

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 (NH ₃ as N); SM 4500NH3 B/C or B/G | 28 days | Plastic / Glass | H ₂ SO 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 | 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 | 250 mL |
| Chromium, Hexavalent (CrVI); SM 3500Cr B | 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 or EPA 410.4 | 28 days | Plastic / Glass | H ₂ SO 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 – wastewater/stormwater 30 hrs – drinking water | Plastic (sterile) | Na ₂ S ₂ O ₃ + 0-10°C | 100 mL |
| Coliform, Total / E.Coli; SM 9223 B (Present/Absent or Quantitray) | 30 hrs – drinking water | Plastic (sterile) | Na ₂ S ₂ O ₃ + 0-10°C | 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 B/C/E or B/C/I | 14 days | Amber or opaque 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 B/C/E or B/C/I | 14 days | Amber plastic | NaOH pH >10+0-6°C | |
| Dissolved Organic Carbon (DOC); SM 5310 B | Filter within 48 hours 28 days | 250 mL Amber glass | Filter then add HCl to pH < 2 + 0-6°C | 50 mL |
| Dissolved Oxygen (DO); SM 4500 G | 15 minutes | Field Measurement or Glass bottle/no headspace Collect in duplicate | 0-6°C | 500 mL |
| Enterococcus by Enterolert | 8 hours | Plastic (sterile) | Na ₂ S ₂ O ₃ + 0-10°C | 100 mL |
| Heterotrophic Plate Count (HPC/SPC); SIMPLATE | 8 hours | Plastic (sterile) | Na ₂ S ₂ O ₃ + 0-10°C | 100 mL |
| Hardness (by titration); SM 2340 C | 180 days | Plastic / Glass | HNO ₃ pH <2 | 250 mL |
| Metals, Dissolved {2}; EPA 200.8 | Filter within 15 minutes {2} , 6 months | Plastic / Glass | Filter then add HNO ₃ | 100 mL |
| Metals, Total; EPA 200.8 | 6 months | Plastic / Glass | HNO ₃ pH <2 | 100 mL |
| Metals, Total; EPA 6010/6020 | | Solids in Glass SJ | 0-6°C | 1 8oz |
| Mercury (Hg) EPA 245.1 | 28 days | Plastic / Glass | HNO ₃ pH <2 | 100 mL |
| Mercury (Hg) EPA 7471 | | Solids in Glass SJ | 0-6°C | 1 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, Total; EPA 1631 (Sludge or Solids) | 90 days | Solids in Glass SJ | 0-6°C | 1 8oz |
| 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) | Preserve {8} within 48 hrs 6 months preserved | Glass, Amber Dbl Bagged | Dark and cool + (HCL or H ₂ SO ₄ {8}) | 100 mL |
| Mercury, Methyl; EPA 1630 (Sludge or Solids) | 6 months frozen | Solids in Amber Poly SJ | Solids to be Frozen | 1 8oz |
| Mercury, Dissolved {2} Methyl; EPA 1630 | Filter & preserve within 48 hrs 6 months once preserved | Glass, Amber Dbl Bagged | Filter in Lab, 0-6°C + HCl if < 10 ppT salinity {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 NO3 F | 28 days | Plastic / Glass | H ₂ SO ₄ pH <2 +0-6°C | 100 mL |
| Nitrogen, Total Kjeldahl (TKN); SM 4500Norg + SM 4500NH3 B | 28 days | Plastic / Glass | H ₂ SO ₄ pH <2 +0-6°C | 200 mL |
| Nitrogen, Total Organic (TON) TKN-NH ₃ = TON calc | 28 days | Plastic / Glass | H ₂ SO ₄ pH <2 +0-6°C | 200 mL |
| Odor; SM 2150 B | 6 hours (recommended) / 24 hour regulatory | Glass only | 0-6°C | 250 mL |
| Oil & Grease, Total and/or Hydrocarbons EPA 1664 | 28 days | Glass only-in duplicate | HCl or H ₂ SO ₄ pH <2+0-6°C | 1 L {10} |
| Chlorinated Pesticides & PCBs, EPA 625.1 (formerly EPA 608) /8081/8082 | 7 days, Aqueous 14 days, Sludge or Solid | Glass Amber Liter {6} Solids in Glass SJ | 0-6°C {5} 0-6°C | 1 L 1 8oz |



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|--------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|---------------------------------------------------------|-------------------------------------------|----------|
| Polynuclear Aromatic Hydrocarbons (PAH's) EPA 625.1/8270 | 7 days, Aqueous 14 days, Sludge or Solid | Glass Amber Liter {6} Solids in Glass SJ | 0-6°C {5} 0-6°C | 1 1 | L 8oz |
| Organophosphorus Pesticides EPA 625.1 (formerly EPA 614) /8141 | 7 days, Aqueous 14 days, Sludge or Solid | Glass Amber Liter. Collect In triplicate Solids in Glass SJ | 0-6°C {5} 0-6°C | 1 1 | L 8oz |
| Semi-volatile Organics EPA 625.1/8270 | 7 days, Aqueous 14 days, Sludge or Solid | Glass Amber Liter {6} Solids in Glass SJ | 0-6°C {5} 0-6°C | 1 1 | L 8oz |
| Pyrethroid Pesticides GCMS-NCI-SIM/ EPA 8270M/625.1M | 7 days /3 days {9} 14 days, soil or sediment | Glass Amber Liter. Collect In triplicate Solids-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 Solids in Glass SJ | 0-6°C | 1 | L |
| 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 unpreserved for BTEX only {11}. | Total of four 40 mL VOA Vials; Two Pres w/ HCl, Two Unpreserved {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) | Four (4) Glass VOA vial {1} | HCl pH <2 + 0-6°C | 40 | mL |
| | 14 days Sludge/solid | Solids in separate glass jar filled to top | 0-6°C | 1 | 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} | 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 420.1 | 28 days | Glass Amber 250 mL | H ₂ SO 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 (PO ₄ as P); SM 4500P B/F or B/E | 28 days | Plastic / Glass | H ₂ SO 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 | 100 | mL |
| Solids, Total Dissolved (TDS); SM 2540 C | 7 days | Plastic / Glass | 0-6°C | 100 | mL |
| Solids, Total Suspended (TSS); SM 2540 D | 7 days | Plastic / Glass | 0-6°C | 200 | mL |
| Solids, Volatile Suspended (VSS); SM 2540 E | 7 days | Plastic / Glass | 0-6°C | 200 | mL |
| Sulfate (SO ₄ ²⁻), EPA 300.0 | 28 days | Plastic / Glass | 0-6°C | 100 | mL |
| Sulfide, Dissolved; SM 4500 S2- B/D | 7 days | Glass 250 mL | AlCl ₃ + NaOH +0-6°C | 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 Conc. (SSC); ASTM D3977 | 7 days | 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, or EPA 180.1 | 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 (Na₂S₂O₃) 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 de-chlorination 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 (Na₂S₂O₃) 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 (Na₂S₂O₃) per liter and mix well. Any method suitable for field use may be employed to test for residual chlorine (Reference 16). Add more sodium sulfate if 80 mg/L is insufficient but do not add excess sodium thiosulfate.
- {6} Semi Volatile Organics Amber Liters (AL) should be collected in duplicate, to ensure volume for re-extraction if necessary. When possible, please collect 4 AL per method to allow the laboratory to perform matrix Quality Control (MS/MSD).
- {7} Suspended Sediment Conc.(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 H₂SO₄ 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} 1000 mL required for RL of 5 mg/L; 250 mL 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.

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