

SOIL

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

Soil (including UST in Soil) PT Schedule 2020

	Scheme #	Opens	Closes
Q	SOIL 109	Jan 20	Mar 5
Q	SOIL 110	Apr 20	Jun 4
Q	SOIL 111	Jul 20	Sep 3
Q	SOIL 112	Oct 16	Nov 30

2021

	Scheme #	Opens	Closes
Q	SOIL 113	Jan 25	Mar 11
Q	SOIL 114	Apr 19	Jun 3
Q	SOIL 115	Jul 26	Sep 9
Q	SOIL 116	Oct 22	Dec 6

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

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

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

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

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

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

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

Metals

Metals in Soil

CRM Cat. #540	PT Cat. #620	Q	QR Cat. #540QR
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One 40 g soil sample in a screw-cap bottle for all ICP and AA, RCRA and Superfund Methods including EPA Digestion Methods 3050 Hot Plate and 3051 Microwave, or other applicable methods. Includes all metals shown below.

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

Hexavalent Chromium in Soil

CRM Cat. #921	PT Cat. #876	Q	QR Cat. #921QR
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One 40 g standard in a screw-cap bottle for use with all promulgated hexavalent chromium methods.

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

CRM Cat. #544	PT Cat. #629	Q	QR Cat. #544QR
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One 105 g soil standard in a screw-cap bottle designed specifically to meet all state requirements for TCLP extraction and analysis for the metals listed below. Sample is designed to be extracted with fluid #1.

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

Metals in Sewage Sludge

CRM Cat. #160	PT Cat. #619	Q	QR Cat. #160QR
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One 40 g sludge standard in a screw-cap bottle to be analyzed for the metals listed below.

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

Physical Parameters

Corrosivity/pH in Soil

CRM Cat. #914	PT Cat. #875	Q	QR Cat. #914QR
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One 100 g soil standard in a screw-cap bottle. Use to measure corrosivity.

Corrosivity/pH.....	2–12 S.U.
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Ignitability/Flash Point

CRM Cat. #979	PT Cat. #874	Q	QR Cat. #979QR
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One standard packaged in three 30 mL bottles. Use to measure ignitability.

Ignitability/flashpoint.....	100–200 °F
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Oil & Grease in Soil

CRM Cat. #549	PT Cat. #867	Q	QR Cat. #549QR
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One screw-cap bottle containing 50 g of soil ready to analyze. Use with gravimetric method 9071B or infrared spectrometric analysis.

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

Inorganics

Anions in Soil

CRM Cat. #543	PT Cat. #873	Q	QR Cat. #543QR
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One 40 g soil standard in a screw-cap bottle designed for a DI water extraction procedure for all the anions listed below.

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

Cyanide in Soil

CRM Cat. #541	PT Cat. #621	Q	QR Cat. #541QR
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One 40 g soil standard in a screw-cap bottle for all distillation/colorimetric methods.

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

Nutrients in Soil

CRM Cat. #542	PT Cat. #869	Q	QR Cat. #542QR
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One 40 g soil standard in a screw-cap bottle. Use to analyze for all the nutrients listed below.

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

Nutrients in Sludge

CRM Cat. #545

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

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

Volatiles in Soil

CRM Cat. #721	PT Cat. #623	Q	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, 8260, or other applicable methods. Includes a subset of the analytes listed below at 20-200 µg/kg (40-400 µg/kg for total xylenes, 80-1000 for selected ketones, and 100-1000 µg/kg for acetonitrile).

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

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

1,4-Dioxane in Soil

NEW PRODUCT

CRM Cat. #538	PT Cat. #461	B	QR Cat. #538QR
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One 2 mL flame-sealed ampule requires spiking onto the provided ten grams of solid matrix before analysis. Use with modified versions of EPA method 8260, 1624 or other applicable methods.

1,4-Dioxane	20-200 µg/kg
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Gasoline Range Organics (GRO) in Soil

CRM Cat. #763	PT Cat. #630	Q	QR Cat. #763QR
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One flame-sealed ampule with 20 g of soil spiked with unleaded regular gasoline in the range 100-2000 mg/kg. Use with purge and trap and modified EPA 8015 GC/FID Methods, or other applicable methods. Also use to test for BTEX in gasoline.

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

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

Volatiles (continued)

BTEX & MTBE in Soil

CRM Cat. #761	PT 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 the analytes below at 20–200 µg/kg (40–400 µg/kg for total xylenes). Use with EPA Method 8021, or other applicable methods.

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

Ready-to-Use VOAs in Soil

CRM Cat. #924	PT 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 EPA Methods 8021, 8260, or other applicable methods. Includes a subset of the analytes listed below at 1000–20,000 µg/kg.

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



Total Petroleum Hydrocarbons

Total Petroleum Hydrocarbons (TPH) in Soil #1

CRM Cat. #570	PT Cat. #632	QR Cat. #572QR
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One screw-top bottle with 50 g of soil to be analyzed for TPH. Use with EPA IR or Gravimetric Methods 8440, 9071B, or other applicable methods.

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

Total Petroleum Hydrocarbons (TPH) in Soil #2

CRM Cat. #571	PT Cat. #632	QR Cat. #572QR
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One screw-top bottle with 50 g of soil to be analyzed for TPH in the presence of interfering fatty acids. Use with EPA IR or Gravimetric Methods 8440, 9071B, or other applicable methods.

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

TCLP

TCLP Volatiles

CRM Cat. #730	QR Cat. #730QR
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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-Dichloroethene	

TCLP Semivolatiles

CRM Cat. #737	QR Cat. #737QR
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One 2 mL flame-sealed ampule containing a subset of the analytes listed below, each at a concentration of 0.1–2.0 mg/L after dilution. All unspiked analytes are certified at <0.5 mg/L.

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

TCLP Organochlorine Pesticides

CRM Cat. #732	QR Cat. #732QR
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One 2 mL flame-sealed ampule containing a subset of the analytes listed below, each at a concentration of 0.01–0.2 mg/L after dilution. All unspiked analytes are certified at <0.1 mg/L.

Endrin	Heptachlor epoxide	Methoxychlor
Heptachlor	gamma-BHC (Lindane)	

Nitroaromatics & Nitramines in Soil

CRM Cat. #920	PT Cat. #871	Q	QR Cat. #920QR
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Two flame-sealed ampules each containing 30 g of soil are ready to analyze. Use for EPA Methods 8330, 8091, or other applicable methods. Includes a subset of the analytes listed below at 1500-15,000 µg/kg.

4-Amino-2,6-dinitrotoluene	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	

Per- & Polyfluoroalkyl
Substances (PFAS) in SoilNEW
ANALYTES

CRM Cat. #604	PT Cat. #462	Q	QR Cat. #604QR
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One flame-sealed ampule containing 10 g of soil. The standard is certified for all analytes listed below. Each lot will be spiked with 6-12 of the analytes specified in the range of 20-100 µg/kg (40-100 µg/kg for HFPO-DA). Design is suitable for methods analyzing these components with LC-MS/MS techniques.

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

Low-Level PAHs in Soil

CRM Cat. #722	PT Cat. #625	Q	QR Cat. #722QR
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Two flame-sealed ampules each containing 30 g are ready to analyze. Use for EPA HPLC Method 8310, 8270 SIM, or other applicable method. Includes a subset of the analytes listed below at 50-1000 µg/kg.

Acenaphthene	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		

Diesel Range Organics (DRO) in Soil

CRM Cat. #765	PT Cat. #631	Q	QR Cat. #765QR
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One flame-sealed ampule with 20 g of soil spiked with #2 Diesel Fuel in the range 300-3000 mg/kg. Use with modified EPA Method 8015, or other applicable GC/FID methods.

Glycols in Soil

CRM Cat. #928	PT Cat. #463	Q	QR Cat. #928QR
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Two flame-sealed ampules each containing 30 g of soil are ready-to-use. Use with EPA Method 8015B, 8430, 1671, or other applicable method. Includes all the analytes listed below at 75-200 mg/kg.

Diethylene glycol	Propylene glycol	Triethylene glycol
Ethylene glycol	Tetraethylene glycol	

Base/Neutrals & Acids in Soil

CRM Cat. #727	PT Cat. #467	Q	QR Cat. #727QR
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Two flame-sealed ampules each containing 30 g of soil are ready-to-use. Use with EPA Method 8270, or other applicable method. Includes a subset of the analytes listed below at 1000-15,000 µg/kg.

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

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Herbicides

Chlorinated Acid Herbicides in Soil

CRM Cat. #723	PT Cat. #626	Q	QR Cat. #723QR
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Two flame-sealed ampules, each containing 30 g of soil are ready-to-use. Use with EPA Method 8151, or other applicable methods. Includes a subset of the analytes listed below at 100–1000 µg/kg (MCPA & MCPP 1000–10,000 µg/kg).

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

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

PCBs

PCBs in Oil

CRM Cat. #563	PT Cat. #817	Q	QR Cat. #563QR
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One 10 mL flame-sealed ampule is ready to analyze. Contains a different Aroclor, randomly selected from the list below at 10–50 mg/kg.

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

PCBs in Oil Standards

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

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

PCBs in Soil

CRM Cat. #726	PT Cat. #624	Q	QR Cat. #726QR
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One screw-top bottle containing 50 grams of standard is ready to analyze. Use with EPA Method 8082, or other applicable methods. Each standard includes a different aroclor randomly selected from the list below at 1–50 mg/kg.

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

PCBs in Soil Standards

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

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

Heidi Senft
Quality Analyst

Years with Waters ERA: 20



Darwin Baxter
Application Engineer

Years with Waters ERA: 12



Pesticides

Blank Soil

Organochlorine Pesticides in Soil

CRM Cat. #728	PT Cat. #468	Q	QR Cat. #728QR
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Two flame-sealed ampules each containing 30 g of soil are ready-to-use. Use with EPA Method 8081, or other applicable methods. Includes a subset of the analytes listed below at 50–500 µg/kg.

Aldrin	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 Cat. #725	PT Cat. #628	Q	QR Cat. #725QR
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One screw-top bottle containing 50 g of soil is ready to analyze. Use with EPA Method 8081, or other applicable methods. The standard contains technical chlordane at 100–1000 µg/kg.

Toxaphene in Soil

CRM Cat. #724	PT Cat. #627	Q	QR Cat. #724QR
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One screw-top bottle containing 50 g of soil is ready to analyze. Use with EPA Method 8081, or other applicable methods. The standard contains toxaphene at 200–2000 µg/kg.

Carbamate Pesticides in Soil

CRM Cat. #926	PT Cat. #879	Q	QR Cat. #926QR
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Two flame-sealed ampules, each containing 30 g of soil are ready to analyze. Use with EPA Methods 8318, 8321, or other applicable methods. Each standard contains a subset of the analytes listed below at 250–2500 µg/kg.

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

Organophosphorus Pesticides (OPP) in Soil

CRM Cat. #925	PT Cat. #878	Q	QR Cat. #925QR
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Two flame-sealed ampules, each containing 30 g of soil are ready to analyze. Use with EPA Method 8141, or other applicable methods. Each standard contains a subset of the analytes listed below at 100–1000 µg/kg.

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

Metals & Cyanide Blank Sand

CRM Cat. #058

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

Metals & Cyanide Blank Soil

CRM Cat. #057

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



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