

RECOMMENDED HOLDING TIMES FOR ENVIRONMENTAL SAMPLES

<u>Parameters</u>	<u>Method*</u>	<u>Container</u>	<u>Recommended Quantity (mL)</u>	<u>Preservative</u>	<u>Holding Time</u>
Acidity	305.1, 2310B	P,G	100	4°C	14 days
Alkalinity	310.1, 310.2, 2320B	P,G	100	4°C	14 days
Ammonia-N	4500NH3BE, 350.3	P,G	500	4°C, H ₂ SO ₄ to pH <2	28 days
Biochemical Oxygen Demand (BOD)	405.1, 5210B	P,G	1000	4°C	48 hours
Bromide	300.0, 9056	P,G	200	None	28 days
Chemical Oxygen Demand (COD)	HACH 8000	P,G	100	4°C, H ₂ SO ₄ to pH <2	28 days
Chloride	325.3, 9251, 9056	P,G	200	None	28 days
Chlorine, Residual	330.3, 4500 CLG	P,G	200	None	Immediately
Coliform, Fecal	9222D	P,G (sterile)	100	4°C, Na ₂ S ₂ O ₃	6 hours
Color	2120C, 110.3	P,G	100	4°C	48 hours
Cyanide	335.1, 335.2, 335.3 9012A	P,G	1000	4°C, ascorbic acid, NaOH to pH > 12	14 days
Ferrous Iron	3500FED	P,G	100	2mHCl/100mL	Immediately
Flashpoint	1010	P,G	100	None	Not specified
Fluoride	300.0, 9056, 340.2	P	500	None	28 days
Hardness	130.2 2340B	P,G	100	HNO ₃ to pH < 2	6 months
Nitrogen, Kjeldahl (TKN)	4500NH, 351.4	P,G	500	4°C, H ₂ SO ₄ to pH <2	28 days
Nitrate-N	353.2	P,G	100	4°C	48 hours
Nitrate-Nitrite as N	353.2	P,G	200	4°C, H ₂ SO ₄ to pH <2	28 days
Oil and Grease	1664A	G	1000	4°C, H ₂ SO ₄ or HCl to pH < 2	28 days
Phenols	420.1, 420.2, 9066	P,G	1000	4°C, H ₂ SO ₄ to pH <2	28 days
Phosphorus, Total	365.1	P,G	200	4°C, H ₂ SO ₄ to pH <2	28 days
Phosphorus, Ortho	365.2, 4500PE	P,G	200	4°C	48 hours
pH	150.1, 9040B, 9045C	P,G	100	None	Immediately
Radiochemistry					
Alpha, Beta, Radium	900 & 9000 series	P,G	2000	HNO ₃ to pH < 2	6 months
Tritium		P,G	100	None	6 months
Radon, I-131		P,G	1000	HNO ₃ to pH < 2	14 days
Reactivity	SW846 7.3.3.2, 7.3.4.2	G	100g	4°C	Not Specified
Silica	370.1, 4500Si D	P, PFTE, Quartz	100	4°C	28 days
Solids, Dissolved (TDS)	160.1, 2540C	P,G	100	4°C	7 days
Solids, Suspended (TSS)	160.2, 2540D	P,G	500	4°C	7 days
Solids, Volatile (TVS)	160.4, 2540E	P,G	100	4°C	7 days
Solids, Total (TS)	160.3, 2.540B	P,G	100	4°C	7 days
Specific Conductance	120.1, 9050	P,G	100	4°C	28 days
Specific Gravity	2710F	P,G	100	4°C	28 days
Sulfate	375.4, 9056, 9038	P,G	200	4°C	28 days
Sulfide	376.1, 376.2, 9034	P,G	500	4°C, Zn acetate, NaOH to pH > 9	7 days
Sulfite	4500S03B	P,G	200	None	Immediately
Surfactants (MBAS)	425.1, 5540C	P,G	250	4°C	48 hours
Total Organic Carbon (TOC)	415.1, 9060	P,G	100	4°C, HCl to pH < 2	28 days
Total Organic Halogens (TOX)	9020B	G-TLC (amber)	100	4°C, H ₂ SO ₄ to pH <2	28 days
Total Petroleum Hydrocarbon (TPH)	418.1	G-TLC	1000	4°C, H ₂ SO ₄ or HCl to pH < 2	28 days
Turbidity	180.1, 2130B	P,G	100	4°C	48 hours
Viscosity	D2196	P,G	500	None	Not Specified

*The methods listed are from typical EPA references.

#Solid and waste samples: Quantity 1-100g, preservative 4 ° C

**Holding time for solids and samples is not defined

Organic Nitrogen = TKN – Ammonia-N

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Metals

<u>Parameters</u>	<u>Method*</u>	<u>Container</u>	<u>Recommended Quantity (mL)</u>	<u>Preservative</u>	<u>Holding Time</u>
Metals (except Hexavalent Chromium and Mercury):					
Aqueous					
Total	6010B, 200.0, 7000 series	P,G	500	HNO ₃ to pH < 2	6 months
Dissolved	6010B, 200.0, 7000 series	P,G	500	Filter on site HNO ₃ to pH < 2	6 months
Solid					
Total	6010B, 200.0, 7000 series	P,G	100g	4°C	6 months
Hexavalent Chromium					
Aqueous	7196A	P,G	500	4°C	24 hours
Solid	3060A/7196A	P,G	100g	4°C	30/7 days
Mercury					
Aqueous					
Total	245.2/7470	P,G	500	HNO ₃ to pH < 2	28 days
Dissolved	245.2/7470	P,G	500	Filter on site HNO ₃ to pH < 2	28 days
Solid					
Total	7471	P,G	100g	4°C	28 days

Metals – Boron must be collected in a polyethylene container.

*The methods listed are from typical EPA references.

CrIII=Total Cr-Hexavalent Cr

Organic Parameters

Volatile Organics

<u>Sample Matrix</u>	<u>Method*</u>	<u>Container</u>	<u>Minimum Quantity</u>	<u>Preservative</u>	<u>Holding Time</u>
Concentrated Waste Samples	8021B, 8260B, 8015M	G-TLC or G-TLS	2 x 40mL vials or 4-oz wide mouth	4°C	14 days
Aqueous Samples	8021B, 8260B, 8015M, 624, VPH	G-TLS	2 x 40mL vials	4°C, HCl to pH < 2, Na ₂ S ₂ O ₃ if residual chlorine present	14 days, 7 days if not acid preserved
Solid Samples	8021B,8260B, 8015M, VPH	G-TLS or G-TLC	4-oz wide mouth and/or Terracore Kit	4°C	14 days **

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Semivolatile Organics, Pesticides/PCBs, Herbicides, PAHs, Petroleum

Hydrocarbons

<u>Sample Matrix</u>	<u>Method*</u>	<u>Container</u>	<u>Minimum Quantity</u>	<u>Preservative</u>	<u>Holding Time</u>
Concentrated Waste Samples	8270C, 8081, 8082, 8015M, 8151A, 8141A, FL-PRO	G-TLC (Amber)	1 Liter	None	14 days until extraction, 40 days after extraction
Aqueous Samples	8270C, 8081, 8082, 8015M, 8151A, 8141A, 8310,608, 625, FL-PRO,EPH ***	G-TLC (Amber)	2 x 1 Liter	4°C	7 days until extraction, 40 days after extraction
Solid Samples	8270C, 8081, 8082,	G-TLC	8 oz.	4°C	14 days until

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	8015M, 8151A, 8141A, 8310, EPH FL-PRO ***				extraction, 40 days after extraction
Dioxins and Furans**	613, 8280A, 8290, 1613	G-TLC(Amber)	2 x 1 Liter	4°C	30 days until extraction, 45 days after extraction

*The methods listed are from typical EPA references.

**Concentrated wastes and soil samples are collected in 2 oz. to 1 Liter amber glass jars with TLC.

***1005/1006, Petroleum Hydrocarbons –14 days after extraction

TCLP/SPLP Parameters

<u>Parameters</u>	<u>Holding Time from Collection to TCLP Extraction (days)</u>	<u>Holding Time from TCLP Extraction to Preparative Extraction (days)</u>	<u>Holding Time from TCLP/Preparative Extraction to Analysis (days)</u>	<u>Total Time</u>
Volatiles	14	NA	14	28
Semivolatiles	14	7	40	61
Mercury	28	NA	28	56
Metals	180	NA	180	360

Reference: 40CFR Part 136 Tables IA, IB, IC, ID & IE and Table II., SW846 Table 4-1 and Table 3-1, SW846 Method 1311 8.5,

*The methods listed are from typical EPA references

Acronym Definitions: (Teflon is a registered trademark of E.I. DuPont)

CLP: EPA Contract Laboratory Program

G-TLC: Glass with Teflon-lined cap

NA: Not Applicable

G: Glass

G-TLS: Glass with Teflon-lined septum

P: Polyethylene