

Inorganic Container Requirements

Parameter	Container	Preservative	Holding Time	Water	Soil
Acidity	P,G	4°C	14 days	1000 ml	NA
Alkalinity	P,G	4°C	14 days	1000 ml	NA
Anions	P,G	NA	28 days NO ₂ , NO ₃ , and o-PO ₄ 48 hours	250 ml	4 oz
Ash, Percent	P,G	NA	7 days	500 ml	4 oz
Bicarbonates	P,G	4°C	14 days	1000 ml	NA
BOD	P,G	4°C	48 hours	1000 ml	NA
Boiling Point	P,G	NA	NA	250 ml	NA
Bromide/Bromine	P,G	NA	28 days	250 ml	4 oz
Carbon					
Dissolved Organic	G (amber)	H ₂ SO ₄ pH <2; zero headspace; filtered in field; 4°C	28 days	250 ml	4 oz
Total	G (amber)	H ₂ SO ₄ pH <2; zero headspace; 4°C	28 days	250 ml	4 oz
Total Inorganic	G (amber)	H ₂ SO ₄ pH <2; zero headspace; 4°C	28 days	250 ml	4 oz
Total Organic	G (amber)	H ₂ SO ₄ pH <2; zero headspace; 4°C	28 days	250 ml	4 oz
Carbon Dioxide	P,G	4°C	14 days	1000 ml	NA

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Carbonates	P,G	4°C	14 days	1000 ml	NA
COD	P,G	H ₂ SO ₄ pH <2; 4°C	28 days	250 ml	NA
Chloride./Chlorine	P,G	NA	28 days	250 ml	4 oz
Chlorine - Residual	G	4°C	immediate	250 ml	NA
Chromium, Hexavalent	P,G	4°C	24 hours (waters) 30 days soils	250 ml	4 oz
Coliform, Fecal MF	P,G (autoclavable)	Na ₂ S ₂ O ₃ or approved dechlorination tablet	6 hours	125 ml	NA
Coliform, Fecal MPN	P,G (autoclavable)	Na ₂ S ₂ O ₃ or approved dechlorination tablet	6 hours	125 ml	NA
Coliform, Total MF					
gw,dw	P,G sterile autoclavable	Na ₂ S ₂ O ₃ or approved dechlorination tablet	30 hours	125 ml	4 oz
ww	P,G autoclavable	Na ₂ S ₂ O ₃ or approved dechlorination tablet	6 hours	125 ml	4 oz
Coliform, Total MPN					
gw,dw	P,G autoclavable	Na ₂ S ₂ O ₃ or dechlorination tablet	30 hours	125 ml	NA
ww	P,G autoclavable	Na ₂ S ₂ O ₃ or dechlorination tablet	6 hours	125 ml	NA
Color	P,G	4°C	48 hours	250 ml	NA
Conductance, Specific	P,G	4°C	28 days	500 ml	NA

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Corrosivity	P,G	zero headspace; 4°C	immediate	250 ml	4 oz
Corrosivity to Steel	P,G	NA	NA	(2) 1000 ml	NA
Cyanide					
Amenable to Chlorination	P,G	4°C; NaOH to pH >12	14 days	1000 ml	4 oz
Free	P,G	4°C; NaOH to pH >12	14 days	500 ml	4 oz
Reactive	P,G	4°C	14 days	250 ml	4 oz
Total	P,G	4°C; NaOH to pH >12	14 days CLP-12 days	500 ml	4 oz
Weak Acid Dissociable	P,G	4°C; NaOH to pH >12 a	14 days	500 ml	4 oz
Flashpoint					
Setaflash-140 or 200°F	G	zero headspace	NA	250 ml	4 oz
Closed cup -140 or 200°F	G	zero headspace	NA	250 ml	4 oz
Fluoride/Fluorine (IC only)					
electrode - gw,dw	P,G	4°C	28 days	250 ml	NA
electrode - ww	P,G	4°C	28 days	1000 ml	NA
IC	P,G	4°C	28 days	250 ml	4 oz
Halogen					

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Absorbable Organic (AOX)	G (amber)	4°C; H ₂ SO ₄ to pH<2 ; zero headspace	28 days	250 ml	NA
Total by Bomb	P,G	NA	NA	250 ml	4 oz
TOX	G (amber)	4°C; H ₂ SO ₄ to pH<2 ; zero headspace	28 days	500 ml	NA
Extractable Organic (EOX)	G (amber)	4°C	14 days	NA	4 oz
Hardness					
Calculation	P,G	HNO ₃ pH <2	6 months	250 ml	NA
Titration	P,G	HNO ₃ pH <2	6 months	500 ml	NA
Heating Value (BTU)	P,G	NA	NA	250 ml	4 oz
Hydrazine	P,G	1 ml HCl/100 ml	immediate	250 ml	NA
Iron, Ferrous	G (amber)	2ml HCl/ 100 ml	immediate	250 ml	NA
Moisture-Karl Fischer	P,G	NA	NA	250 ml	4 oz
Nitrogen					
Ammonia	P,G	4°C; H ₂ SO ₄ to pH <2	28 days	500 ml	4 oz
Kjeldahl	P,G	4°C; H ₂ SO ₄ to pH <2	28 days	500 ml	4 oz
Nitrate	P,G	4°C	48 hours	250 ml	4 oz
Nitrite	P,G	4°C	48 hours	250 ml	4 oz

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Nitrate/Nitrite	P,G	4°C; H ₂ SO ₄ to pH <2	28 days	250 ml	4 oz
Total	P,G	4°C; H ₂ SO ₄ to pH <2	28 days	500 ml	4 oz
Total Organic	P,G	4°C; H ₂ SO ₄ to pH <2	28 days	500 ml	4 oz
Odor, Threshold	G	NA	immediate	1000 ml	NA
Oil and Grease					
1664A	G	HCl pH <2; 4°C	28 days	1000 ml	NA
413.1/9070	G	H ₂ SO ₄ or HCl pH <2; 4°C	28 days	1000 ml	8 oz
Oxalates	P,G	4°C	28 days	250 ml	4 oz
Oxygen, Dissolved	G - special bottle	Zero headspace	immediate	300 ml	NA
Paint Filter Test	P,G	NA	NA	NA	8 oz
Perchlorates, Ammonia	P,G	4°C	28 days	250 ml	4 oz
pH	P,G	Zero headspace	immediate	250 ml	4 oz
Phenols, Total	G (amber)	4°C; H ₂ SO ₄ to pH <2	28 days	250 ml	4 oz
Phosphorus					
Phosphate,Ortho	P,G	4°C	48 hours	250 ml	NA

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Phosphorus, Total	P,G	H ₂ SO ₄ pH<2; 4°C	28 days	250 ml	4 oz
Reactivity					
Reactive Cyanide	P,G	NA	14 days	250 ml	4 oz
Reactive Sulfide	P,G	NA	7 days	250 ml	4 oz
Salinity	P,G	4°C	28 days	500ml	4 oz
Specific Gravity	P,G	NA	NA	500 ml	4 oz
Solids					
Dissolved, TDS	P,G	4°C	7 days	500 ml	NA
Total, TS	P,G	4°C	7 days	500 ml	4 oz
Total Suspended, TSS	P,G	4°C	7 days	1000 ml	NA
Volatile, VS	P,G	4°C	7 days	500 ml	4 oz
Volatile Suspended, VSS	P,G	4°C	7 days	500 ml	NA
Sulfates/Sulfur	P,G	4°C	28 days	250 ml	4 oz
Sulfides					
Titrimetric	P,G	Zinc Acetate + NaOH to pH >9; 4°C	7 days	1000 ml	NA
Colormetric	P,G	Zinc Acetate + NaOH to pH >9; 4°C	7 days	250 ml	NA
Reactive Sulfide	P,G	4°C	NA	250 ml	4 oz
Sulfites	P,G	EDTA (1 ml/100 ml sample)	immediate	500 ml	NA

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Surfactants (MBAS)	P,G	4°C	48 hours	1000 ml	NA
Total Petroleum Hydrocarbon					
Method 413.1/9070	G	H ₂ SO ₄ or HCl pH <2	28 days	1000 ml	8 oz
Method 1664	G	HCl pH < 2	28 days	1000 ml	NA
Total Plate Count	P,G autoclavable	Na ₂ S ₂ O ₃ or dechlorination tablet	24 hours	125 ml	NA
Turbidity	P,G	4°C	48 hours	250 ml	NA
Viscosity	P,G	NA	NA	1000 ml	NA

Holding Times and Container Requirements for Metal Analysis

- Samples must be submitted in plastic containers. Holding time for preserved samples is six months, except mercury which is 28 days. Low level mercury has a 48 hour preservation holding time and a 90 day analytical holding time. The analytical holding time only applies if the preservation holding time is met.
- Aqueous samples require 500 ml of sample; soils, oils, or solvents require 10 grams.

Aqueous samples for total metals must be preserved with Nitric Acid (HNO_3) to a $\text{pH} < 2$.

Parameter	Container	Preservative	*Holding Time	Sample Size/Container
I. LIQUID MATRICES - Semivolatile Organics				
Organochlorine Pesticides & PCBs	G (Amber)	4°C	7 days	(2) 1000 ml Amber
Base/Neutral Extractables**	G (Amber)	4°C	7 days	(2) 1000 ml Amber
Acid Extractables**	G (Amber)	4°C	7 days	(2) 1000 ml Amber
Chlorinated Herbicides	G (Amber)	4°C	7 days	(2) 1000 ml Amber
Dioxins and Furans	G (Amber)	4°C	30 days	(2) 1000 ml Amber
Haloacetic Acids	G	4°C, NH ₄ Cl	14 days	2-40 ml, zero headspace
TPH-Nonvolatile (diesel)/ AK102-103/FL-Pro	G (Amber)	4°C	7 days	(2) 1000 ml Amber
TNRCC1005/1006	G	4°C, HCl	14 days, 7 days if unpreserved	3- 40ml vov vial
Perchlorate (LCMSMS)	G,P	avoid extreme temps	28 days	(1) 100 - 200 ml clear or HDPE
II. LIQUID MATRICES - Volatile Organics				
Volatile Organics**	G	4°C, HCl	7 days (14 if preserved in HCl)(remove residual Cl w/Na ₂ S ₂ O ₃)	3-40 ml, zero headspace
Industrial Solvents	P,G	4°C	7 days (14 if preserved in HCl)	125 ml
TPH-Volatile (gasoline)/ AK101	G	4°C, HCl	7 days (14 if preserved in HCl)	3-40 ml, zero headspace
BTEX	G	4°C,HCl	7 days (14 if preserved in HCl)	3-40 ml, zero headspace

EDB/DBCP		4°C	14 days (remove residual Cl w/Na ₂ S ₂ O ₃)	3-40 ml, zero headspace
III. SOLID & HAZARDOUS WASTE MATRICES - Semivolatile Organics				
Organochlorine Pesticides & PCBs	G	4°C	14 days	8 oz. wide mouth
Base/Neutral Extractables	G	4°C	14 days	8 oz. wide mouth
Acid Extractables	G	4°C	14 days	8 oz. wide mouth
Chlorinated Herbicides	G	4°C	14 days	8 oz. wide mouth
PCBs in Oil	G	4°C	14 days	25 ml
Dioxins and Furans	G	4°C	30 days	8 oz. wide mouth
TPH-Nonvolatile (diesel)/AK102-103/FL-Pro	G	4°C	14 days	8 oz. wide mouth
TNRCC1005/1006	G	4°C	14 days	1- 40ml voa vial
Perchlorate (LCMSMS)	G,P	avoid extreme temps	28 days	4 oz. wide mouth
IV. SOLID & HAZARDOUS WASTE MATRICES - Volatile Organics by Methods				
8260A,8015				
Volatile Organics	G	4°C	14 days	4 oz. wide mouth, zero headspace
Industrial Solvents	G	4°C	14 days	4 oz. wide mouth
TPH-Volatile (gasoline)	G	4°C	14 days	4 oz. wide mouth
BTEX	G	4°C	14 days	4 oz. wide mouth, zero headspace
8260B, 8015B (SW 846 Update III)				

Two options are offered depending upon which method is selected for field collections.

Volatile Organics, BTEX, Solvents, TPH-Volatile (gasoline)	3 Encore Containers	4°C	48 hours	5 grams per Encore container (3)
Volatile Organics, BTEX, Solvents, TPH-Volatile (gasoline)	2 Low Level Vials	H ₂ O freezing or Sodium Bisulfate	48 hours to freeze or 14 days w/Na ₂ SO ₄	40 ml vial pretared with 5 grams of sample / vial
AK101(methanol preservation only)	1 High Level Vial	4°C, Methanol	14 days	40 ml vial pretared with 5 grams of sample / vial

* - From time of collection to time of sample preparation; G - glass; P - plastic

**IMPORTANT - See notes on previous page.

RAD Container Requirements

Parameter	Container	Preservative	Holding Time	Water	Soil
I. INDICATOR ANALYSES					
Gross Alpha	P,G	HNO3 to pH<2 none	6 months 6 months	500 mL	20 g
Nonvolatile Beta	P,G	HNO3 to pH<2 none	6 months 6 months	500 mL	20 g
Alpha and Beta	P,G	HNO3 to pH<2 none	6 months 6 months	500 mL	20 g
Total Alpha Radium	P,G	HNO3 to pH<2 none	6 months 6 months	500 mL	20 g
Total Uranium	P,G	HNO3 to pH<2 none	6 months 6 months	100 ml	20 g
II. ALPHA EMITTERS					
Americium	P,G	HNO3 to pH<2 none	6 months 6 months	1000 ml	20 g
Curium	P,G	HNO3 to pH<2 none	6 months 6 months	1000 ml	20 g
Neptunium	P,G	HNO3 to pH<2 none	6 months 6 months	1000 ml	20 g
Plutonium	P,G	HNO3 to pH<2 none	6 months 6 months	1000 ml	20 g
Polonium	P,G	HNO3 to pH<2 none	6 months 6 months	1000 ml	20 g
Radium 223, 224 & 226	P,G	HNO3 to pH<2 none	6 months 6 months	1000 ml	200 g
Radon 222	G	Cool to 4° C	4 days	2-40 ml	
Thorium	P,G	HNO3 to pH<2 none	6 months 6 months	1000 ml	20 g
Uranium	P,G	HNO3 to pH<2 none	6 months 6 months	1000 ml	20 g
III. BETA/GAMMA EMITTERS					
Carbon 14	P,G	none none	6 months 6 months	500 mL	20 g
Gamma Spectroscopy	P,G	HNO3 to pH<2 none	6 months 6 months	2000 ml	200 g
Iodine 131	P,G	none none	8 days 8 days	1000 ml	200 g
Lead 210	P,G	HNO3 to pH<2 none	6 months 6 months	1000 ml	200 g
Nickel 63	P,G	HNO3 to pH<2 none	6 months 6 months	500 mL	20 g

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Plutonium 241	P,G	HNO3 to pH<2	6 months	1000 ml	
		none	6 months		20 g
Promethium 147	P,G	HNO3 to pH<2	6 months	1000 ml	
		none	6 months		20 g
Radium 228	P,G	HNO3 to pH<2	6 months	1000 ml	
		none	6 months		200 g
Selenium 79	P,G	HNO3 to pH<2	6 months	500 mL	
		none	6 months		20 g
Strontium 89 & 90	P,G	HNO3 to pH<2	6 months	1000 ml	
		none	6 months		20 g
Technetium 99	P,G	HNO3 to pH<2	6 months	500 mL	
		none	6 months		20 g
Tellurium 125m	P,G	HNO3 to pH<2	6 months	1000 ml	
		none	6 months		20 g
Thorium 234	P,G	HNO3 to pH<2	6 months	1000 ml	
		none	6 months		200 g
Tritium	G	none	6 months	250ml	
		none	6 months		20 g

IV. X-RAY AND OTHER

Iodine 129	P,G	none	6 months	1000 ml	
		none	6 months		50 g
Iron 55	P,G	HNO3 to pH<2	6 months	500 mL	
		none	6 months		20 g
Nickel 59	P,G	HNO3 to pH<2	6 months	1000 ml	