



Sample Containers, Preservatives, and Hold Times

Analysis/Analysis Group	Matrix (Sample Collection Type)	Hold Time	Preservative	Minimum Sample Size Required	Container Quantity and Collection amount	Method
Bacterial Analysis:						
Total Coliform	Water	30 hours	Cool, 4°C	100mL	125mL sterile plastic	Sm 9223 B
Fecal Strep.	Water	6 hours	Cool, 4°C	100mL	125mL sterile plastic	Sm 9223 B
Fecal coliform	Water	6 hours	Cool, 4°C	100mL	125mL sterile plastic	Sm 9223 B

Inorganic Analysis:						
Acidity	Water	14 days	Cool, 4°C	100mL	125mL plastic	SM 2310 B
Alkalinity	Water	14 days	Cool, 4°C	100mL	500mL	SM 2320 B
Ammonia Nitrogen	Water	28days	4°C, H ₂ SO ₄ pH<2	10mL	250mL	SM 4500 NH3 H
Ammonia Nitrogen	Soil/waste	28 days	Cool, 4°C	50g	4, 9oz glass	EPA 350.2
Biochemical Oxygen Demand (BOD)	Water	48 hours	Cool, 4°C	100mL	250mL plastic	SM 5210 B
Bromide	Water	28 days	Cool, 4°C	10mL	125mL	EPA 300.0
Chemical Oxygen Demand (COD)	Water	28 days	4°C, H ₂ SO ₄ pH<2	10mL	250mL	EPA 410.4/ SM 5220 D
Chloride	Water	28 days	Cool, 4°C	10mL	125mL	EPA 300.0
Chloride	Soil/waste	28 days	Cool, 4°C	50g	4, 9oz glass	EPA 300.0
Chlorine Residual	Water	Analyze Immed.	Cool, 4°C	25mL	125mL plastic	SM 4500 Cl G
Chromium 6+	Water	24 hours	Cool, 4°C	25mL	125mL plastic	SM 3500 Cr B
Chromium 6+	Soil/waste	30 days	Cool, 4°C	50g	4, 9oz glass	EPA 7196A
Color	Water	48 hours	Cool, 4°C	50mL	125mL plastic	SM 2120 B
Corrosivity/H+ ion/pH	Water	Analyze Immed.	Cool, 4°C	100mL	125mL plastic	SM 4500 H B
Corrosivity/H+ ion/pH	Soil	24 hours	Cool, 4°C	50g	4, 9oz glass	EPA 9045
Cyanide, Amenable	water	14 days	4°C, NaOH pH>12	10mL	125mL plastic or glass	OIA-1677
Cyanide, total	Water	14 days	4°C, NaOH pH>12	10ml	125mL plastic or glass	EPA 335.4
Cyanide, Total	Soil/waste	14 days	Cool, 4°C	5g	4, 9oz glass	EPA 9010/9012
Flash point/ Ignitability	Solid/liquid	n/a	Cool, 4°C	100g/80mL	9oz glass	EPA 1010a
Fluoride	Water	28 days	Cool, 4°C	10mL	125mL plastic	EPA 300.0
Fluoride	Soil/waste	28 days	Cool, 4°C	50g	4, 9oz glass	EPA 300.0
Halogens, Total	Solid/liquid	n/a	Cool, 4°C	5mL/5g	4, 9oz glass	EPA 5050
Hardness	Water	6 months	HNO ₃ pH<2	50mL	250mL plastic	SM 2340 B
Nitrate	water	48 hours	Cool, 4°C	10mL	125mL plastic	EPA 300.0
Nitrate	Soil	28 days	Cool, 4°C	50g	4, 9oz glass	EPA 300.0
Nitrate+Nitrite	Water	28 days	4°C, H ₂ SO ₄ pH<2	10mL	125mL plastic	EPA 300.0
Nitrate+Nitrite	Soil	28 days	Cool, 4°C	50g	4, 9oz glass	EPA 300.0



Nitrite	Water	48 hours	Cool, 4°C	10mL	125mL plastic	EPA 300.0
Nitrite	Soil	48 hours	Cool, 4°C	50g	4, 9oz glass	EPA 300.0
Oil&Grease	Water	28 days	4°C, HCl pH<2	1000mL	1000mL glass	EPA 1664A
Organic Carbon (TOC)	Water	28 days	4°C, H ₂ SO ₄ pH<2	50mL	2x40mL vials	EPA 415.1/ 5310D/9060A
Organic Carbon (TOC)	soil	28 days	Cool, 4°C	20g	4, 9oz glass	EPA 9060A
Organic Halogen (TOX)	Water	28 days	4°C, H ₂ SO ₄ pH<2	50mL	2x250mL glass	EPA 9020
Organic Halogen (TOX)	Soil	28 days	Cool, 4°C	50g	2, 4, 9os glass	EPA 9023
Orthophosphate	Water	48 hours	Cool, 4°C	100mL	125mL plastic	SM 4500 PE
Aquatic Toxicity	water	36 hours	Cool, 4°C	500mL	500mL plastic	EPA 821/ R-02/012
Paint Filter(Free Liquids)	Soil/waste	n/a	none	At least 100g/100mL	9oz glass/250mL plastic	EPA 9095
Phenolics	Water	28 days	4°C, H ₂ SO ₄ pH<2	1000mL	1000mL glass	EPA 420.1
Phenolics	Soil/waste	28 days		50g	4, 9oz glass	EPA9066
Phosphorus, Total	Water	28 days	4°C, H ₂ SO ₄ pH<2	50mL	125mL plastic	EPA 365.4
Phosphorus, Total	Soil	28 days	Cool, 4°C	50g	4, 9oz glass	EPA 365.2
Reactivity, CN and Sulfide	Waste	14 days CN, 7 days Sulfide	Cool, 4°C	10g	125mL plastic or 4, 9oz glass	SW 846 CH. 7 (removed)
Silica	Water	28 days	Cool, 4°C	25mL	500mL plastic	HACH 8186 ²
Solids, Total (% moisture)	Soil/waste	14 days	Cool, 4°C	25g	2, 4, 9oz glass	EPA 160.3 modified
Solids, Total	Water	7 days	Cool, 4°C	500mL	500mL plastic	SM 2540 B
Solids, Total dissolved (TDS)	Water	7 days	Cool, 4°C	500mL	500mL plastic	SM 2540 C
Suspended Total Suspended (TSS)	Water	7 days	Cool, 4°C	500mL	500mL plastic	SM 2540 D
Solids, Settleable (SS)	Water	48 hours	Cool, 4°C	1000mL	1000mL plastic	EPA 160.5/ SM 2540 F
Solids, Volatile (TVS)	Water	7 days	Cool, 4°C	500mL	500mL plastic	SM 2540 G
Specific Conductance	Water	28 days	Cool, 4°C	50mL	125mL plastic	SM 2510 B
Sulfate	Water	28 days	Cool, 4°C	10mL	125mL plastic	EPA 300.0
Sulfate	soil	28 days	Cool, 4°C	50g	4, 9oz glass	EPA 300.0
Sulfide	Water	7 days	4°C, Zn acetate + NaOH pH>9	100ml	250mL plastic	EPA 376.1
Sulfide	Soil/waste	7 days	Cool, 4°C	50g	4, 9oz glass	EPA 9030
Sulfite	Water	48 hours	4°C, 3mL 1% EDTA	100mL	250mL plastic	SM 4500 SO3 B
Surfactants (MBAS)	Water	48 hours	Cool, 4°C	100mL	250mL plastic	SM 5540 C
Total Kjeldahl Nitrogen (TKN)	Water	28 days	4°C, H ₂ SO ₄ pH<2	10mL	250mL plastic	EPA 351.2
Total Kjeldahl Nitrogen (TKN)	Soil/waste	28 days	Cool, 4°C	50g	4, 9oz glass	EPA 351.4
Turbidity	water	48 hours	Cool, 4°C	10mL	125mL plastic	SM 2130 B/ EPA 180.1

Metals Analysis						
Mercury-Cold Vapor	Water	28 days	HNO ₃ pH<2	10ml	250mL plastic	EPA 245.2, EPA 7470A
Mercury-Cold vapor	Soil/waste	28 days	Cool, 4°C	10g	4, 9oz glass	EPA 7471 B
Metals, Dissolved ³	Water	6 months	Cool, 4°C	50ml	250mL plastic	EPA 6010, 6020, 200.7, 200.8
Metals, Total	Water	6 months	HNO ₃ pH<2	50ml	250mL plastic	EPA 6010, 6020, 200.7, 200.8
Metals, total	soil	6 months	Cool, 4°C	10g	4, 9oz glass	EPA 6010, 6020

Organic Analysis						
EDB/DBCP/ 123TCP	Water	14 days	3mg sodium thiosulfate or 75uL sodium thiosulfate solution, 4°C	40mL or 60mL	2x40mL or 2x60mL vials	504.1
Formaldehyde ¹	Water	3 days	Cool, 4°C	100mL	125mL plastic	HACH MBTH
Formaldehyde ¹	soil	3 days	Cool, 4°C	50g	4, 9oz glass	HACH MBTH
Haloacetic acids	water	14 days	NH ₄ Cl, 4°C	60mL	2x60mL	EPA 552.2
Herbicides	water	Extraction 7 days/ Analysis 40 days	Cool, 4°C	1000mL	1000mL glass	EPA 8151A
Herbicides	Soil/waste	Extraction 14 days/ Analysis 40 days	Cool, 4°C	10g	4, 9oz glass	EPA 8151A
PCB ⁵	Water	None	Cool, 4°C	1000mL	1000mL glass	EPA 8082A
PCB ⁵	Soil/waste	None	Cool, 4°C	10g	4, 9oz glass	EPA 8082A
PCB ⁵	oil	none	Cool, 4°C	10mL	40mL vial	ASTM D4059- 00/8082A
Pesticides (Organochlorine)	Water	Extraction 7 days/ Analysis 40 days	Cool, 4°C	1000mL	1000mL glass	EPA 8081 B
Pesticides (Organochlorine)	Soil/waste	Extraction 14 days/ Analysis 40 days	Cool, 4°C	10g	4, 9oz glass	EPA 8081 B
DRO-TPH	Water	Extraction 7 days/ Analysis 40 days	Cool, 4°C/HCL*	1000mL	1000mL glass	EPA 8015D, CT-ETPH, MA-EPH*
DRO-TPH	soil	Extraction 14 days/ Analysis 40 days	Cool, 4°C	10g	4, 9oz glass	EPA 8015D, CT-ETPH, MA-EPH

Semi-volatile Organics						
Chlorinated Hydrocarbons	Water	Extraction 7 days/ Analysis 40 days	Cool, 4°C	1000mL	1000mL glass	EPA 8270D, 625
Chlorinated Hydrocarbons	soil	Extraction 14 days/ Analysis 40 days	Cool, 4°C	10g	4, 9oz glass	EPA 8270D
Polynuclear aromatic hydrocarbons (PNAs)	Water	Extraction 7 days/ Analysis 40 days	Cool, 4°C	1000mL	1000mL glass	EPA 8270D, 625
Polynuclear aromatic hydrocarbons (PNAs)	Soil/waste	Extraction 14 days/ Analysis 40 days	Cool, 4°C	10g	4, 9oz glass	EPA 8270D
Base/Neutral/Acid extractables (BNAs)	Water	Extraction 7 days/ Analysis 40 days	Cool, 4°C	1000mL	1000mL glass	EPA 8270D, 625
Base/Neutral/Acid extractables (BNAs)	Soil/waste	Extraction 14 days/ Analysis 40 days	Cool, 4°C	10g	4, 9oz glass	EPA 8270D

Volatile Organics						
VOCs	Drinking water	14 days	4°C, Ascorbic acid/HCl	25mL	2x40mL voa vials	EPA 524.2
VOCs	Water	14 days	4°C, HCl pH<2	10mL	2x40mL voa vials	8260C, 624 ⁴

VOCs	Soil/waste MeOH preserved	14 days	Cool, 4°C	5g	Pre-tared 40mL vial w/MeOH	8260C
VOCs	Soil/waste low level bisulfate	14 days	Cool, 4°C 5mL sodium bisulfate	5g	2xPre-tared 40mL vial w/5mL 20% sodium bisulfate w/stir bar	8260C
VOCs	Soil/waste low level frozen	48 hours/14 days	Cool, 4°C/ < -7°C	5g	2xPre-tared 40mL vial w/stir bar or 5g <i>Encore</i>	8260C
VOCs	Soil/waste high level bulk	48 hours/14 days	Cool, 4°C	5g	4, 9oz glass	8260C
VPH	Water	14 days	4°C, HCl pH<2	5-10mL	6x40mL VOA vials	MA-VPH
VPH	soil	28 days	1mL MeOH per gram of soil; add before or at time of collection; cool to 4°C	For 40mL vials add 15g soil	4x40mL VOA vials	MA-VPH

NOTE: All volatile soil samples must be cooling or frozen including preserved samples to limit any loss of volatile constituents. Also, *Encore* samplers are provided by CET but paid for by the client.

TCLP/SPLP						
Mercury	Soil/waste	28 day Tumble/Analyses 28 days	Cool, 4°C	100g	9oz glass	EPA 1311, 1312
Metals	Soil/waste	180 day Tumble/Analyses 188 days	Cool, 4°C	100g	9oz glass	EPA 1311, 1312
Herbicides	Soil/waste	14 day Tumble/Extract 7 days/Analysis 40 days	Cool, 4°C	100g	9oz glass	EPA 1311, 1312
Pesticides	Soil/waste	14 day Tumble/Extract 7 days/Analysis 40 days	Cool, 4°C	100g	9oz glass	EPA 1311, 1312
Semi-volatiles	Soil/waste	14 day Tumble/Extract 7 days/Analysis 40 days	Cool, 4°C	100g	9oz glass	EPA 1311, 1312
Volatiles	Soil/waste	14 day Tumble/Analyses 14 days	Cool, 4°C	25g <i>Encore</i> , 100g	9oz glass	EPA 1311, 1312

¹Formaldehyde Hold Time Reference, Method 8315A Section 6.2 Rev1, December 1996

²Silica by *HACH* Method 8186 Heteropoly Blue

³Dissolved Metals: if field filtered give HNO₃ container; if lab filtered give unpreserved container

⁴See Addendum 1 at end of this SOP for 624

⁵PCB Hold Time SW846 Chapter Two Revision 4 Feb. 2007 pg. 64

ADDENDUM 1

Required sample preservation and holding time for Acrolein, Acrylonitrile, and 2-chloroethyl vinyl ether via EPA 624.

The EPA has identified these compounds as acid sensitive compounds, therefore should not be acidified to pH<2 at the time of sample collection. Acrolein has a 3 day holding time. In accordance with the protocol for 624 analysis, the remaining compounds will still be required to be preserved with HCl and have a 14 day holding time. See preservation/holding time chart below:

Description	Method	Matrix	Container	Preservation	Holding Time
GC/MS-Purgeables	EPA 624	Water	(3) 40mL VOA vials w/Teflon septum	HCl to pH<2, Cool<6°C	14 days
GC/MS-Purgeables Acrolein, Acrylonitrile, 2-chloroethylvinyl ether	EPA 624	Water	(3) 40mL VOA vials w/Teflon septum	Cool<6°C	3 days*

It will be the responsibility of the client to request the appropriate sample containers for 624 analysis when required to report Acrolein, Acrylonitrile, and 2-chloroethylvinyl ether. If these compounds are acidified, the results reported will be considered biased low.

If the client system is chlorinated, a dechlorinating agent should be provided.

*Because these vials are unpreserved, they must be analyzed within 72 hours of sample collection. In order to meet the holding time for these compounds by EPA 624, the CET or subcontract lab must receive the samples within 24 hours of sample collection, and will only be accepted Monday-Friday. We cannot guarantee that holding time will be met if received outside of this timeframe.