L

**PHYSICAL PROPERTY**

Corrosivity		
CRM	PT <b>Q</b>	QR
Cat. #980	Cat. #900	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 <b>M</b>	QR
Cat. #699	Cat. #592	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 <b>Q</b>	QR
Cat. #662	Cat. #904	Cat. #662QR

One 15 mL screw-cap vial yields up to 1 liter after dilution. Use with Standard Method 5910B.

UV 254 Absorbance.....0.02-0.7 cm<sup>-1</sup>

**M** **Q** All ERA WS PTs open monthly or quarterly.

**DISINFECTION BY-PRODUCTS**

Chloral Hydrate		
CRM	PT <b>Q</b>	QR
Cat. #676	Cat. #853	Cat. #676QR

One 2 mL flame-sealed ampule yields in excess of 200 mL after dilution. Use with EPA method 551. Includes chloral hydrate in the EPA/NELAC required range, 4-30 µg/L.

Haloacetic Acids (HAA)		
CRM	PT <b>M</b>	QR
Cat. #684	Cat. #852	Cat. #684QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA method 552. Includes all the analytes below in the EPA/NELAC required range, 10-50 µg/L.

Bromochloroacetic Acid	Dichloroacetic Acid	Monochloroacetic Acid
Dibromoacetic Acid	Monobromoacetic Acid	Trichloroacetic Acid

**VOLATILE ORGANICS**

Gasoline Additives		
CRM	PT <b>Q</b>	QR
Cat. #909	Cat. #905	Cat. #909QR

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

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

Halomethanes (THMs)		
CRM	PT <b>M</b>	QR
Cat. #702	Cat. #842	Cat. #702QR

One 2 mL flame-sealed ampule yields in excess of 200 mL after dilution. Use with EPA methods 502.2, 524.2 and 551. Contains all of the analytes below in the required range, 10-50 µg/L.

Bromodichloromethane	Chlorodibromomethane	Chloroform
Bromoform		

**From Left to Right:**  
**Matt Graves,**  
 Organic Chemist  
**Tim Miller,**  
 Organic Chemist  
**Mike Blades,**  
 Product Line Manager

Regulated Volatiles		
CRM	PT <b>M</b>	QR
Cat. #703	Cat. #840	Cat. #703QR

One 2 mL flame-sealed ampule yields in excess of 200 mL after dilution. Use with EPA methods 502.2 and 524.2. Contains all of the analytes below in the EPA/NELAC required range, 1-50 µg/L.

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

Unregulated Volatiles		
CRM	PT <b>M</b>	QR
Cat. #683	Cat. #841	Cat. #683QR

One 2 mL flame-sealed ampule yields in excess of 200 mL after dilution. Use with EPA methods 502.2 and 524.2. Contains at least 60% of the analytes randomly selected from the list below in the EPA/NELAC required range, 5-50 µg/L, except naphthalene, which if spiked, is included at 2-50 µg/L after dilution. All unspiked analytes are certified at <5 µg/L.

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



## PESTICIDES

### Pesticides

CRM	PT <b>M</b>	QR
Cat. #709	Cat. #850	Cat. #709QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA methods 505, 507, 508 and 525 for organochlorine, nitrogen and organophosphorus pesticides. Each standard contains at least 16 analytes randomly selected from the list below in the required range 0.1-100 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/Carbamoxylxime Pesticides

CRM	PT <b>M</b>	QR
Cat. #707	Cat. #846	Cat. #707QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA methods 531.1, 531.2 and 632. Each standard contains all analytes below in the EPA/NELAC required range 15-150 µg/L.

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

### Toxaphene

CRM	PT <b>M</b>	QR
Cat. #700	Cat. #844	Cat. #700QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA methods 505, 508 and 525. Each standard contains toxaphene in the EPA/NELAC required range 3-20 µg/L.

### Chlordane

CRM	PT <b>M</b>	QR
Cat. #705	Cat. #845	Cat. #705QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA methods 505, 508 and 525. Each standard contains technical chlordane in the EPA/NELAC required range 2-20 µg/L.

### EDB/DBCP/TCP

CRM	PT <b>M</b>	QR
Cat. #706	Cat. #847	Cat. #706QR

One 2 mL flame-sealed ampule yields in excess of 200 mL after dilution. Use with EPA methods 504 and 551. Each lot contains all analytes below in the EPA/NELAC required range 0.1-2 µg/L.

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

**SEMIVOLATILE ORGANICS**

Dioxin		
CRM	PT <b>Q</b>	QR
Cat. #663	Cat. #857	Cat. #663QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA methods 613, 1613, 8280 and 8290. Each standard contains 2,3,7,8-TCDD in the EPA/NELAC required range 25-80 µg/L.

PCBs as Decachlorobiphenyl		
CRM	PT <b>Q</b>	QR
Cat. #708	Cat. #839	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, and 508.1. Includes an Aroclor randomly selected from the list below in the EPA/NELAC required range 0.5-5 µg/L as decachlorobiphenyl.

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

Semivolatiles #1		
CRM	PT <b>M</b>	QR
Cat. #690	Cat. #848	Cat. #690QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA methods 506, 525 and 550 for PAHs, phthalates and adipates. Each standard contains at least 16 of the analytes randomly selected from the list below in the EPA/NELAC required range 0.2-50 µg/L.

Acenaphthene	Butylbenzylphthalate	bis(2-Ethylhexyl)phthalate
Acenaphthylene	Chrysene	Fluoranthene
Anthracene	Dibenz(a,h)anthracene	Fluorene
Benzo(a)anthracene	Di-n-butylphthalate	Indeno(1,2,3-cd)pyrene
Benzo(b)fluoranthene	Diethylphthalate	Naphthalene
Benzo(k)fluoranthene	Dimethylphthalate	Phenanthrene
Benzo(g,h,i)perylene	Di-n-octylphthalate	Pyrene
Benzo(a)pyrene	bis(2-Ethylhexyl)adipate	

**HERBICIDES**

Chlorinated Acid Herbicides		
CRM	PT <b>M</b>	QR
Cat. #704	Cat. #851	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 and 555. Includes at least 12 of the analytes below in the EPA/NELAC required range 1-150 µg/L.

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

Semivolatiles #2 Herbicides		
CRM	PT <b>M</b>	QR
Cat. #691	Cat. #849	Cat. #691QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with EPA methods 547, 548, and 549. Each standard contains all the analytes below in the EPA/NELAC required range 8-800 µg/L.

Diquat	Glyphosate	Paraquat
Endothal		



**From Left to Right:**  
**Amber Bolger,**  
 Production Technician  
**Catherine Fuentes,**  
 Production Technician  
**Stephen Sanchez,**  
 Production Technician  
**Eric Schmidt,**  
 Production Coordinator  
**David Kilhefner,**  
 Director of Manufacturing

## UCMR 2 ORGANICS

### UCMR 2 Pesticides and Flame Retardants in Water

**CRM**

Cat. #151

One 2 mL flame-sealed ampule yields in excess of 2 liters after dilution. Use with EPA method 527. Each standard contains all analytes below at 0.5-10 µg/L after dilution.

Dimethoate	2,2',4,4',5,5'-Hexabromodiphenyl ether (BDE-153)
2,2',4,4',5-Pentabromodiphenyl ether (BDE-99)	Terbufos sulfone
2,2',4,4',6-Pentabromodiphenyl ether (BDE-100)	2,2',4,4'-Tetrabromodiphenyl ether (BDE-47)
2,2',4,4',5,5'-Hexabromobiphenyl (245-HBB)	

### UCMR 2 Nitrosamines in Water

**CRM**

Cat. #153

One 2 mL flame-sealed ampule yields in excess of 2 liters after dilution. Use with EPA method 521. Each standard contains all analytes below at 5-100 ng/L after dilution.

N-Nitrosodiethylamine (NDEA)	N-Nitrosodi-n-propylamine (NDPA)
N-Nitrosodimethylamine (NDMA)	N-Nitrosomethylethylamine (NMEA)
N-Nitrosodi-n-butylamine (NDBA)	N-Nitrosopyrrolidine (NPYR)

### UCMR 2 Explosives in Water

**CRM**

Cat. #152

One 2 mL flame-sealed ampule yields in excess of 2 liters after dilution. Use with EPA method 529. Each standard contains all analytes below at 1-15 µg/L after dilution.

1,3-Dinitrobenzene
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)
2,4,6-Trinitrotoluene (TNT)

### UCMR 2 Chlorinated Pesticides in Water

**CRM**

Cat. #154

One 2 mL flame-sealed ampule yields in excess of 2 liters after dilution. Use with EPA method 525.2. Each standard contains all analytes below at 1-20 µg/L after dilution.

Acetochlor	Alachlor	Metolachlor
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### UCMR 2 Herbicide Degradates in Water

**CRM**

Cat. #155

One 2 mL flame-sealed ampule yields in excess of 2 liters after dilution. Use with EPA method 535. Each standard contains all analytes below at 1-20 µg/L after dilution.

Acetochlor ethane sulfonic acid (ESA)	Alachlor oxanilic acid (OA)
Acetochlor oxanilic acid (OA)	Metolachlor ethane sulfonic acid (ESA)
Alachlor ethane sulfonic acid (ESA)	Metolachlor oxanilic acid (OA)



# Real CRMs



One of the ways ERA demonstrates a company-wide commitment to quality is through our comprehensive list of internationally recognized accreditations. Our newest accreditation is to ISO Guide 34 as a Reference Material provider. Only providers with this accreditation can accurately claim to produce Certified Reference Materials.

When you select a CRM or PT provider, you are integrating their quality system into your laboratory. Therefore you should be discriminating and only select a provider with a demonstrated commitment to quality.

ISO 9001

ISO Guide 43  
& ILAC Guide 13

ISO Guide 34

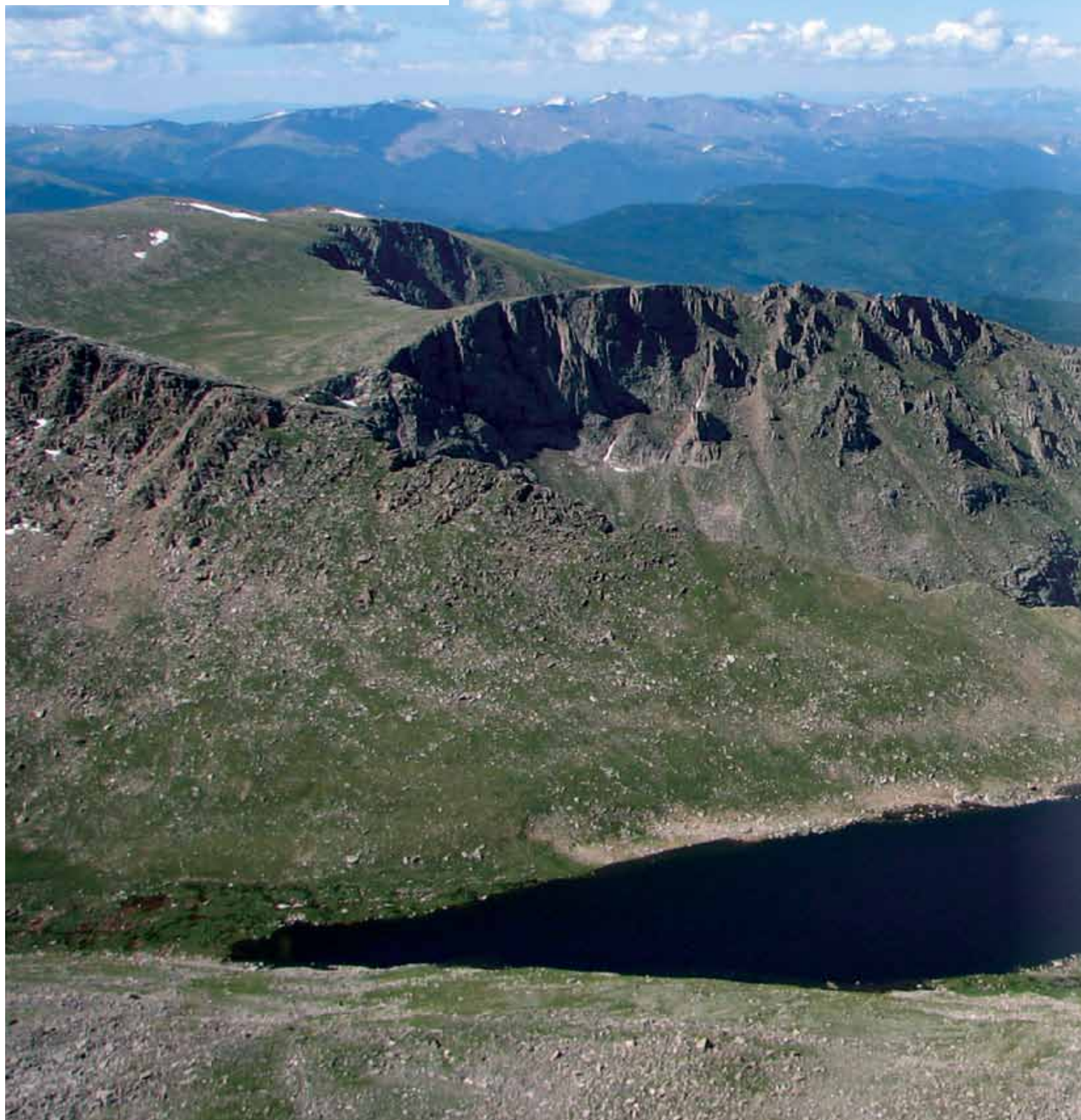
ISO 17025

OUR ACCREDITATIONS

ERA's Quality Control materials, as well as our calibration standards are covered by our ISO Guide 34 accreditation.

That means confidence for our customers.

# Radiochemistry



## QUICK REFERENCE GUIDE

### RadChem

Description	CRM	PT	QR	Page
Gamma Emitters™	758	808	758QR	34
GroSS™ Alpha/Beta	759	809	759QR	34
Iodine-131	750	810	750QR	34
NaturalS™	751	811	751QR	34
Strontium-89/90	757	807	757QR	34
Tritium™	752	812	752QR	34

<b>RAD</b>		<b>2011 Radiochemistry PT Study Schedule</b>	
Study #	Study Opens	Study Closes	
RAD - 84	January 10	February 24	
RAD - 85	April 4	May 19	
RAD - 86	July 5	August 19	
RAD - 87	October 7	November 21	

Schedule subject to change - see ERA's web site at [www.eraqc.com](http://www.eraqc.com).

**AL** Additional Level PTs available

### MRaD

Description	CRM	PT	QR	Page
Air Filter Gross Alpha/Beta	607	801	607QR	36
Air Filter Radionuclides	606	800	606QR	36
Soil Radionuclides	608	802	608QR	36
Vegetation Radionuclides	609	803	609QR	36
Water Gross Alpha/Beta	615	805	615QR	37
Water Radionuclides	617	804	617QR	37
Water Tritium	616	806	616QR	37

<b>MRAD</b>		<b>2011 MRAD PT Study Schedule</b>	
Study #	Study Opens	Study Closes	
MRAD - 014	March 21	May 20	
MRAD - 015	September 19	November 18	

Schedule subject to change - see ERA's web site at [www.eraqc.com](http://www.eraqc.com).



**RADCHEM**

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

Gamma Emitter <sup>SM</sup>		
CRM	PT <b>Q</b>	QR
Cat. #758	Cat. #808	Cat. #758QR

One 12 mL screw-top vial yields up to 2 liters after dilution. Includes the radionuclides below within the EPA/NELAC required activity ranges.

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 <sup>SM</sup> Alpha/Beta		
CRM	PT <b>Q</b>	QR
Cat. #759	Cat. #809	Cat. #759QR

One 12 mL screw-top vial yields up to 1 liter after dilution. Includes both radionuclides below within the EPA/NELAC required activity ranges.

Gross Alpha as Thorium-230.....	7-75 pCi/L
Gross Beta as Cesium-137.....	8-75 pCi/L

Natural <sup>SM</sup>		
CRM	PT <b>Q</b>	QR
Cat. #751	Cat. #811	Cat. #751QR

One 12 mL screw-top vial yields up to 8 liters after dilution. Includes all the radionuclides within the EPA/NELAC required ranges.

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 <sup>SM</sup>		
CRM	PT <b>Q</b>	QR
Cat. #752	Cat. #812	Cat. #752QR

One 250 mL whole-volume bottle is ready to analyze as received. Includes Tritium within the EPA/NELAC required range 1,000-24,000 pCi/L.



Iodine-131		
CRM	PT <b>Q</b>	QR
Cat. #750	Cat. #810	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 <b>Q</b>	QR
Cat. #757	Cat. #807	Cat. #757QR

One 12 mL screw-top vial yields up to 2 liters after dilution. Includes both radionuclides below within the EPA/NELAC required activity ranges.

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

**Q** All ERA WS RadChem PTs open quarterly.

### RADCHEM LAB CONTROL & MATRIX SPIKING

ERA's 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—ERA LCS/MS spiking standards are ready to use—no dilutions are required.
- Reliable and consistent—They eliminate the possibility of errors from the contamination or repeated multiple dilutions of your primary stock standards.
- Independently verified—ERA 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.

#### It couldn't be easier:

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.

We will prepare the standards to your specifications and ship within 72 hours.

#### Single Radionuclide Spiking Standards

Cat. #	Radionuclide	Maximum Activity
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	40 pCi
SR89	Strontium-89	200 pCi
SR90	Strontium-90	40 pCi
H3	Tritium	2000 pCi
UNAT	Uranium, Natural	40 pCi
ZN65	Zinc-65	600 pCi

**SOLIDS**

Soil Radionuclides		
CRM	PT*	QR
Cat. #608	Cat. #802	Cat. #608QR
One 500 cc standard includes the alpha, beta and gamma emitting radionuclides listed below.		
Actinium-228.....		500-5,000 pCi/kg
Americium-241.....		50-2,000 pCi/kg
Bismuth-212.....		500-5,000 pCi/kg
Bismuth-214.....		500-5,000 pCi/kg
Cesium-134.....		1,000-10,000 pCi/kg
Cesium-137.....		1,000-10,000 pCi/kg
Cobalt-60.....		1,000-10,000 pCi/kg
Lead-212.....		500-5,000 pCi/kg
Lead-214.....		500-5,000 pCi/kg
Manganese-54.....		1,000-10,000 pCi/kg
Plutonium-238.....		50-2,000 pCi/kg
Plutonium-239.....		50-2,000 pCi/kg
Potassium-40.....		5,000-50,000 pCi/kg
Strontium-90.....		500-10,000 pCi/kg
Thorium-234.....		500-5,000 pCi/kg
Uranium-234.....		500-5,000 pCi/kg
Uranium-238.....		500-5,000 pCi/kg
Uranium (Nat).....		1,000-10,000 pCi/kg
Uranium (Nat) mass.....		1,500-15,000 µg/kg
Zinc-65.....		1,000-10,000 pCi/kg

Vegetation Radionuclides		
CRM	PT*	QR
Cat. #609	Cat. #803	Cat. #609QR
One 500 cc standard includes the alpha, beta and gamma emitting radionuclides listed below.		
Americium-241.....		50-5,000 pCi/kg
Cesium-134.....		300-3,000 pCi/kg
Cesium-137.....		300-3,000 pCi/kg
Cobalt-60.....		300-3,000 pCi/kg
Curium-244.....		50-5,000 pCi/kg
Manganese-54.....		300-3,000 pCi/kg
Plutonium-238.....		50-5,000 pCi/kg
Plutonium-239.....		50-5,000 pCi/kg
Potassium-40.....		5,000-50,000 pCi/kg
Strontium-90.....		500-10,000 pCi/kg
Uranium-234.....		50-5,000 pCi/kg
Uranium-238.....		50-5,000 pCi/kg
Uranium (Nat).....		100-10,000 pCi/kg
Uranium (Nat) mass.....		150-15,000 µg/kg
Zinc-65.....		300-3,000 pCi/kg

**AIR FILTER**

Air Filter Radionuclides		
CRM	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.....		50-1,500 pCi/filter
Cesium-137.....		50-1,500 pCi/filter
Cobalt-60.....		50-1,500 pCi/filter
Iron-55.....		50-1,500 pCi/filter
Manganese-54.....		50-1,500 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.....		50-1,500 pCi/filter

Air Filter Gross Alpha/Beta		
CRM	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

\*All ERA MRaD PTs open in March and September.



**WATER**

**Water Radionuclides**

CRM	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 .....	100-3,000 pCi/L
Cesium-137 .....	100-3,000 pCi/L
Cobalt-60.....	100-3,000 pCi/L
Iron-55.....	100-3,000 pCi/L
Manganese-54 .....	100-3,000 pCi/L
Plutonium-238 .....	10-200 pCi/L
Plutonium-239 .....	10-200 pCi/L
Strontium-90.....	50-1,000 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 .....	100-3,000 pCi/L

**Water Gross Alpha/Beta**

CRM	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**

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

One 120 mL whole-volume bottle is ready to analyze for Tritium. Includes blank.

Tritium.....	3,000-30,000 pCi/L
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\*All ERA MRaD PTs open in March and September.



**From Left to Right:**  
**Leo Munoz,**  
 Production Technician  
**Brian Miller,**  
 Radiochemist  
**Leigh Roope,**  
 Chemist

# Soil



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SOIL	2011 Soil PT Study Schedule	
	Study #	Study Opens
SOIL - 73	January 24	March 10
SOIL - 74	April 18	June 2
SOIL - 75	July 18	September 1
SOIL - 76	October 21	December 5

Schedule subject to change - see ERA's web site at [www.eraqc.com](http://www.eraqc.com).

**AL** Additional Level PTs available

**METALS**

**Metals in Soil**

CRM	PT <b>Q</b>	QR
Cat. #540	Cat. #620	Cat. #540QR

One 40 g ready-to-use soil sample in a screw-top bottle for all ICP & AA, RCRA and Superfund methods including EPA digestion methods 3050 hot plate and 3051 microwave. Includes all metals shown below in the NELAC required range.

Aluminum .....	1,000-25,000 mg/kg
Antimony .....	80-300 mg/kg
Arsenic .....	40-400 mg/kg
Barium .....	100-1,000 mg/kg
Beryllium .....	40-400 mg/kg
Boron .....	80-200 mg/kg
Cadmium .....	40-400 mg/kg
Calcium .....	1,500-25,000 mg/kg
Chromium .....	40-400 mg/kg
Cobalt .....	40-400 mg/kg
Copper .....	40-400 mg/kg
Iron .....	1,000-50,000 mg/kg
Lead .....	40-400 mg/kg
Magnesium .....	1,200-25,000 mg/kg
Manganese .....	100-2,000 mg/kg
Mercury .....	1-35 mg/kg
Molybdenum .....	30-300 mg/kg
Nickel .....	40-500 mg/kg
Potassium .....	1,400-25,000 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 .....	75-250 mg/kg
Titanium .....	10-2,000 mg/kg
Vanadium .....	40-400 mg/kg
Zinc .....	100-1,000 mg/kg

**Hexavalent Chromium in Soil**

CRM	PT <b>Q</b>	QR
Cat. #921	Cat. #876	Cat. #921QR

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

Hexavalent chromium .....	40-300 mg/kg
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**TCLP Metals in Soil**

CRM	PT <b>Q</b>	QR
Cat. #544	Cat. #629	Cat. #544QR

One 105 g ready-to-extract soil standard in a screw-top bottle designed specifically to meet all state requirements for TCLP extraction and analysis for the metals listed below.

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

**Metals in Sewage Sludge**

CRM	PT <b>Q</b>	QR
Cat. #160	Cat. #619	Cat. #160QR

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

Aluminum .....	1,000-50,000 mg/kg
Antimony .....	80-300 mg/kg
Arsenic .....	50-400 mg/kg
Barium .....	250-2,000 mg/kg
Beryllium .....	30-200 mg/kg
Cadmium .....	40-300 mg/kg
Calcium .....	5,000-70,000 mg/kg
Chromium .....	40-300 mg/kg
Cobalt .....	5-50 mg/kg
Copper .....	40-1,000 mg/kg
Iron .....	1,000-50,000 mg/kg
Lead .....	50-250 mg/kg
Magnesium .....	1,200-25,000 mg/kg
Manganese .....	100-2,000 mg/kg
Mercury .....	1-50 mg/kg
Molybdenum .....	5-250 mg/kg
Nickel .....	40-250 mg/kg
Potassium .....	1,400-25,000 mg/kg
Selenium .....	50-250 mg/kg
Silver .....	50-250 mg/kg
Sodium .....	150-15,000 mg/kg
Strontium .....	200-2,000 mg/kg
Thallium .....	50-250 mg/kg
Vanadium .....	5-250 mg/kg
Zinc .....	70-1,500 mg/kg



**Q** All ERA Soil PTs open quarterly.

**PHYSICAL PARAMETERS**

Corrosivity/pH in Soil		
CRM	PT <b>Q</b>	QR
Cat. #914	Cat. #875	Cat. #914QR

One 100 g soil standard in a screw-top bottle. Use to measure corrosivity.  
Corrosivity/pH .....2-12 S.U.

Ignitability/Flash Point		
CRM	PT <b>Q</b>	QR
Cat. #979	Cat. #874	Cat. #979QR

One standard packaged in three 30 mL bottles. Use to measure ignitability.  
Ignitability/Flashpoint..... 100-200°F

**INORGANICS**

Anions in Soil		
CRM	PT <b>Q</b>	QR
Cat. #543	Cat. #873	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.....10-200 mg/kg  
Chloride..... 25-2,000 mg/kg  
Fluoride.....25-500 mg/kg  
Nitrate as N.....25-500 mg/kg  
Phosphate as P.....25-500 mg/kg  
Sulfate..... 25-2,000 mg/kg

Cyanide in Soil		
CRM	PT <b>Q</b>	QR
Cat. #541	Cat. #621	Cat. #541QR

One 40 g soil standard in a screw-top bottle for all distillation/colorimetric methods. This standard can be used to satisfy all PT requirements for total and reactive cyanide.

Total cyanide..... 5-100 mg/kg

Nutrients in Soil		
CRM	PT <b>Q</b>	QR
Cat. #542	Cat. #869	Cat. #542QR

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

Ammonia as N.....100-5,000 mg/kg  
Total Kjeldahl-nitrogen as N.....100-5,000 mg/kg  
Total organic carbon (TOC) .....1,000-15,000 mg/kg  
Total phosphorus as P.....100-5,000 mg/kg

Nutrients in Sludge	
CRM	
Cat. #545	

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

Ammonia as N .....0.1-3% (w/w)  
Total Kjeldahl-nitrogen as N.....2-10% (w/w)  
Total organic carbon (TOC) .....20-40% (w/w)  
Total phosphorus as P.....0.5-10% (w/w)

Perchlorate in Soil	
CRM	QR
Cat. #546	Cat. #546QR

One screw-top bottle containing 40 g of soil suitable for deionized water leach and perchlorate analysis using any of the currently available methodologies.

**OIL & GREASE**

Oil & Grease in Soil		
CRM	PT <b>Q</b>	QR
Cat. #549	Cat. #867	Cat. #549QR

One screw-top bottle containing 50 g of soil ready to analyze. Use with gravimetric method 9071B or infrared spectrometric analysis. These analytes will be in the specified NELAC range of 300-3,000 mg/kg.

n-Hexane Extractable Material (O&G) (Gravimetric).....300-3,000 mg/kg  
n-Hexane Extractable Material (O&G) (IR) .....300-3,000 mg/kg



**VOLATILES**

**Volatiles in Soil**

CRM Cat. #721	PT Q Cat. #623	QR Cat. #721QR
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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 and 8260. Includes at least 60% of the EPA/NELAC analytes in the required range 20-400 µg/kg (40-400 µg/kg for total xylenes and selected ketones, 200-1,000 µg/kg for acetonitrile) and a percentage of the additional analytes, all randomly selected from the list below.

Acetone	1,2-Dibromoethane (EDB)	Methyl tert-butyl ether (MTBE)
Acetonitrile	Dibromomethane	4-Methyl-2-pentanone (MIBK)
Acrolein	1,2-Dichlorobenzene	Naphthalene
Benzene	1,3-Dichlorobenzene	Styrene
Bromobenzene	1,4-Dichlorobenzene	1,1,1,2-Tetrachloroethane
Bromodichloromethane	Dichlorodifluoromethane	1,1,2,2-Tetrachloroethane
Bromoform	1,1-Dichloroethane	Tetrachloroethene
Bromomethane	1,2-Dichloroethane	Toluene
2-Butanone (MEK)	1,1-Dichloroethylene	1,2,4-Trichlorobenzene
Carbon disulfide	cis-1,2-Dichloroethylene	1,1,1-Trichloroethane
Carbon tetrachloride	trans-1,2-Dichloroethylene	1,1,2-Trichloroethane
Chlorobenzene	1,2-Dichloropropane	Trichloroethene
Chlorodibromomethane	cis-1,3-Dichloropropylene	Trichlorofluoromethane
Chloroethane	trans-1,3-Dichloropropylene	1,2,3-Trichloropropane
2-Chloroethylvinylether	Ethylbenzene	Vinyl acetate
Chloroform	2-Hexanone	Vinyl chloride
Chloromethane	Isopropylbenzene	Xylenes, total
1,2-Dibromo-3-chloropropane (DBCP)	Methylene chloride	

**Ready-to-Use VOAs in Soil**

CRM Cat. #924	PT Q Cat. #870	QR Cat. #924QR
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One 20 mL flame-sealed ampule containing 10 g of soil and 10 mL of methanol is ready to analyze. Use with methods 8021 and 8260. Includes at least 60% of the EPA/NELAC analytes in the required range 1,000-20,000 µg/kg and a percentage of additional analytes, all randomly selected from the list below.

Acetone	1,2-Dibromoethane (EDB)	Methylene chloride
Acetonitrile	Dibromomethane	Methyl tert-butyl ether (MTBE)
Acrolein	1,2-Dichlorobenzene	4-Methyl-2-pentanone (MIBK)
Benzene	1,3-Dichlorobenzene	Naphthalene
Bromobenzene	1,4-Dichlorobenzene	Nitrobenzene
Bromodichloromethane	Dichlorodifluoromethane	Styrene
Bromoform	1,1-Dichloroethane	1,1,1,2-Tetrachloroethane
Bromomethane	1,2-Dichloroethane	1,1,2,2-Tetrachloroethane
2-Butanone (MEK)	1,1-Dichloroethene	Tetrachloroethene
Carbon disulfide	cis-1,2-Dichloroethylene	Toluene
Carbon tetrachloride	trans-1,2-Dichloroethylene	1,2,4-Trichlorobenzene
Chlorobenzene	1,2-Dichloropropane	1,1,1-Trichloroethane
Chlorodibromomethane	cis-1,3-Dichloropropylene	1,1,2-Trichloroethane
Chloroethane	trans-1,3-Dichloropropylene	Trichloroethene
2-Chloroethylvinylether	Ethylbenzene	Trichlorofluoromethane
Chloroform	2-Hexanone	1,2,3-Trichloropropane
Chloromethane	Hexachlorobutadiene	Vinyl acetate
1,2-Dibromo-3-chloropropane (DBCP)	Hexachloroethane	Vinyl chloride
	Isopropylbenzene	Xylenes, total

**Gasoline Range Organics (GRO) in Soil**

CRM Cat. #763	PT Q Cat. #630	QR Cat. #763QR
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One flame-sealed ampule with 20 g of soil spiked with unleaded regular gasoline in the range 100-2,000 mg/kg. Use with purge and trap and modified EPA 8015 GC/FID methods. Also use to test for BTEX in gasoline.

**BTEX & MTBE in Soil**

CRM Cat. #7618	PT Q Cat. #633	QR Cat. #761QR
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One 2 mL flame-sealed ampule requires spiking onto the ten grams of provided certified clean soil. Includes all the BTEX compounds and MTBE in the EPA/NELAC required range of 20-200 µg/kg (40-400 µg/kg for Total Xylenes). Use with EPA method 8021.

Benzene	Methyl tert-butyl ether (MTBE)	Xylenes, total
Ethylbenzene	Toluene	



**TOTAL PETROLEUM HYDROCARBONS**

**Total Petroleum Hydrocarbons (TPH) in Soil #1**

CRM	PT <b>Q</b>	QR
Cat. #570	Cat. #632	Cat. #572QR

One screw-top bottle with 50 g of soil to be analyzed for TPH. Use with EPA IR or gravimetric methods 8440 and 9071B.

Non-polar Extractable Material (TPH) (Gravimetric).....	300-3,000 mg/kg
Non-polar Extractable Material (TPH) (IR).....	300-3,000 mg/kg

**Total Petroleum Hydrocarbons (TPH) in Soil #2**

CRM	PT <b>Q</b>	QR
Cat. #571	Cat. #632	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 and 9071B.

Non-polar Extractable Material (TPH) (Gravimetric).....	300-3,000 mg/kg
Non-polar Extractable Material (TPH) (IR).....	300-3,000 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	Chloroform	Tetrachloroethylene
2-Butanone (MEK)	1,4-Dichlorobenzene	Trichloroethylene
Carbon tetrachloride	1,2-Dichloroethane	Vinyl chloride
Chlorobenzene	1,1-Dichloroethylene	

**TCLP Acids**

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 0.5-2.0 mg/L after dilution. All unspiked analytes are certified at <0.5 mg/L.

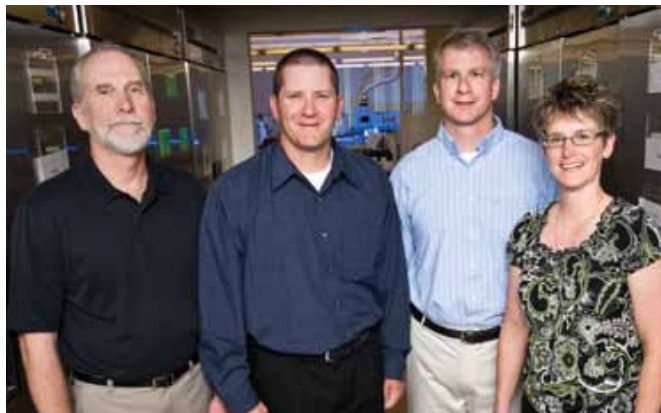
2-Methylphenol	Pentachlorophenol	2,4,6-Trichlorophenol
3 & 4-Methylphenol	2,4,5-Trichlorophenol	

**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 <0.01 mg/L.

Endrin	Heptachlor epoxide	Methoxychlor
Heptachlor	gamma-BHC (Lindane)	



**From Left to Right:**  
**Jeff Lowry,**  
 Director of Technology  
**Dale Shallenberger,**  
 Procurement and  
 Inventory Control  
**Jay McBurney,**  
 Quality Program  
 Manager  
**Lisa Berry,**  
 Director of  
 Production Planning

**SEMIVOLATILES**

Nitroaromatics & Nitramines in Soil		
CRM	PT <b>Q</b>	QR
Cat. #920	Cat. #871	Cat. #920QR
Two flame-sealed ampules each containing 30 g of soil are ready to analyze. Use for EPA methods 8330 and 8091. Includes at least 80% of the EPA/NELAC analytes in the required range 1,500-15,000 µg/kg randomly selected from the list below.		
4-Amino-2,6-dinitrotoluene	HMX	RDX
2-Amino-4,6-dinitrotoluene	Nitrobenzene	Tetryl
1,3-Dinitrobenzene	2-Nitrotoluene	1,3,5-Trinitrobenzene
2,4-Dinitrotoluene	3-Nitrotoluene	2,4,6-Trinitrotoluene
2,6-Dinitrotoluene	4-Nitrotoluene	

Low-Level PAHs in Soil		
CRM	PT <b>Q</b>	QR
Cat. #722	Cat. #625	Cat. #722QR
Two flame-sealed ampules each containing 30 g are ready to analyze. Use for EPA HPLC method 8310 and 8270 SIM. Includes at least 80% of the EPA/NELAC analytes in the required range 50-1,000 µg/kg randomly selected from the list below.		
Acenaphthene	Benzo(g,h,i)perylene	Fluorene
Acenaphthylene	Benzo(a)pyrene	Indeno(1,2,3-cd)pyrene
Anthracene	Chrysene	Naphthalene
Benzo(a)anthracene	Dibenzo(a,h)anthracene	Phenanthrene
Benzo(b)fluoranthene	Fluoranthene	Pyrene
Benzo(k)fluoranthene		

Base/Neutrals & Acids in Soil		
CRM	PT <b>Q</b>	QR
Cat. #727	Cat. #467	Cat. #727QR
Two flame-sealed ampules each containing 30 g of soil are ready to use. Use with EPA method 8270. Includes at least 60% of the EPA/NELAC analytes in the required range 1,000-15,000 µg/kg and a percentage of the additional analytes, all randomly selected from the list below.		
Acenaphthene	Chrysene	2-Methyl-4,6-dinitrophenol
Acenaphthylene	Dibenzo(a,h)anthracene	2-Methylnaphthalene
2-Amino-1-methylbenzene	Dibenzofuran	2-Methylphenol
(o-Toluidine)	Di-n-butylphthalate	3 & 4-Methylphenol
Aniline	1,2-Dichlorobenzene	Naphthalene
Anthracene	1,3-Dichlorobenzene	2-Nitroaniline
Benzidine	1,4-Dichlorobenzene	3-Nitroaniline
Benzoic acid	3,3'-Dichlorobenzidine	4-Nitroaniline
Benzo(a)anthracene	2,4-Dichlorophenol	Nitrobenzene
Benzo(b)fluoranthene	2,6-Dichlorophenol	2-Nitrophenol
Benzo(k)fluoranthene	Diethylphthalate	4-Nitrophenol
Benzo(g,h,i)perylene	2,4-Dimethylphenol	N-Nitrosodiethylamine
Benzo(a)pyrene	Dimethylphthalate	N-Nitrosodimethylamine
Benzyl alcohol	2,4-Dinitrophenol	N-Nitrosodiphenylamine
4-Bromophenyl phenylether	2,4-Dinitrotoluene	N-Nitroso-di-n-propylamine
Butylbenzylphthalate	2,6-Dinitrotoluene	Pentachlorobenzene
Carbazole	Di-n-octylphthalate	Pentachlorophenol
4-Chloroaniline	bis(2-Ethylhexyl)phthalate	Phenanthrene
bis(2-Chloroethyl)ether	Fluoranthene	Phenol
bis(2-Chloroethoxy)methane	Fluorene	Pyrene
bis(2-Chloroisopropyl)ether	Hexachlorobenzene	Pyridine
4-Chloro-3-methylphenol	Hexachlorobutadiene	1,2,4,5-Tetrachlorobenzene
1-Chloronaphthalene	Hexachlorocyclopentadiene	2,3,4,6-Tetrachlorophenol
2-Chloronaphthalene	Hexachloroethane	1,2,4-Trichlorobenzene
2-Chlorophenol	Indeno(1,2,3-cd)pyrene	2,4,5-Trichlorophenol
4-Chlorophenyl-phenylether	Isophorone	2,4,6-Trichlorophenol

Diesel Range Organics (DRO) in Soil		
CRM	PT <b>Q</b>	QR
Cat. #765	Cat. #631	Cat. #765QR
One flame-sealed ampule with 20 g of soil spiked with #2 Diesel fuel in the range 300-3,000 mg/kg. Use with modified EPA 8015 GC/FID methods.		

**HERBICIDES**

Chlorinated Acid Herbicides in Soil		
CRM	PT <b>Q</b>	QR
Cat. #723	Cat. #626	Cat. #723QR
Two flame-sealed ampules, each containing 30 g of soil are ready to use. Use with EPA method 8151. Includes all of the EPA/NELAC analytes in the required range 100-1,000 µg/kg (MCPA & MCPP 1,000-10,000 µg/kg) and a percentage of the additional analytes, all randomly selected from the list below. This standard is not compliant with the NELAC concentration for 4-Nitrophenol and Pentachlorophenol. If a NELAC compliant sample is required for these analytes, use Base/Neutrals and Acids in Soil.		
Acifluorfen	Dalapon	MCPP
Bentazon	Dicamba	4-Nitrophenol
Chloramben	3,5-Dichlorobenzoic acid	Pentachlorophenol
2,4-D	Dichloroprop	Picloram
2,4-DB	Dinoseb	2,4,5-T
Dacthal diacid (DCPA)	MCPA	2,4,5-TP (Silvex)

**PCBs**

PCBs in Soil		
CRM	PT <b>Q</b>	QR
Cat. #726	Cat. #624	Cat. #726QR
One screw-top bottle containing 50 grams of standard is ready to analyze. Use with EPA method 8082. Each standard includes a different Aroclor, randomly selected from the list below, in the EPA/NELAC required range, 1-50 mg/kg.		
Aroclor 1016	Aroclor 1242	Aroclor 1254
Aroclor 1221	Aroclor 1248	Aroclor 1260
Aroclor 1232		

**PESTICIDES**

**Organochlorine Pesticides in Soil**

CRM	PT <b>Q</b>	QR
Cat. #728	Cat. #468	Cat. #728QR

Two flame-sealed ampules each containing 30 g of soil are ready to use. Use with EPA method 8081. Includes at least 80% of the EPA/NELAC analytes in the required range 50-500 µg/kg randomly selected from the list below.

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

**Chlordane in Soil**

CRM	PT <b>Q</b>	QR
Cat. #725	Cat. #628	Cat. #725QR

One screw-top bottle containing 50 g of soil is ready to analyze. Use with EPA method 8081. The standard contains technical chlordane in the EPA/NELAC required range 200-1,000 µg/kg.

**Toxaphene in Soil**

CRM	PT <b>Q</b>	QR
Cat. #724	Cat. #627	Cat. #724QR

One screw-top bottle containing 50 g of soil is ready to analyze. Use with method 8081. The standard contains toxaphene in the EPA/NELAC required range 200-2,000 µg/kg.

**Carbamate Pesticides in Soil**

CRM	PT <b>Q</b>	QR
Cat. #926	Cat. #879	Cat. #926QR

Two flame-sealed ampules, each containing 30 g of soil are ready to analyze. Use with EPA methods 8318 and 8321. Each standard contains at least 50% of the randomly selected analytes from the list below in the range 250-2,500 µg/kg.

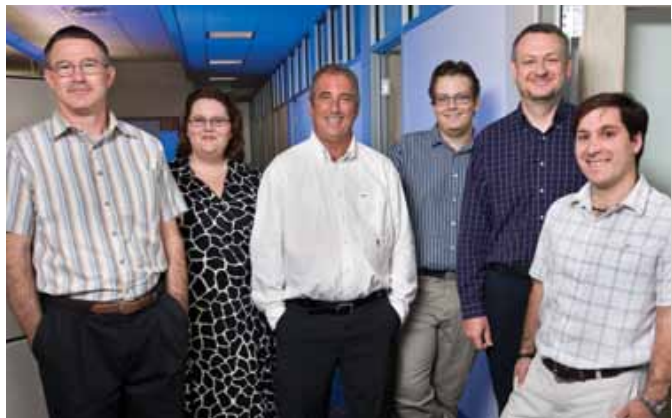
Aldicarb	Dioxacarb	Oxamyl
Aldicarb sulfone	Diuron	Promecarb
Aldicarb sulfoxide	3-Hydroxycarbofuran	Propham
Carbaryl	Methiocarb	Propoxur
Carbofuran	Methomyl	

**Organophosphorus Pesticides (OPP) in Soil**

CRM	PT <b>Q</b>	QR
Cat. #925	Cat. #878	Cat. #925QR

Two flame-sealed ampules, each containing 30 g of soil are ready to analyze. Use with EPA method 8141. Each standard will include all EPA/NELAC analytes in the required range 100-1,000 µg/kg and a percentage of the additional analytes, all randomly selected from the list below.

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



**From Left to Right:**  
**Darwin Baxter,**  
 Applications Engineer  
**Meg Ward,**  
 Applications Engineer  
**Paul Fabrizio,**  
 Systems Engineer  
**Josh Happoldt,**  
 Applications Engineer  
**Richard Kloc,**  
 Director of Information Systems  
**Harlan Mott,**  
 Applications Engineer

## SOIL

### PCBs in Soil

PCBs in soil standards are sold individually in screw-top bottles containing 50 g of soil. Use with EPA methods 8082 and 4020. 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.

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

## WATER

### PCBs in Water

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

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

## OIL

### PCBs in Oil

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

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

**BLANK SOIL**

**Volatile Blank Sand**

**CRM**  
Cat. #055

One 40 g clean sand sample in a VOA vial. The certified concentrations of all analytes are <20 µg/kg.

**Volatile Blank Soil**

**CRM**  
Cat. #054

One 40 g clean soil sample in a VOA vial. The certified concentrations of all analytes are <20 µg/kg, except Acetone, 2-Hexanone, MEK, and MIBK which are <50 µg/kg.

**Semivolatile Blank Soil**

**CRM**  
Cat. #056

One 60 g certified-clean soil sample in a screw-top bottle. The certified concentrations are <1000 µg/kg for BNAs and PCBs, <200 µg/kg for chlordane and toxaphene, <50 µg/kg for pesticides, and <100 µg/kg for herbicides (except MCPA and MCPP which are <2000 µg/kg). The concentration of total petroleum hydrocarbons (TPH) and diesel range organics (DRO) are certified to be <300 mg/kg. Additionally, the gasoline range organics (GRO) are certified to be <100 mg/kg.

**Metals & Cyanide Blank Sand**

**CRM**  
Cat. #058

One 40 g sand sample in a screw-top 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-top 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 3,000-25,000 mg/kg.



# Underground Storage Tank



## QUICK REFERENCE GUIDE

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Alaska DRO in Water	647	475		51
Alaska GRO in Water	645	473		51
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Gasoline Range Organics in Water	762	640	762QR	50
Mass EPH in Water	567	482	567QR	53
Mass VPH in Water	566	481	566QR	53
Texas High-Level Fuels in Water	795	477	795QR	52
Texas Low-Level Fuels in Water	794	476	794QR	52
TPH in Water	600/601	642	602QR	50
Washington HEM/SGT-HEM	519	489	519QR	52
Wisconsin DRO	772	648	772QR	52
Wisconsin GRO/PVOC	773	649	773QR	52

Description	CRM	PT	QR	Page
Alaska BTEX in Soil	636	470		51
Alaska DRO in Soil	637	471		51
Alaska GRO in Soil	635	469		51
Alaska RRO in Soil	638	472		51
Arizona TPH in Soil	798	488	798QR	51
BTEX & MTBE in Soil	761	633	761QR	50
Diesel Range Organics in Soil	765	631	765QR	50
Gasoline Range Organics in Soil	763	630	763QR	50
Mass EPH in Soil	569	484	569QR	53
Mass VPH in Soil	568	483	568QR	53
New Jersey EPH in Soil	564	464	564QR	53
Texas High-Level Fuels in Soil	797	479	797QR	52
Texas Low-Level Fuels in Soil	796	478	796QR	52
TPH in Soil	570/571	632	572QR	50

### WATER

#### 2011 UST in Water PT Study Schedule

Study #	Study Opens	Study Closes
WP-192	January 17	March 3
WP-195	April 11	May 26
WP-198	July 11	August 25
WP-201	October 14	November 28

Schedule subject to change - see ERA's web site at [www.eraqc.com](http://www.eraqc.com).

### SOIL

#### 2011 UST in Soil PT Study Schedule

Study #	Study Opens	Study Closes
SOIL - 73	January 24	March 10
SOIL - 74	April 18	June 2
SOIL - 75	July 18	September 1
SOIL - 76	October 21	December 5

Schedule subject to change - see ERA's web site at [www.eraqc.com](http://www.eraqc.com).

AL

Additional Level PTs available



**UST IN SOIL**

**BTEX & MTBE in Soil**

CRM	PT <b>Q</b>	QR
Cat. #761	Cat. #633	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 in the EPA/NELAC required range of 20-200 µg/kg (40-400 µg/kg for Total Xylenes). Use with EPA method 8021.

**Gasoline Range Organics (GRO) in Soil**

CRM	PT <b>Q</b>	QR
Cat. #763	Cat. #630	Cat. #763QR

One flame-sealed ampule with 20 g of soil spiked with unleaded regular gasoline in the range 100-2,000 mg/kg. Use with purge and trap and modified EPA 8015 GC/FID methods. Also use to test for BTEX in gasoline.

**Diesel Range Organics (DRO) in Soil**

CRM	PT <b>Q</b>	QR
Cat. #765	Cat. #631	Cat. #765QR

One flame-sealed ampule with 20 g of soil spiked with #2 Diesel fuel in the range 300-3,000 mg/kg. Use with modified EPA 8015 GC/FID methods.

**Total Petroleum Hydrocarbons (TPH) in Soil #1**

CRM	PT <b>Q</b>	QR
Cat. #570	Cat. #632	Cat. #572QR

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

Non-polar Extractable Material (TPH) (Gravimetric).....300-3,000 mg/kg  
 Non-polar Extractable Material (TPH) (IR) .....300-3,000 mg/kg

**Total Petroleum Hydrocarbons (TPH) in Soil #2**

CRM	PT <b>Q</b>	QR
Cat. #571	Cat. #632	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 and 9071B.

Non-polar Extractable Material (TPH) (Gravimetric).....300-3,000 mg/kg  
 Non-polar Extractable Material (TPH) (IR) .....300-3,000 mg/kg

**UST IN WATER**

**BTEX & MTBE in Water**

CRM	PT <b>Q</b>	QR
Cat. #760	Cat. #643	Cat. #760QR

One 2 mL flame-sealed ampule yields in excess of 200 mL after dilution. Use with EPA methods 602 and 8021. Includes all BTEX compounds and MTBE in the EPA/NELAC required range 7-300 µg/L after dilution.

**Gasoline Range Organics (GRO) in Water**

CRM	PT <b>Q</b>	QR
Cat. #762	Cat. #640	Cat. #762QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with both purge & trap and modified EPA 8015 GC/FID methods to test for GRO in the EPA/NELAC required range 200-4,000 µg/L. Also use to test for BTEX in gasoline.

**Diesel Range Organics (DRO) in Water**

CRM	PT <b>Q</b>	QR
Cat. #764	Cat. #641	Cat. #764QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Use with modified EPA 8015 GC/FID methods. Includes #2 Diesel in the EPA/NELAC required range 500-4,000 µg/L.

**Total Petroleum Hydrocarbons (TPH) in Water #1**

CRM	PT <b>Q</b>	QR
Cat. #600	Cat. #642	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 and 5520.

Total Petroleum Hydrocarbons .....20-170 mg/L

**Total Petroleum Hydrocarbons (TPH) in Water #2**

CRM	PT <b>Q</b>	QR
Cat. #601	Cat. #642	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 and 8440.

Total Petroleum Hydrocarbons .....20-170 mg/L

**M Q** All ERA UST PTs open monthly or quarterly unless otherwise noted.

All Alaska UST PT standards are designed for use with AK101, AK102 or AK103 methods. The standards meet the requirements of all states that accredit for these methods including Alaska.

### ALASKA UST IN WATER

Alaska GRO in Water	
CRM	PT*
Cat. #645	Cat. #473

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	PT*
Cat. #647	Cat. #475

One 2 mL flame-sealed ampule. Use with method AK102 for No. 2 Diesel at 800-2,300 µg/L after dilution.

Alaska BTEX in Water	
CRM	PT*
Cat. #646	Cat. #474

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	PT*
Cat. #635	Cat. #469

One 20 mL flame-sealed ampule with 10 g of soil and 10 mL of methanol with unleaded regular gasoline at 30-1,500 mg/kg. Use with method AK101.

Alaska DRO in Soil	
CRM	PT*
Cat. #637	Cat. #471

One flame-sealed ampule with 20 g of soil spiked with No. 2 Diesel fuel at 30-1,500 mg/kg. Use with method AK102.

Alaska RRO in Soil	
CRM	PT*
Cat. #638	Cat. #472

One flame-sealed ampule with 20 g of soil with Residual Range Organic fuels at 150-2,000 mg/kg. Use with method AK103.

Alaska BTEX in Soil	
CRM	PT*
Cat. #636	Cat. #470

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.

\*ERA Alaska UST PTs are available at any time.

### ARIZONA UST IN SOIL

Arizona TPH in Soil		
CRM	PT Q	QR
Cat. #798	Cat. #488	Cat. #798QR

One ready-to-use flame-sealed ampule with 30g of soil with Oil Range Organics and No. 2 Diesel fuel. Use with method 8015AZ for TPH in the range 300-400 mg/kg. Also includes two carbon ranges.



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

### TEXAS TPH IN WATER

Texas Low-Level Fuels (TPH) in Water		
<b>CRM</b>	<b>PT <b>Q</b></b>	<b>QR</b>
Cat. #794	Cat. #476	Cat. #794QR

One 2 mL flame-sealed ampule yields in excess of 200 mL after dilution. Contains unleaded regular gasoline and No. 2 Diesel Fuel resulting in TPH in the range 5-10 mg/L.

Texas High-Level Fuels (TPH) in Water		
<b>CRM</b>	<b>PT <b>Q</b></b>	<b>QR</b>
Cat. #795	Cat. #477	Cat. #795QR

One 2 mL flame-sealed ampule yields in excess of 200 mL after dilution. Contains unleaded regular gasoline and No. 2 Diesel Fuel resulting in TPH in the range 20-100 mg/L.

### TEXAS TPH IN SOIL

Texas Low-Level Fuels (TPH) in Soil		
<b>CRM</b>	<b>PT <b>Q</b></b>	<b>QR</b>
Cat. #796	Cat. #478	Cat. #796QR

One ready-to-use flame-sealed ampule with 20g of soil with unleaded gasoline and No. 2 Diesel Fuel for TPH in the range 50-100 mg/kg.

Texas High-Level Fuels (TPH) in Soil		
<b>CRM</b>	<b>PT <b>Q</b></b>	<b>QR</b>
Cat. #797	Cat. #479	Cat. #797QR

One ready-to-use flame-sealed ampule with 20g of soil with unleaded gasoline and No. 2 Diesel Fuel for TPH in the range 1,000-20,000 mg/kg.

### 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		
<b>CRM</b>	<b>PT <b>Q</b></b>	<b>QR</b>
Cat. #773	Cat. #649	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		
<b>CRM</b>	<b>PT <b>Q</b></b>	<b>QR</b>
Cat. #772	Cat. #648	Cat. #772QR

One 2 mL flame-sealed ampule yields in excess of 200 mL 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.

HEM/SGT-HEM		
<b>CRM</b>	<b>PT <b>Q</b></b>	<b>QR</b>
Cat. #519	Cat. #489	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	Cat. #564QR

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

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



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 HYDROCARBONS IN WATER**

Massachusetts VPH in Water		
CRM	PT Q	QR
Cat. #566	Cat. #481	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 200-4,000 µg/L. Use with the Massachusetts Volatile Petroleum Hydrocarbon method for multiple carbon ranges, BTEX compounds and MTBE.

Massachusetts EPH in Water		
CRM	PT Q	QR
Cat. #567	Cat. #482	Cat. #567QR

One 2 mL flame-sealed ampule yields up to 2 liters after dilution. Contains extractable petroleum hydrocarbon fuels (EPH) in the range 500-4,000 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 Q	QR
Cat. #568	Cat. #483	Cat. #568QR

One flame-sealed ampule with 20 g soil with VPH fuels. Contains volatile petroleum hydrocarbon fuels (VPH) in the range 100-2,000 mg/kg. Use with the Massachusetts Volatile Petroleum Hydrocarbon method for multiple carbon ranges, BTEX compounds and MTBE.

Massachusetts EPH in Soil		
CRM	PT Q	QR
Cat. #569	Cat. #484	Cat. #569QR

One flame-sealed ampule with 20 g soil with EPH fuels. Contains extractable petroleum hydrocarbon fuels (EPH) in the range 300-3,000 mg/kg. Use with the Massachusetts Extractable Petroleum Hydrocarbon method for multiple carbon ranges and PAH compounds.

# Air & Emissions



## QUICK REFERENCE GUIDE

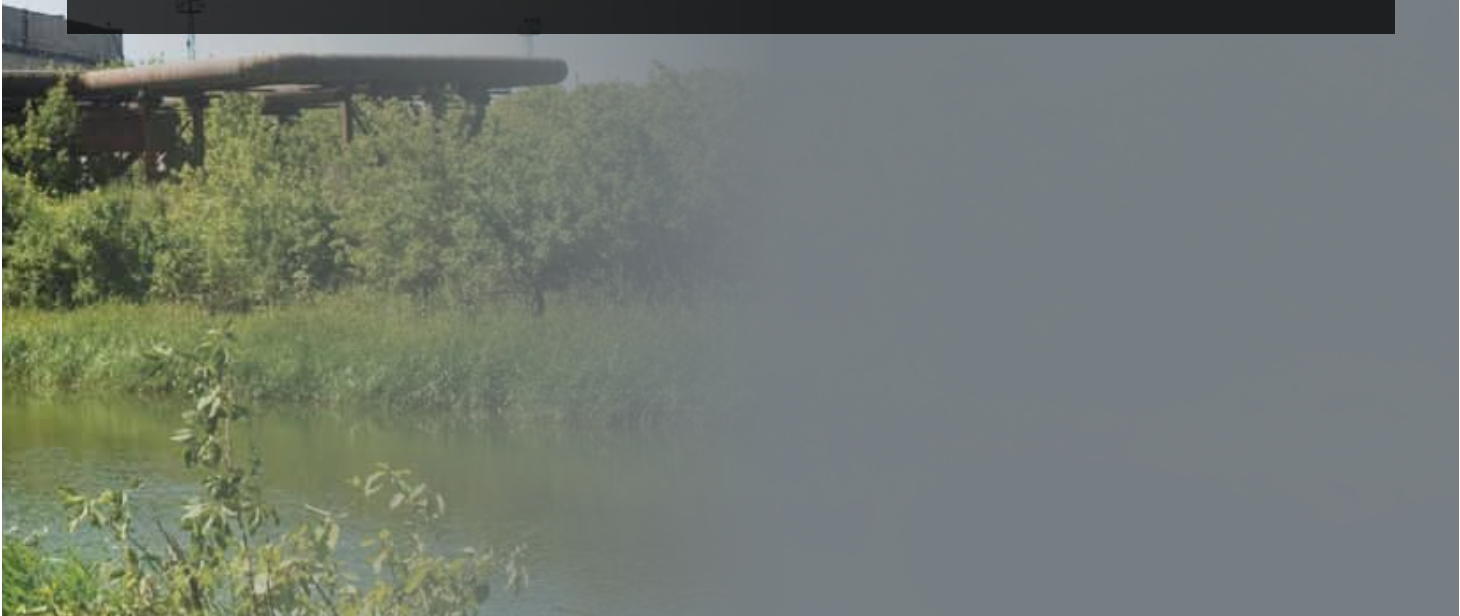
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<b>AIR</b>		<b>2011 Air &amp; Emissions PT Study Schedule</b>	
Study #	Study Opens	Study Closes	
AE - 15	January 31	March 17	
AE - 16	April 25	June 9	
AE - 17	July 25	September 8	
AE - 18	October 28	December 12	

Schedule subject to change - see ERA's web site at [www.eraqc.com](http://www.eraqc.com).

**AL** Additional Level PTs available



**VOLATILES**

**Volatiles in Gas Cylinder**

CRM Cat. #1100	PT <b>Q</b> Cat. #1000	QR Cat. #1100QR
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One pressurized gas cylinder for use with EPA methods TO-14 and TO-15. Contains at least 10 analytes, randomly selected from the list below, at 1–30 ppbv (2–60 ppbv for Total Xylenes).

Benzene	1,1-Dichloroethane	Tetrachloroethylene
Bromodichloromethane	1,2-Dichloroethane	Toluene
Bromoform	1,1-Dichloroethylene	1,2,4-Trichlorobenzene
Bromomethane	cis-1,2-Dichloroethylene	1,1,1-Trichloroethane
2-Butanone (MEK)	1,2-Dichloropropane	1,1,2-Trichloroethane
tert-Butyl methyl ether (MTBE)	cis-1,3-Dichloropropylene	Trichlorofluoromethane (Freon 11)
Carbon tetrachloride	trans-1,3-Dichloropropylene	Trichlorotrifluoromethane (Freon 113)
Chlorobenzene	1,2-Dichlorotetrafluoroethane (Freon 114)	1,2,4-Trimethylbenzene
Chlorodibromomethane	Ethylbenzene	1,3,5-Trimethylbenzene
Chloroethane	p-Ethyltoluene	Vinyl bromide
Chloroform	n-Heptane	Vinyl chloride
Chloromethane	Hexachlorobutadiene	Xylenes, total
Cyclohexane	n-Hexane	
1,2-Dibromoethane (EDB)	2-Hexanone	
1,2-Dichlorobenzene	4-Methyl-2-pentanone (MIBK)	
1,4-Dichlorobenzene	Propylene	
Dichlorodifluoromethane (Freon 12)	1,1,1,2-Tetrachloroethane	
	1,1,2,2-Tetrachloroethane	

**Volatiles on Sorbent**

CRM Cat. #1101	PT <b>Q</b> Cat. #1001	QR Cat. #1101QR
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One 2 mL flame-sealed ampule for spiking client-specific sorbent. Use with EPA methods TO-17, 0030 and 0031. Contains at least 24 analytes, randomly selected from the list below, at 50–2,000 ng/sample (200–3,000 ng/sample for Total Xylenes) after preparation.

Acetone	1,2-Dibromo-3-chloropropane (DBCP)	2-Hexanone
Acetonitrile	1,2-Dibromoethane (EDB)	Methylene chloride
Acrolein	Dibromomethane	4-Methyl-2-pentanone (MIBK)
Acrylonitrile	1,2-Dichlorobenzene	Naphthalene
Benzene	1,3-Dichlorobenzene	Styrene
Bromodichloromethane	1,4-Dichlorobenzene	1,1,1,2-Tetrachloroethane
Bromoform	Dichlorodifluoromethane (Freon 12)	1,1,2,2-Tetrachloroethane
Bromomethane	1,1-Dichloroethane	Tetrachloroethene
2-Butanone (MEK)	1,2-Dichloroethane	Toluene
tert-Butyl methyl ether (MTBE)	1,1-Dichloroethene	1,2,4-Trichlorobenzene
Carbon disulfide	trans-1,2-Dichloroethene	1,1,1-Trichloroethane
Carbon tetrachloride	1,2-Dichloropropane	1,1,2-Trichloroethane
Chlorobenzene	cis-1,3-Dichloropropene	Trichloroethylene
Chlorodibromomethane	trans-1,3-Dichloropropene	Trichlorofluoromethane
Chloroethane	Ethylbenzene	1,2,3-Trichloropropane
2-Chloroethylvinylether	Hexachlorobutadiene	Vinyl acetate
Chloroform		Vinyl chloride
Chloromethane		Xylenes, total



**Q** All ERA Air & Emissions PTs open quarterly.

**SEMIVOLATILES**

Semivolatiles on PUF		
CRM	PT <b>Q</b>	QR
Cat. #1110	Cat. #1010	Cat. #1110QR
Two 2 mL flame-sealed ampules plus one polyurethane foam (PUF). Use with EPA method 0010. Contains at least 42 analytes, randomly selected from the list below, at 10–225 µg/sample (200–1,000 µg/sample for Benzidine) after preparation.		
Acenaphthene	1,2-Dichlorobenzene	N-Nitrosodiphenylamine
Acenaphthylene	1,3-Dichlorobenzene	N-Nitroso-di-n-propylamine
Aniline	1,4-Dichlorobenzene	Pentachlorobenzene
Anthracene	3,3'-Dichlorobenzidine	Phenanthrene
Benzidine	Diethyl phthalate	Pyrene
Benzo(a)anthracene	Dimethyl phthalate	Pyridine
Benzo(b)fluoranthene	2,4-Dinitrotoluene	o-Toluidine
Benzo(k)fluoranthene	2,6-Dinitrotoluene	1,2,4,5-Tetrachlorobenzene
Benzo(g,h,i)perylene	Di-n-octylphthalate	1,2,4-Trichlorobenzene
Benzo(a)pyrene	Fluoranthene	Benzoic Acid
Benzyl alcohol	Fluorene	4-Chloro-3-methylphenol
4-Bromophenylphenylether	Hexachlorobenzene	2-Chlorophenol
Butylbenzylphthalate	Hexachlorobutadiene	2,4-Dichlorophenol
Carbazole	Hexachlorocyclopentadiene	2,6-Dichlorophenol
4-Chloroaniline	Hexachloroethane	2,4-Dimethylphenol
Bis(2-chloroethoxy)methane	Indeno(1,2,3-cd)pyrene	2,4-Dinitrophenol
Bis(2-chloroethyl)ether	Isophorone	2-Methyl-4,6-dinitrophenol
Bis(2-chloroisopropyl)ether	2-Methylnaphthalene	2-Methylphenol (o-Cresol)
Bis(2-ethylhexyl)phthalate	Naphthalene	4-Methylphenol (p-Cresol)
1-Chloronaphthalene	2-Nitroaniline	2-Nitrophenol
2-Chloronaphthalene	3-Nitroaniline	4-Nitrophenol
4-Chlorophenylphenylether	4-Nitroaniline	Pentachlorophenol
Chrysene	Nitrobenzene	Phenol
Dibenz(a,h)anthracene	N-Nitrosodiethylamine	2,3,4,6-Tetrachlorophenol
Dibenzofuran	N-Nitrosodimethylamine	2,4,5-Trichlorophenol
Di-n-butylphthalate	(NDMA)	2,4,6-Trichlorophenol

Organochlorine Pesticides on PUF		
CRM	PT <b>Q</b>	QR
Cat. #1111	Cat. #1011	Cat. #1111QR
One 2 mL flame-sealed ampule plus one polyurethane foam (PUF). Use with EPA methods TO-04A and TO-10A. Contains at least 16 analytes, randomly selected from the list below, at 0.5–20 µg/sample after preparation.		
Aldrin	4,4'-DDD	Endrin
alpha-BHC	4,4'-DDE	Endrin aldehyde
beta-BHC	4,4'-DDT	Endrin ketone
delta-BHC	Dieldrin	Heptachlor
gamma-BHC (Lindane)	Endosulfan I	Heptachlor epoxide (beta)
alpha-Chlordane	Endosulfan II	Methoxychlor
gamma-Chlordane	Endosulfan sulfate	

PCBs on PUF		
CRM	PT <b>Q</b>	QR
Cat. #1112	Cat. #1012	Cat. #1112QR
One 2 mL flame-sealed ampule plus one polyurethane foam (PUF). Use with EPA methods TO-04A and TO-10A. Contains one Aroclor, randomly selected from the list below, at 1–15 µg/sample after preparation.		
Aroclor 1016		1–15 µg/sample
Aroclor 1221		1–15 µg/sample
Aroclor 1232		1–15 µg/sample
Aroclor 1242		1–15 µg/sample
Aroclor 1248		1–15 µg/sample
Aroclor 1254		1–15 µg/sample
Aroclor 1260		1–15 µg/sample

PAHs on PUF		
CRM	PT <b>Q</b>	QR
Cat. #1113	Cat. #1013	Cat. #1113QR
One 2 mL flame-sealed ampule plus one polyurethane foam (PUF). Use with EPA method TO-13A. Contains at least 13 analytes, randomly selected from the list below, at 10–200 µg/sample after preparation.		
Acenaphthene	Benzo(g,h,i)perylene	Fluorene
Acenaphthylene	Benzo(a)pyrene	Indeno(1,2,3-cd)pyrene
Anthracene	Chrysene	Naphthalene
Benzo(a)anthracene	Dibenz(a,h)anthracene	Phenanthrene
Benzo(b)fluoranthene	Fluoranthene	Pyrene
Benzo(k)fluoranthene		

Aldehydes & Ketones on Sorbent		
CRM	PT <b>Q</b>	QR
Cat. #1114	Cat. #1014	Cat. #1114QR
One 2 mL flame-sealed ampule to be spiked onto Sorbent. Use with EPA method TO-11A. Contains at least 4 analytes, randomly selected from the list below, at 0.5–10 µg/sample after preparation.		
Acetaldehyde	Crotonaldehyde	Propionaldehyde (propanal)
Acetone	2,5-Dimethylbenzaldehyde	o-Tolualdehyde
Benzaldehyde	Formaldehyde	m-Tolualdehyde
2-Butanone (MEK)	Hexaldehyde (hexanal)	p-Tolualdehyde
Butyraldehyde (butanal)	Isovaleraldehyde	Valeraldehyde (pentanal)



**METALS**

**Metals on Filter Paper**

CRM	PT <b>Q</b>	QR
Cat. #1125	Cat. #1025	Cat. #1125QR

One filter paper sample ready for use with EPA method 29.

Antimony .....	10-250 µg/filter
Arsenic .....	10-250 µg/filter
Barium .....	10-250 µg/filter
Beryllium .....	10-250 µg/filter
Cadmium .....	10-250 µg/filter
Chromium .....	10-250 µg/filter
Cobalt .....	10-250 µg/filter
Copper .....	10-250 µg/filter
Lead .....	10-500 µg/filter
Manganese .....	10-500 µg/filter
Nickel .....	10-250 µg/filter
Phosphorus .....	10-250 µg/filter
Selenium .....	10-250 µg/filter
Silver .....	10-250 µg/filter
Thallium .....	10-250 µg/filter
Zinc .....	10-250 µg/filter

**Metals in Impinger Solution**

CRM	PT <b>Q</b>	QR
Cat. #1126	Cat. #1026	Cat. #1126QR

One impinger solution sample for use with EPA method 29.

Antimony .....	0.15-25 µg/mL
Arsenic .....	0.15-25 µg/mL
Barium .....	0.15-25 µg/mL
Beryllium .....	0.15-25 µg/mL
Cadmium .....	0.15-25 µg/mL
Chromium .....	0.15-25 µg/mL
Cobalt .....	0.15-25 µg/mL
Copper .....	0.15-25 µg/mL
Lead .....	0.15-25 µg/mL
Manganese .....	0.15-25 µg/mL
Nickel .....	0.15-25 µg/mL
Phosphorus .....	0.15-25 µg/mL
Selenium .....	0.15-25 µg/mL
Silver .....	0.15-25 µg/mL
Thallium .....	0.15-25 µg/mL
Zinc .....	0.15-25 µg/mL

**Mercury on Filter Paper**

CRM	PT <b>Q</b>	QR
Cat. #1127	Cat. #1027	Cat. #1127QR

One filter paper sample ready for use with EPA method 29.

Mercury .....	0.20-10 µg/filter
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**Mercury in Impinger Solution**

CRM	PT <b>Q</b>	QR
Cat. #1128	Cat. #1028	Cat. #1128QR

One impinger solution sample for use with EPA methods 29 and 101a.

Mercury .....	0.5-200 ng/mL
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**Lead on Filter Paper**

CRM	PT <b>Q</b>	QR
Cat. #1129	Cat. #1029	Cat. #1129QR

One filter paper sample ready for use with EPA method 12.

Lead .....	10-250 µg/filter
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**Lead in Impinger Solution**

CRM	PT <b>Q</b>	QR
Cat. #1130	Cat. #1030	Cat. #1130QR

One impinger solution sample for use with EPA method 12.

Lead .....	0.1-120 µg/mL
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**Chromium on Filter Paper**

CRM	PT <b>Q</b>	QR
Cat. #1131	Cat. #1031	Cat. #1131QR

One filter paper sample for use with CARB method 425.

Total chromium .....	1-20 µg/filter
Hexavalent chromium .....	1-20 µg/filter

**Hexavalent Chromium in Impinger Solution**

CRM	PT <b>Q</b>	QR
Cat. #1132	Cat. #1032	Cat. #1132QR

One impinger solution sample for use with EPA method 0061/7199.

Hexavalent chromium .....	45-880 µg/L
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**Q** All ERA Air & Emissions PTs open quarterly.

**INORGANICS**

**Hydrogen Halides & Halogens in Impinger Solution**

CRM	PT <b>Q</b>	QR
Cat. #1140	Cat. #1040	Cat. #1140QR

Two impinger solution samples for use with EPA methods 26 and 26a.

Total halides .....	15-300 mg/L
Total halogens .....	10-200 mg/L
Hydrogen chloride .....	5-100 mg/L
Hydrogen fluoride .....	5-100 mg/L
Hydrogen bromide .....	5-100 mg/L
Bromine .....	5-100 mg/L
Chlorine .....	5-100 mg/L

**Fluoride in Impinger Solution**

CRM	PT <b>Q</b>	QR
Cat. #1141	Cat. #1041	Cat. #1141QR

One impinger solution sample for use with EPA methods 13a, 13b and 14.

Fluoride .....	1-50 mg/dscm
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**Nitrogen Oxide in Impinger Solution**

CRM	PT <b>Q</b>	QR
Cat. #1142	Cat. #1042	Cat. #1142QR

One impinger solution sample for use with EPA method 7.

Oxides of nitrogen .....	50-2000 mg/dscm
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**Sulfur Dioxide in Impinger Solution**

CRM	PT <b>Q</b>	QR
Cat. #1143	Cat. #1043	Cat. #1143QR

One impinger solution sample for use with EPA method 6.

Sulfur dioxide .....	50-2000 mg/dscm
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**Sulfuric Acid & Sulfur Dioxide in Impinger Solution**

CRM	PT <b>Q</b>	QR
Cat. #1144	Cat. #1044	Cat. #1144QR

One impinger solution sample for use with EPA method 8.

Sulfuric acid .....	10-150 mg/dscm
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**Ammonia in Impinger Solution**

CRM	PT <b>Q</b>	QR
Cat. #1145	Cat. #1045	Cat. #1145QR

One impinger solution sample for use with EPA CTM 027.

Ammonia as N .....	0.1-10 mg/L
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**Particulate Matter on Filter Paper**

CRM	PT <b>Q</b>	QR
Cat. #1150	Cat. #1050	Cat. #1150QR

One filter paper sample ready for use with EPA methods 5, 5A, 5B, 5D and 5F.

Particulate matter .....	50-600 mg/filter
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**Particulate Matter in Impinger Solution**

CRM	PT <b>Q</b>	QR
Cat. #1151	Cat. #1051	Cat. #1151QR

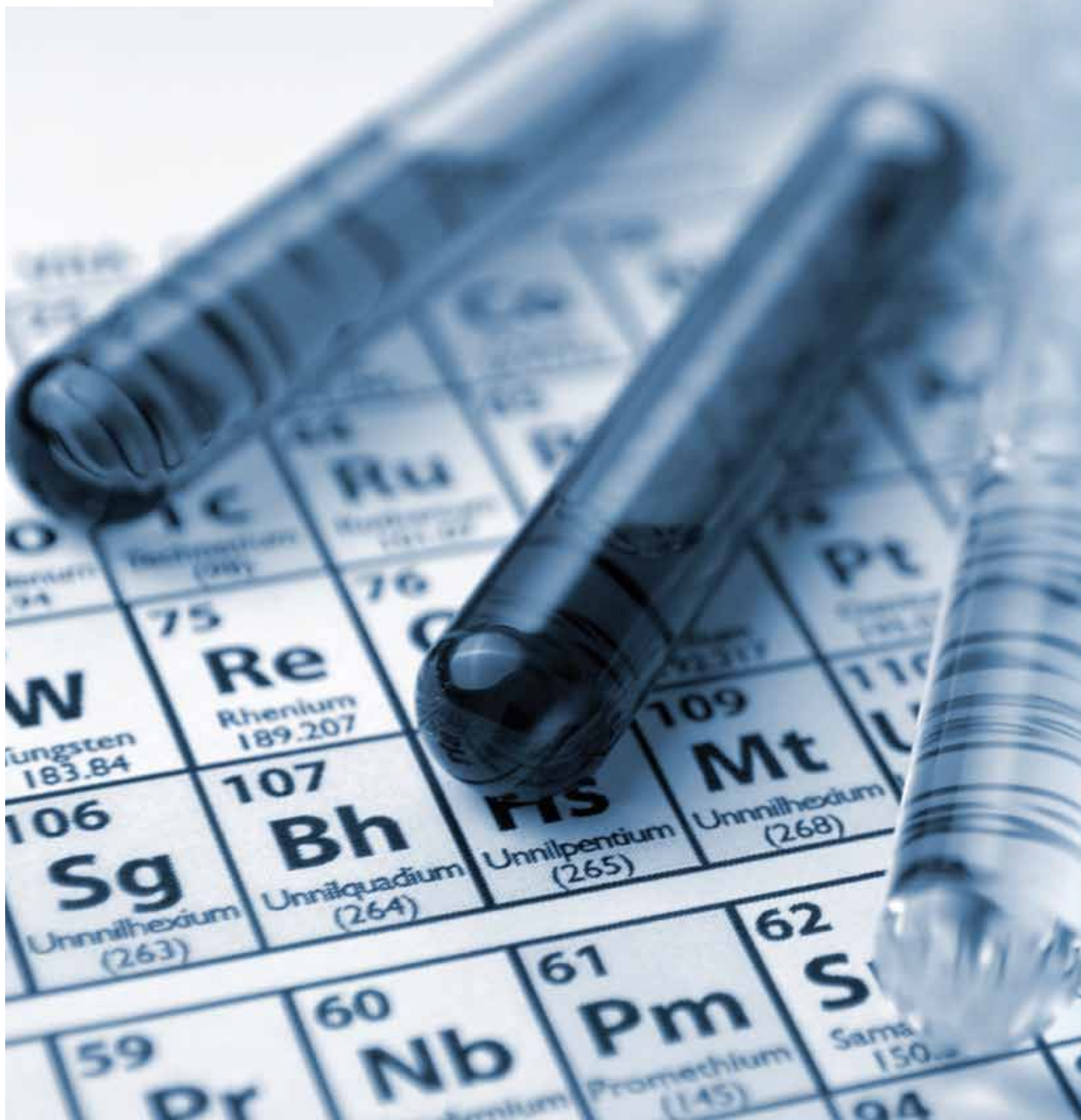
One impinger solution sample ready for use with EPA methods 5, 5A, 5B, 5D and 5F.

Particulate matter .....	140-675 mg/L
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**From Left to Right:**  
**Ellen LaRiviere,**  
 Customer Service Representative  
**Pat Maloney,**  
 Customer Service Representative  
**Steve Bueghly,**  
 Proficiency Testing Chemist  
**Audrey Cornell,**  
 Proficiency Testing Chemist  
**GG Galarneau,**  
 Director of Operations

## Custom Standards



## CUSTOM STANDARDS

### Quality Focus

Calibration standards, stock solutions, LCS, matrix spikes prepared in drinking water, wastewater, sea water, soil, sludge, cement, fish. If a standard can be made, we will prepare it for you. Now that's versatile! ERA custom standards can be made as concentrates or as ready-to-use whole-volume solutions, and each standard is supplied with a comprehensive Certificate of Analysis.

### The ordering process is simple:

The ordering process is very simple because we do most of the work. Examine your requirements and give us a call. We'll discuss your DQOs, the technical aspects of the project such as analytes, matrix, and concentration levels, all the way through the type of bottles and labels you require. We'll take it from there and combine your specific needs with our repertoire of past projects to achieve the most technical, time and cost-effective solution. We'll quickly get back to you with a firm quote. It really is that simple!

### Remember, we have experience with:

- Every CWA, SDWA, RCRA and Superfund CLP analyte
- Every SCC, CALA and Ont MOE SDWA analyte
- Chemical, microbiological and radiochemical analytes
- Speciated metal standards
- Organometallic standards
- Water, waste, brine, food, soil, sludge, biological tissues, plant materials, petroleum, air filters, concrete, etc.
- Project/site-specific and client as well as ERA-supplied matrices
- Ultra trace to percent levels
- Historical ERA acceptance limits or sample/project-specific limits
- One standard or hundreds of standards
- Managed methodology studies

### Are custom standards expensive?

While the cost of custom standards certainly depends on the complexity of your requirements, the costs for most simple standards is not much more than the price of similar "standard" products. The final cost is dependent on many factors, including the materials used, time required, complexity of the standards and extent of analytical validation required. In every case, you will receive a fixed price quotation based upon your project-specific requirements and you can count on ERA to deliver what you need, when you need it.

## DOUBLE BLIND EVALUATIONS

### Get a realistic assessment of your lab's data

Many site investigations involve analyses for just a few specific targets, not the entire "list" of analytes. Wouldn't your project gain more benefit from custom CRM or PT standards prepared with only the analytes of interest at just the right levels in your matrix of concern? With custom standards prepared to match your project-specific needs, you and your client will gain a level of confidence with tangible evidence that your laboratory is meeting all quality objectives.

### Here's how it works:

ERA will work with you to design a double-blind project that meets your needs. 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. We will work with you every step of the way to ensure that your quality and cost objectives are met. Call our customs group today to begin the process of understanding the real performance of your laboratory.

1. Tell us which analytes at what concentrations in which matrices you want in your blind PE standards.
2. Select one of our stock standards. Or, at a modestly higher cost, we will design and prepare custom PE standards.
3. You send us your empty sample bottles, labels, chain-of-custody forms and sample coolers.
4. We prepare, dilute (if necessary) and preserve the standards, fill your sample bottles and ship them back to you via overnight delivery service.
5. ERA's Certified Values and Performance Acceptance Limits, PALS™, are sent to you under separate sealed cover.
6. You integrate the standards into your sampling event or introduce them into your lab's routine sample load.
7. Your lab analyzes the blind PE standards along with routine samples.
8. You compare your lab's results to ERA's Certified Values and PALS.



**From Left to Right:**  
**John Laferty,**  
Product Line Manager  
**Paul Battle,**  
Chemistry Technician  
**Chad Lane,**  
Inorganic Chemist  
**Tony Ciacco,**  
Inorganic Chemist  
**Eric Leonard,**  
Chemistry Technician

## TOTAL LAB EVALUATIONS

### Get an evaluation of your entire lab operation

ERA's TotalaB™ Evaluation Service allows you to see all the important aspects of your lab operation as experienced by your customers.

Our service evaluates your lab from how you answer the phone and respond to customer inquiries, to the appearance of your bottles and coolers, to the quality of your data and reports. We identify excellence in your operation that will help sell your services and pinpoint problems that may be affecting your business.

Join Fortune 500 manufacturing companies, major engineering firms, and laboratory networks that have benefited from the invaluable insights gained from this ERA service.

### Here's how it works:

1. Tell us the lab(s) you want evaluated. Our 'consulting firm' will contact the lab(s) concerning an upcoming project. We evaluate your customer service staff's ability to help work out the details of the project and provide an appropriate quotation. You will gain insight into how your staff routinely deals with customers.
2. Our 'consulting firm' initiates the project and asks your lab to ship bottles, coolers and paperwork to their site which are immediately forwarded onto ERA. We evaluate the quality and consistency of your sampling materials and clarity of your instructions.
3. ERA prepares the blind whole-volume PE standards, fills your lab's bottles and ships them through our 'consulting firm' to the lab(s). We evaluate your lab's technical assistance and the quality of the report and data.
4. While our confidential report includes an evaluation of your data quality, what really is unique about ERA's Total Lab Service is our evaluation of the non-technical aspects of your operation. As often as not, these aspects of your service are just as important to your customers in forming an opinion about the quality of your laboratory.



# Calibration Standards



## ERA CAL 1000 MG/L STANDARDS

ERA 1000 mg/L standards can be used for primary calibration or to prepare second source calibration check standards. They are traceable to NIST Standard Reference Materials, where available, and are guaranteed stable for one year. The certification documentation includes manufacturing uncertainties, traceability summaries and densities to aid in performing quantitative dilutions. The documentation for metal standards includes impurities.

### INORGANICS - 1000 MG/L

#### Chemical Oxygen Demand (COD)

<b>500 mL bottle</b>	<b>125 mL bottle</b>
Cat. #974	Cat. #042

One 1,000 mg/L standard preserved with H<sub>2</sub>SO<sub>4</sub> in an amber glass bottle.

#### Total Kjeldahl-Nitrogen (TKN)

<b>500 mL bottle</b>	<b>125 mL bottle</b>
Cat. #996	Cat. #043

One 1,000 mg/L standard preserved with HCl in a poly bottle.

#### MBAS/LAS Surfactants

Cat. #975

One 10 mL flame-sealed ampule containing 1,000 mg/L LAS preserved with H<sub>2</sub>SO<sub>4</sub> for use with USEPA method 425.1.

#### Total Organic Carbon (TOC)

Cat. #978

One 500 mL 1,000 mg/L amber glass bottle preserved with H<sub>2</sub>SO<sub>4</sub>.

#### Total Organic Halides (TOX)

Cat. #976

One 2 mL flame-sealed ampule at 1,000 mg/L in Methanol to be diluted for use with Standard Methods 5320B.

#### Phenol

Cat. #982

One 500 mL 1,000 mg/L amber glass bottle preserved with H<sub>2</sub>SO<sub>4</sub>.

#### Sulfide

Cat. #999

One 10 mL flame-sealed ampule containing 1,000 mg/L sulfide preserved with NaOH and zinc acetate.

### IONS - 1000 MG/L

Parameter	Matrix	500 mL bottle	125 mL bottle
Acetate	H <sub>2</sub> O		Cat. #78202
Ammonia as NH <sub>3</sub>	H <sub>2</sub> O	Cat. #986	Cat. #044
Ammonia as N	H <sub>2</sub> O	Cat. #985	Cat. #045
Bromate	H <sub>2</sub> O		Cat. #065
Bromide	H <sub>2</sub> O	Cat. #987	Cat. #046
Chlorate	H <sub>2</sub> O		Cat. #066
Chloride	H <sub>2</sub> O	Cat. #988	Cat. #047
Chlorite	H <sub>2</sub> O		Cat. #067
Complex cyanide	NaOH	Cat. #998	Cat. #049
Cyanide (free)	NaOH	Cat. #997	Cat. #048
Fluoride	H <sub>2</sub> O	Cat. #989	Cat. #050
Iodide	H <sub>2</sub> O		Cat. #78212
Nitrate as NO <sub>3</sub>	H <sub>2</sub> O	Cat. #992	Cat. #051
Nitrate as N	H <sub>2</sub> O	Cat. #991	Cat. #052
Nitrite as N	H <sub>2</sub> O	Cat. #990	Cat. #053
Nitrite as NO <sub>2</sub>	H <sub>2</sub> O	Cat. #952	Cat. #K15
Perchlorate	H <sub>2</sub> O		Cat. #068
Phosphate as PO <sub>4</sub>	H <sub>2</sub> O	Cat. #994	Cat. #060
Phosphate as P	H <sub>2</sub> O	Cat. #993	Cat. #061
Sulfate	H <sub>2</sub> O	Cat. #995	Cat. #062

### CATIONS BY ION CHROMATOGRAPHY - 100 MG/L

Parameter	Matrix	125 mL bottle
Lithium	H <sub>2</sub> O	Cat. #78110
Ammonium as NH <sub>4</sub>	H <sub>2</sub> O	Cat. #78102
Ammonium as N	H <sub>2</sub> O	Cat. #78104

### CATIONS BY ION CHROMATOGRAPHY - 1000 MG/L

Parameter	Matrix	125 mL bottle
Calcium	H <sub>2</sub> O	Cat. #K10
Magnesium	H <sub>2</sub> O	Cat. #K11
Potassium	H <sub>2</sub> O	Cat. #K12
Sodium	H <sub>2</sub> O	Cat. #K13



**METALS - 1000 MG/L**

Parameter	Matrix	125 mL bottle
Aluminum	HNO <sub>3</sub>	Cat. #011
Antimony	HNO <sub>3</sub>	Cat. #012
Arsenic	HNO <sub>3</sub>	Cat. #013
Barium	HNO <sub>3</sub>	Cat. #014
Beryllium	HNO <sub>3</sub>	Cat. #015
Bismuth	HNO <sub>3</sub>	Cat. #K01
Boron	HNO <sub>3</sub>	Cat. #016
Cadmium	HNO <sub>3</sub>	Cat. #017
Calcium	HNO <sub>3</sub>	Cat. #018
Chromium	HNO <sub>3</sub>	Cat. #020
Chromium VI	H <sub>2</sub> O	Cat. #019
Cobalt	HNO <sub>3</sub>	Cat. #021
Copper	HNO <sub>3</sub>	Cat. #022
Iron	HNO <sub>3</sub>	Cat. #023
Lead	HNO <sub>3</sub>	Cat. #024
Lithium	HNO <sub>3</sub>	Cat. #K04
Magnesium	HNO <sub>3</sub>	Cat. #025
Manganese	HNO <sub>3</sub>	Cat. #026

Parameter	Matrix	125 mL bottle
Mercury	HNO <sub>3</sub>	Cat. #027
Molybdenum	HNO <sub>3</sub>	Cat. #028
Nickel	HNO <sub>3</sub>	Cat. #029
Phosphorus	HNO <sub>3</sub>	Cat. #063
Potassium	HNO <sub>3</sub>	Cat. #030
Selenium	HNO <sub>3</sub>	Cat. #031
Silica	H <sub>2</sub> O	Cat. #064
Silicon	HNO <sub>3</sub>	Cat. #032
Silver	HNO <sub>3</sub>	Cat. #033
Sodium	HNO <sub>3</sub>	Cat. #034
Strontium	HNO <sub>3</sub>	Cat. #035
Thallium	HNO <sub>3</sub>	Cat. #036
Tin	HCl	Cat. #037
Titanium	HCl	Cat. #038
Vanadium	HNO <sub>3</sub>	Cat. #039
Yttrium	HNO <sub>3</sub>	Cat. #K08
Zinc	HNO <sub>3</sub>	Cat. #040

Other metals, concentrations and volumes are also available. Call 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-top poly bottle preserved with HNO<sub>3</sub> and tartaric acid.

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

**ICP-MS Major Cations**  
CRM  
Cat. #TMS002

One 125 mL screw-top poly bottle preserved with HNO<sub>3</sub>.

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

**ICP-MS Tuning Standard**  
CRM  
Cat. #TMS004

One 125 mL screw-top poly bottle preserved with HNO<sub>3</sub> and HCl

Barium	10.0 mg/L
Beryllium	10.0 mg/L
Cerium	10.0 mg/L
Cobalt	10.0 mg/L
Indium	10.0 mg/L
Lead	10.0 mg/L
Lithium	10.0 mg/L
Magnesium	10.0 mg/L
Rhodium	10.0 mg/L
Thallium	10.0 mg/L
Uranium	10.0 mg/L
Yttrium	10.0 mg/L

**ANIONS**

**Ion Chromatography**

**CRM**

Cat. #981

One 15 mL screw-top 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
Chloride.....	0.2-20 mg/L
Fluoride.....	0.1-10 mg/L
Nitrate as N.....	0.2-20 mg/L
Phosphate as P.....	0.5-30 mg/L
Sulfate.....	0.5-30 mg/L

**pH BUFFERS**

ERA Cal pH Buffers are directly 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 6-bottle cases.

Value	Volume	Single Bottles	Case of 6 Bottles
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



**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 20 mL screw-top vial, preserved with HNO<sub>3</sub>, 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. Provided with a certificate of NIST traceability.

**Flame AA Cations**

**CRM**

Cat. #530

One 15 mL screw-top vial, preserved with HNO<sub>3</sub>, yields up to 250 mL after dilution. Use with ICP 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<sub>3</sub> 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.....	1.0 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
Vanadium.....	1.0 mg/L
Zinc.....	1.0 mg/L

# Reagents



## QUICK REFERENCE GUIDE

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ERA manufactures industrial reagents with tolerances of +/- 0.5%, and will hold the certified value lot to lot within 0.5%. Our NIST traceable reagents are shipped with a certificate of analysis and are homogeneous at a 95% confidence interval. If you have been looking for a company to manufacture high quality, stable, consistent reagents for your specialized industrial needs, please contact your local ERA Sales Partner for a quote.

### EDTA

EDTA	CRM
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

### IODINE

Iodine	CRM
0.0473N, 1 Gallon	Cat. #183134
0.0473N, 4 x 1 Gallon Case	Cat. #182001
0.1N, 1 Liter	Cat. #183136
0.1N, 1 Gallon	Cat. #183138

### SULFURIC ACID

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

### HCL

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

### SODIUM THIOSULFATE

Sodium Thiosulfate	CRM
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



**pH**

pH	CRM
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

**SODIUM HYDROXIDE**

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

**POTASSIUM HYDROXIDE**

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

**SILVER NITRATE**

Silver Nitrate	CRM
0.1 N, 1 Liter	Cat. #183110
0.1 N, 1 Gallon	Cat. #183112
0.25 N, 1 Liter	Cat. #183114
0.25 N, 1 Gallon	Cat. #183116

**MISCELLANEOUS**

Miscellaneous	CRM
KOH 5 M, KCN 1 M, 5 Gallon	Cat. #183213
Manganese Standard, 40 g/L, 1 Liter	Cat. #183008
Manganese Standard, 55 g/L, 1 Liter	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	Cat. #183221
Potassium Permanganate, 0.1 N, 2.5 liter	Cat. #183001
Potassium Permanganate, 0.1 N, 12 Liter	Cat. #183154
Ferrous Ammonium Sulfate, 0.25 N, 1 Gallon	Cat. #183011
Phenolphthalein, 0.5%, 1 Pint	Cat. #183168
Sodium Carbonate, 1.0 N, 1 Liter	Cat. #183172
Sodium Carbonate, 25 g/L, 10 Liter	Cat. #183002