

# Contents

Description	CRM	PT	QR	Page
1,4-Dioxane	689	272 <b>B</b>	689QR	27
Ammonia as N	1359	1319 <b>B</b>	1359QR	25
Carbamates/Carbamoxylloxime Pesticides	707	846 <b>M</b>	707QR	28
Chloral Hydrate	676	853 <b>B</b>	676QR	25
Chlordane	705	845 <b>M</b>	705QR	28
Chlorinated Acid Herbicides	704	851 <b>M</b>	704QR	30
Color	661C	859C <b>Q</b>	661CQR	26
Corrosivity	980	900 <b>Q</b>	980QR	26
Cyanide	983	556 <b>M</b>	983QR	25
Dioxin	663	857 <b>Q</b>	663QR	30
EDB/DBCP/TCP	706	847 <b>M</b>	706QR	30
Gasoline Additives	909	905 <b>Q</b>	909QR	27
Haloacetic Acids (HAA)	684	852 <b>M</b>	684QR	25
Halomethanes (THMs)	702	842 <b>M</b>	702QR	27
Hardness	693	555 <b>M</b>	693QR	24
Hexavalent Chromium	658	854 <b>Q</b>	658QR	24
Inorganic Disinfection #1	5272	5270 <b>M</b>	5272QR	25
Inorganic Disinfection #2	5262	5260 <b>M</b>	5262QR	25
Inorganics	698	591 <b>M</b>	698QR	24
Low-Level 1,2,3-TCP	682	596 <b>B</b>	682QR	30
Mercury	666	551 <b>M</b>	666QR	24
Metals	697	590 <b>M</b>	697QR	24

**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](http://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.

Description	CRM	PT	QR	Page
Nitrite	695	594 <b>M</b>	695QR	25
o-Phosphate Nutrients	667	558 <b>M</b>	667QR	25
Organic Carbon	669	557 <b>M</b>	669QR	26
PCBs as Decachlorobiphenyl	708	839 <b>Q</b>	708QR	30
Perchlorate	910	903 <b>Q</b>	910QR	26
Pesticides	709	850 <b>M</b>	709QR	28
PFAS Drinking Water	733	959 <b>Q</b>	733QR	28
pH	779	552 <b>M</b>	779QR	26
Regulated Volatiles	703	840 <b>M</b>	703QR	27
Residual Chlorine	696	593 <b>M</b>	696QR	25
Semivolatiles #1	690	848 <b>M</b>	690QR	30
Semivolatiles #2 Herbicides	691	849 <b>M</b>	691QR	30
Silica	785	902 <b>Q</b>	785QR	26
Solids Concentrate	5152	5150 <b>M</b>	5152QR	24
Surfactants-MBAS	784	901 <b>Q</b>	784QR	26
Toxaphene	700	844 <b>M</b>	700QR	28
Turbidity	699	592 <b>M</b>	699QR	26
Unregulated Volatiles	683	841 <b>M</b>	683QR	27
Uranium	930	858 <b>Q</b>	930QR	24
UV 254 Absorbance	662	904 <b>Q</b>	662QR	26
Vanadium	660	856 <b>Q</b>	660QR	24

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

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

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

## Minerals/Solids

## Hardness

CRM	PT	M	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> .....	75-225 mg/L
Total hardness as CaCO <sub>3</sub> .....	83-307 mg/L
Magnesium.....	2-20 mg/L
Sodium.....	12-50 mg/L

## Inorganics

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

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

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

## Solids Concentrate

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

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

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

The Industry Standard  
for over 40 years



## Trace Metals

## Metals

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

## Mercury

CRM	PT	M	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.

Total mercury.....	0.5-10 µg/L
--------------------	-------------

## Hexavalent Chromium

CRM	PT	Q	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
--------------------------	-----------

## Uranium

CRM	PT	Q	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.

Uranium.....	3-104 µg/L
--------------	------------

## Vanadium

CRM	PT	Q	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
---------------	-----------



## Disinfection By-Products

### Chloral Hydrate

CRM

Cat. #676

PT

Cat. #853

B

QR

Cat. #676QR

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

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

### Haloacetic Acids (HAA)

CRM

Cat. #684

PT

Cat. #852

M

QR

Cat. #684QR

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

Bromochloroacetic acid  
Dibromoacetic acid

Dichloroacetic acid  
Monobromoacetic acid

Monochloroacetic acid  
Trichloroacetic acid

### Inorganic Disinfection #1

CRM

Cat. #5272

PT

Cat. #5270

M

QR

Cat. #5272QR

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

Chlorate.....60–180 µg/L

Chlorite.....100–1000 µg/L

### Inorganic Disinfection #2

CRM

Cat. #5262

PT

Cat. #5260

M

QR

Cat. #5262QR

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

Bromate.....7–50 µg/L

Bromide.....50–300 µg/L

## Nutrients

### Ammonia as N

CRM

Cat. #1359

PT

Cat. #1319

B

QR

Cat. #1359QR

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

Ammonia as N.....0.1–1 mg/L

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

### Nitrite

CRM

Cat. #695

PT

Cat. #594

M

QR

Cat. #695QR

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

Nitrite as N.....0.4–2 mg/L

### o-Phosphate Nutrients

CRM

Cat. #667

PT

Cat. #558

M

QR

Cat. #667QR

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

ortho-Phosphate as P.....0.5–5.5 mg/L

## Miscellaneous Inorganic

### Residual Chlorine

CRM

Cat. #696

PT

Cat. #593

M

QR

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

Cat. #983

PT

Cat. #556

M

QR

Cat. #983QR

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

Free cyanide.....0.1–0.5 mg/L

Total cyanide.....0.1–0.5 mg/L

Cyanide.....0.1–0.5 mg/L

CRM – Certified Reference Material

PT – Proficiency Testing

QR – QuiK Response

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

## Miscellaneous Inorganic (continued)

## Organic Carbon

CRM

Cat. #669

PT

Cat. #557

M

QR

Cat. #669QR

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

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

## Perchlorate

CRM

Cat. #910

PT

Cat. #903

Q

QR

Cat. #910QR

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

Perchlorate.....4–20 µg/L

## pH

CRM

Cat. #779

PT

Cat. #552

M

QR

Cat. #779QR

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

pH.....5–10 units

## Silica

CRM

Cat. #785

PT

Cat. #902

Q

QR

Cat. #785QR

One 60 mL poly bottle yields 1 liter after dilution.

Silica as SiO<sub>2</sub>.....5–75 mg/L

## Surfactants-MBAS

CRM

Cat. #784

PT

Cat. #901

Q

QR

Cat. #784QR

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

Surfactants-MBAS.....0.1–1 mg/L

## Physical Property

## Color

CRM

Cat. #661C

PT

Cat. #859C

Q

QR

Cat. #661CQR

One 30 mL screw-cap bottle yields up to 200 mL after dilution.

Color.....10–75 PC units

## Corrosivity

CRM

Cat. #980

PT

Cat. #900

Q

QR

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

Cat. #699

PT

Cat. #592

M

QR

Cat. #699QR

One 24 mL amber glass vial yields up to 1 liter after dilution. Use with nephelometric methods.

Turbidity.....0.5–8 NTU

## UV 254 Absorbance

CRM

Cat. #662

PT

Cat. #904

Q

QR

Cat. #662QR

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

UV 254 absorbance.....0.05–0.7 cm<sup>-1</sup>



Learn more about WS products

# Volatile Organics

## 1,4-Dioxane

<b>CRM</b> Cat. #689	<b>PT</b> Cat. #272	<b>B</b>	<b>QR</b> Cat. #689QR
-------------------------	------------------------	----------	--------------------------

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

1,4-Dioxane.....0.1-10 µg/L

## Gasoline Additives

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

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

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

## Halomethanes (THMs)

<b>CRM</b> Cat. #702	<b>PT</b> Cat. #842	<b>M</b>	<b>QR</b> Cat. #702QR
-------------------------	------------------------	----------	--------------------------

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

Bromodichloromethane	Chlorodibromomethane	Chloroform
Bromoform		

## Regulated Volatiles

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

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

Benzene	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

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

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

Bromobenzene	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	

CRM – Certified Reference Material

PT – Proficiency Testing

QR – Quik Response

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



# Per- and Polyfluoroalkyl Substances (PFAS)

**NEW  
PRODUCT**

## PFAS in Drinking Water

CRM Cat. #733	PT Cat. #959	Q	QR Cat. #733QR
------------------	-----------------	---	-------------------

One 2 mL flame-sealed ampule yields in excess of 1.5 L after dilution. The sample is designed for LC/MS/MS methods for analyzing potable water, specifically EPA Methods 533, 537 and 537.1. The diluted standard is certified for the 32 analytes listed below.

Perfluorobutanoic acid, PFBA	20–200 ng/L
Perfluoropentanoic acid, PFPeA	20–200 ng/L
Perfluorohexanoic acid, PFHxA	20–200 ng/L
Perfluoroheptanoic acid, PFHpA	20–200 ng/L
Perfluorooctanoic acid, PFOA	20–200 ng/L
Perfluorononanoic acid, PFNA	20–200 ng/L
Perfluorodecanoic acid, PFDA	20–200 ng/L
Perfluoroundecanoic acid, PFUdA	20–200 ng/L
Perfluorododecanoic acid, PFDoA	20–200 ng/L
Perfluorotridecanoic acid, PFTriDA	20–200 ng/L
Perfluorotetradecanoic acid, PFTeDA	20–200 ng/L
Perfluorobutanesulfonic acid, PFBS	20–200 ng/L
Perfluoropentanesulfonic acid, PFPeS	20–200 ng/L
Perfluorohexanesulfonic acid, PFHxS	20–200 ng/L
Perfluoroheptanesulfonic acid, PFHpS	20–200 ng/L
Perfluorooctanesulfonic acid, PFOS	20–200 ng/L
Perfluorononanesulfonic acid, PFNS	20–200 ng/L
Perfluorodecanesulfonic acid, PFDS	20–200 ng/L
4:2 fluorotelomersulfonic acid, 4:2 FTS	20–200 ng/L
6:2 fluorotelomersulfonic acid, 6:2 FTS	20–200 ng/L
8:2 fluorotelomersulfonic acid, 8:2 FTS	20–200 ng/L
Perfluorooctanesulfonamide, PFOSA	20–200 ng/L
N-ethyl perfluorooctanesulfonamidoacetic acid, NtFOSAA	20–200 ng/L
N-methyl perfluorooctanesulfonamidoacetic acid, NMeFOSAA	20–200 ng/L
Hexafluoropropylene oxide dimer acid, HFPO-DA	20–200 ng/L
4,8-dioxa-3H-perfluorononanoic acid, ADONA	20–200 ng/L
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid, 9Cl-PF3ONS	20–200 ng/L
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid, 11Cl-PF3OUdS	20–200 ng/L
Perfluoro-4-methoxybutanoic acid, PFMBA	20–200 ng/L
Perfluoro-3-methoxypropanoic acid, PFMPA	20–200 ng/L
Perfluoro(2-ethoxyethane) sulfonic acid, PFEEESA	20–200 ng/L
Nonafluoro-3,6-dioxahexanoic acid, NFDHA	20–200 ng/L

# Pesticides

## Pesticides

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

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

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

## Carbamate/Carbamoxymoxime Pesticides

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

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

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

## Chlordane

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

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

## Toxaphene

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

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

# Tackle Your Most Stringent PFAS Limits and Get Ready to Conquer Your Analytical Challenges With the Waters LC-MS/MS Workflow Solutions



From sample prep to outcome-based professional services training and [proficiency testing](#), Waters is committed to revolutionizing your PFAS analysis. Partner with Waters PFAS experts to strengthen your analytical game plan and achieve detection limits as precise as single-digit ppq with the Xevo™ TQ Absolute. Safeguard your analysis against contamination and control interference with our PFAS LC kits and Oasis™ WAX SPE.

## Sample Preparation



## Data Management



 waters\_connect™

## LC-MS/MS



Acquity<sup>PREMIER</sup>  
xevo™

## Complete Solutions



OASIS™  
SAMPLE EXTRACTION PRODUCTS

Browse our PFAS solutions for comprehensive workflows for sample extraction, screening, quantification, and reporting of PFAS in water, environmental, food, or other complex matrices with developed methods to help you stay ahead of challenging PFAS analyses.

Waters, waters\_connect, XEVO, ACQUITY and Oasis are trademarks of Waters Corporation. All other trademarks are the property of their respective owners.

©2023 Waters Corporation. Produced in the U.S.A.

Discover the solutions at  
[waters.com/PFAS](https://www.waters.com/PFAS)



SCAN ME

Waters™



## Pesticides (continued)

## EDB/DBCP/TCP

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

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

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

## Low-Level 1,2,3-TCP

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

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

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

## Semivolatile Organics

## Dioxin

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

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

## PCBs as Decachlorobiphenyl

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

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

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

## Semivolatile Organics (continued)

## Semivolatiles #1

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

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

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

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

## Herbicides

## Chlorinated Acid Herbicides

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

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

Acifluorfen	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 Cat. #691	PT Cat. #849	M	QR Cat. #691QR
------------------	-----------------	---	-------------------

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

Diquat	Glyphosate	Paraquat
Endothall		

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

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



# Evolution in Dioxin Analysis Technology

**Waters provides industry leading technology to address complex environmental challenges affecting human health.**

Dioxin analysis is particularly demanding due to low level regulatory exposure limits and complex sample matrices. With the adoption of atmospheric pressure chemical ionization with tandem mass spectrometry (APCI-MS/MS) as an acceptable alternative, your operational efficiency and analytical quality will improve as you experience:

- Improved robustness and sensitivity for increased productivity
- Improvements in sample preparation efficiency
- Versatile system capable of enhanced operation for SVOC and other analyses
- Widely compatible with carrier gas options including nitrogen



►► **Learn more at [waters.com/dioxins](http://waters.com/dioxins)**

Waters™