REFERENCE CHART: HOLDING TIME, BOTTLE TYPE, PRESERVATION, MINIMUM VOLUME

Note: Multiple analyses may be run from the same container, provided that the bottle type, volume and preservation are appropriate.

Analytical Parameter	Maximum Holding Time	Required Container Type	Required Preservative	Minimum Amount	
Alkalinity (Bicarb, Carb, Hyd, and Tot); SM 2320 B	14 days	Plastic / Glass	0-6°C	100	mL
Ammonia (NH3 as N); SM 4500NH3 B/C or B/G	28 days	Plastic / Glass	H_2SO_4 pH <2 +0-6°C	200	mL
Anions by EPA 300.0: Chloride (Cl^-); Fluoride (F^-); Nitrate (as N); Sulfate (SO_4^{2-})	28 days **48 hours (Nitrate)**	Plastic / Glass	0-6° C (no temp. req. for Chloride or Fluoride)	100	mL
Asbestos (TEM)	**48 hours**	Plastic / Glass	0-6°C	1000	mL
Bioassay (Acute Tox) % survival	**36 hours**	Plastic cubitainer	0-6°C	1-5	gal
Biochemical Oxygen Demand (BOD); SM 5210 B	**48 hours**	Plastic / Glass	0-6°C	500	mL
Chromium, Hexavalent (CrVI); SM 3500Cr B or EPA 7196	**24 hours**	Plastic / Glass	0-6°C	200	mL
Chlorine, residual; SM 4500Cl B or G	**15 minutes**	Field Measurement	-	-	-
Chemical Oxygen Demand (COD); SM 5220 D	28 days	Plastic / Glass	H_2SO_4 pH <2 +0-6°C	50	mL
Chlorophyll A (Algal Biomass) / Pheophytin; SM 10200 H	**48 Hours to filter** 28 days once filtered	Amber Plastic	0-6°C, unfiltered -20°C, filtered	1	L
Coliform, Total / Fecal; SM 9221 B/E	**8 hrs – non-potable water** **30 hrs – drinking water**	Plastic (sterile)	$Na_2S_2O_3$ + 0-10°C; No regulatory temp. req. for drinking water)	100	mL
Coliform, Total / E.Coli; SM 9223 B (Present/Absent or Quantitray)	**8 hrs –non-potable E.Coli** **30 hrs – drinking water**	Plastic (sterile)	$Na_2S_2O_3$ + 0-10°C; No regulatory temp. req. for DW	100	mL
Color; SM 2120 B	**48 hours**	Plastic / Glass	0-6°C	100	mL
Conductivity (EC/SC); SM 2510 B	28 days	Plastic / Glass	0-6°C	100	mL
Cyanide Total; SM 4500CN C/E	14 days	Amber plastic with NaOH pH >10 + 0-6°C Pre-treatment for Total Cyanide samples with chlorine or NO_3/NO_2 should be done prior to preservation. Kits can be provided upon request.		100	mL
Cyanide WAD; SM 4500CN I/E	14 days	Amber plastic	NaOH pH >10 + 0-6°C	100	mL
Dissolved Organic Carbon (DOC); SM 5310 B	**Filter within 48 hours** 28 days	125 mL Amber glass	Filter then add HCl to pH <2 + 0-6°C	50	mL
Dissolved Oxygen (DO); SM 4500O G	**15 minutes**	Field Measurement or Glass bottle/no headspace Collect in duplicate	0-6°C	500	mL
Enterococcus by Enterolert (SM 9230D)	**8 hrs – non-potable water** **30 hrs – drinking water**	Plastic (sterile)	$Na_2S_2O_3$ + 0-10°C	100	mL
Heterotrophic Plate Count (HPC/SPC); SM 9215E (SimPlate)	**8 hours**	Plastic (sterile)	$Na_2S_2O_3$ + 0-10°C	100	mL
Hardness (by titration); SM 2340 C	6 months	Plastic / Glass	HNO_3 pH <2	250	mL
Metals, Dissolved {2}; EPA 200.8	**Filter within 15 minutes {2},** 6 months	Plastic / Glass {15}	Filter then add HNO_3	100	mL
Metals, Total; EPA 200.8 Metals, Total; EPA 6010/6020	6 months	Plastic / Glass {15} Solids in Glass SJ	HNO_3 pH <2 None	100 1	mL 8oz
Mercury (Hg) EPA 245.1 Mercury (Hg) EPA 7471	28 days	Plastic / Glass Solids in Glass SJ	HNO_3 pH <2 0-6°C	100 1	mL 8oz
Mercury, Total; EPA 1631 (Aqueous)	**48 hours to preserve** 90 days once preserved	Glass, Dbl Bagged (not appropriate for samples with solids TSS>200 mg/L)	HCl	100	mL
Mercury, Dissolved {2}; EPA 1631	**Filter within 24 hours, Preserve within 48 hours** 90 days once preserved	Glass, Dbl Bagged	Filter in lab, then HCl	100	mL
Mercury, Methyl; EPA 1630 (Aqueous) Mercury, Methyl; EPA 1630 (Sludge or Solids)	**Preserve {8} within 48 hrs** 6 months preserved 6 months frozen	Glass, Amber Dbl Bagged Solids in Amber Poly SJ	Dark and cool + (HCl or H_2SO_4 {8}) Solids to be Frozen	100 1	mL 8oz
Mercury, Dissolved {2} Methyl; EPA 1630	**Filter & preserve within 48 hrs** 6 months once preserved	Glass, Amber Dbl Bagged	Filter in lab, dark and cool + (HCl or H_2SO_4 {8})	100	mL
Nitrate (as N); EPA 300.0	**48 hours**	Plastic / Glass	0-6°C	100	mL
Nitrite (as N); SM 4500NO2 B	**48 hours**	Plastic / Glass	0-6°C	100	mL
Nitrate+Nitrite as N (NO_3+NO_2-N) EPA 353.2, or SM 4500-NO3 F	28 days	Plastic / Glass	H_2SO_4 pH <2 +0-6°C	100	mL
Nitrogen, Total Kjeldahl (TKN); SM 4500Norg + SM 4500NH3 B	28 days	Plastic / Glass	H_2SO_4 pH <2 +0-6°C	200	mL
Nitrogen, Total Organic (TON) TKN-NH_3= TON calc	28 days	Plastic / Glass	H_2SO_4 pH <2 +0-6°C	200	mL
Odor; SM 2150 B	**6 hours (recommended) / 24 hour regulatory**	Glass only	0-6°C	1000	mL
Oil & Grease, Total and/or Hydrocarbons EPA 1664	28 days	Glass only-in duplicate	HCl or H_2SO_4 pH<2+0-6°C	500	mL{10}
Chlorinated Pesticides & PCBs, EPA 625.1 (formerly EPA 608) /8081/8082	7 days, Aqueous 14 days, Sludge or Solid	Glass Amber Liter - **Collect in triplicate**{6}. Solids in Glass SJ	0-6°C {5} 0-6°C	1 1	L 8oz

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Analytical Parameter	Maximum Holding Time	Required Container Type	Required Preservative	Minimum Amount	
Organophosphorus Pesticides EPA 625.1 (formerly EPA 614) /8141	7 days, Aqueous 14 days, Sludge or Solid	Glass Amber Liter - **Collect in triplicate**{6}. Solids in Glass SJ	0-6°C {5} 0-6°C	1 1	L 8oz
Semi-volatile Organics/ PAHs by EPA 625.1/8270	7 days, Aqueous 14 days, Sludge or Solid	Glass Amber Liter - **Collect in triplicate**{6}. Solids in Glass SJ	0-6°C {5} 0-6°C	1 1	L 8oz
Pyrethroid Pesticides GCMS-NCI-SIM/ EPA 8270/625.1	7 days /3 days {9} 14 days, soil or sediment	Glass Amber Liter - **Collect in triplicate**{6}. Solids in Amber Glass SJ	0-6°C {5} Solids to be Frozen	1 1	L 8oz
Carbamate Pesticides EPA 632/8321	7 days, Aqueous 14 days, Sludge or Solid	Glass Amber Liter - **Collect in triplicate**{6}. Solids in Glass SJ	0-6°C 0-6°C	1 1	L 8oz
Volatile Organics EPA 524.2 {4}	14 days, preserved	Glass VOA vial {1} (sample in triplicate)	HCl pH <2 + 0-6°C {4}	40	mL
Volatile Organics EPA 624.1 {3} (Includes Acrolein and Acrylonitrile)	14 days except: 3 days unpreserved for Acrolein {12} 7 days if only unpreserved received {11}.	Min. of four 40 mL VOA Vials. 6-pack preferred; Two Pres w/ HCl, Two Unpreserved, and Two pH 4-5 {1} THMS only—3 HCl VOAs	0-6°C (see holding time for additional preservation)	One 40mL of each container type described	
Volatile Organics; EPA 8260 {3}	14 days (aqueous) 14 days Sludge/solid	Three Clear Glass VOA Vials{1} Solids in separate glass jar filled to top	HCl pH <2 + 0-6°C 0-6°C	40 1	mL 8oz
TPH Diesel/Motor Oil; EPA 8015	7 days	Glass Amber Liter {6}	0-6°C	1	L
Tributyltin (TBT)	7 days (recommended)	Glass Amber Liter {6}	HCl pH <2 + 0-6°C	1	L
TPH Gas/ BTEX/ MTBE; EPA 8260	14 days preserved	Glass VOA vial {1}	HCl pH <2 + 0-6°C	40	mL
Dioxin; EPA 1613	1 year	Glass Amber Liter {6}	0-6°C {5}	1	L
Perchlorate; EPA 314.0	28 days	Plastic/Glass	0-6°C	100	mL
pH; SM 4500 H+ B	**15 minutes**	Plastic / Glass	0-6°C	100	mL
Phenols, EPA 420.4	28 days	Glass Amber 250 mL	H_2SO_4 pH <2 +0-6°C	200	mL
Phosphate, Ortho (as P); SM 4500P E	**48 hours**	Plastic / Glass	0-6°C	100	mL
Phosphate, Ortho, Dissolved (as P); SM 4500P E	**15 minutes to filter / 48 hrs once filtered**	Plastic / Glass	0-6°C	100	mL
Phosphorus, Total (as P); SM 4500P B/F or B/E	28 days	Plastic / Glass	H_2SO_4 pH <2+0-6°C	100	mL
Solids, Settleable (SS); SM 2540 F	**48 hours**	Plastic / Glass	0-6°C	1000	mL
Solids, Total (mg/L or %); SM 2540 B, or SM 2540 G	7 days	Plastic / Glass	0-6°C	1000	mL{14}
Solids, Total Dissolved (TDS); SM 2540 C	7 days	Plastic / Glass	0-6°C	1000	mL{14}
Solids, Total Suspended (TSS); SM 2540 D	7 days	Plastic / Glass	0-6°C	1000	mL{14}
Solids, Volatile Suspended (VSS); SM 2540 E	7 days	Plastic / Glass	0-6°C	200	mL
Sulfide, Dissolved; SM 4500 S2- B/D	7 days	Glass 250mL (no headspace)	NaOH + $AlCl_3$ +0-6°C {13}	250	mL
Sulfide, Total; SM 4500 S2- C/D	7 days	Glass (preferred)/plastic (no headspace)	NaOH + ZnAC pH >9 +0-6°C	250	mL
Sulfite (SO_3)	7 days	Glass Amber 500 mL	EDTA + 0-6°C	250	mL
Surfactants (MBAS); SM 5540 C	**48 hours**	Plastic / Glass	0-6°C	250	mL
Suspended Sediment Concentration (SSC) ASTM D3977-97 B - Filtration	120 days (per USGS)	Plastic / Glass	0-6°C {7}	100	mL
Total Organic Carbon (TOC); SM 5310 B	28 days	Amber Glass VOA (3 vials)	HCl pH <2 + 0-6°C	40	mL
Turbidity; SM 2130 B	**48 hours**	Plastic / Glass	0-6°C	100	mL
Ultraviolet Absorption (UVA at 254nm); SM 5910 B	**48 hours**	Glass Amber 125mL	0-6°C	125	mL

{1} Volatile organic samples need to be filled in multiple VOA vials without air bubbles/headspace (≤6 mm in size).
{2} Dissolved metals require field or lab filtration through 0.45-micron filter prior to preservation. 40 CFR 136.3 requires filtration within 15 minutes.
{3} Volatile organic methods EPA 624.1 and 8260 require dechlorination using Sodium Thiosulfate ($Na_2S_2O_3$) at time of sampling if chlorine is present. (Thiosulfate dechlorination bottles are available at the laboratory upon request.) Dechlorination is to occur before transferring to the appropriate VOA.
{4} Volatile organic method EPA 524.2 requires dechlorination using ascorbic acid at time of sampling if chlorine is present. Ascorbic acid dechlorination kits are available at the laboratory upon request. If analyzing for THMs only, Sodium Thiosulfate ($Na_2S_2O_3$) may be used, and acidification can be omitted. Otherwise, dechlorinate with Ascorbic acid, then preserve with HCl. If the sample foams vigorously upon addition of HCl, discard and collect unpreserved dechlorinated sample, and notify the laboratory as the samples must be analyzed within 24 hours of collection if they are to be analyzed for any compounds other than THMs. Method 524.2 requires a travel/trip blank with each sample set collected.
{5} If sampling from a chlorinated location, add 80 mg/L Sodium Thiosulfate ($Na_2S_2O_3$) per liter and mix well. Any method suitable for field use may be employed to test for residual chlorine (Reference 16). Add more Sodium Thiosulfate if 80 mg/L is insufficient but do not add excess Sodium Thiosulfate.
{6} Semi Volatile Extractable Organics in Amber Liters (AL) should be collected in enough bottles to ensure the lab can perform method-required Matrix Spike/Spike Duplicate (MS/MSD) analyses. While 3 AL per method is recommended, when collecting AL's for multiple methods, the number of AL's per method can be reduced to 2 per method. Please contact your Project Manager if in doubt about number of AL's per sample or method.
{7} Suspended Sediment Concentration (SSC) requires its own container and the entire contents are used for the analysis.
{8} Preserve with HCl if less than 10 ppT Salinity, or preserve with H_2SO_4 if greater than 10 ppT Salinity.
{9} Cyhalothrin in water has a 3-day hold time in reagent water per USGS study. Permethrin in water has a 3-day hold time per Storage Stability Study by CA Dept. of Food and Agriculture.
{10} 1L bottle required for lowest available MDL or RL <5 mg/L; 500mL bottle required for RL of 5 mg/L; 250mL bottle recommended for samples with expected concentrations of 20 mg/L or higher.
{11} If unpreserved, must be analyzed within 7 days of sampling.
{12} Hold time can be extended to 14 days if preserved to pH 4-5 at time of collection.
{13} Return sample to laboratory the same day as collection for pH verification, decanting, and further preservation.
{14} Samples with visible solids may only require 100mL. Samples with no or low visible solids should be collected in 1000mL containers.
{15} Glass not acceptable for boron.

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