

APPENDICES

A. Example of a Mass Spectrum

B. Universal Conversion Factors

C. Source Material

D. Method Reference

E. Sample Preservation Table

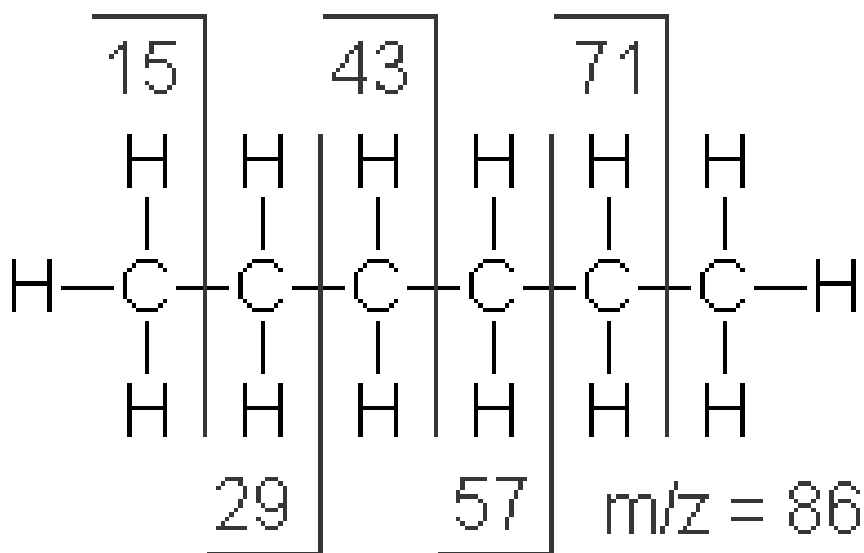
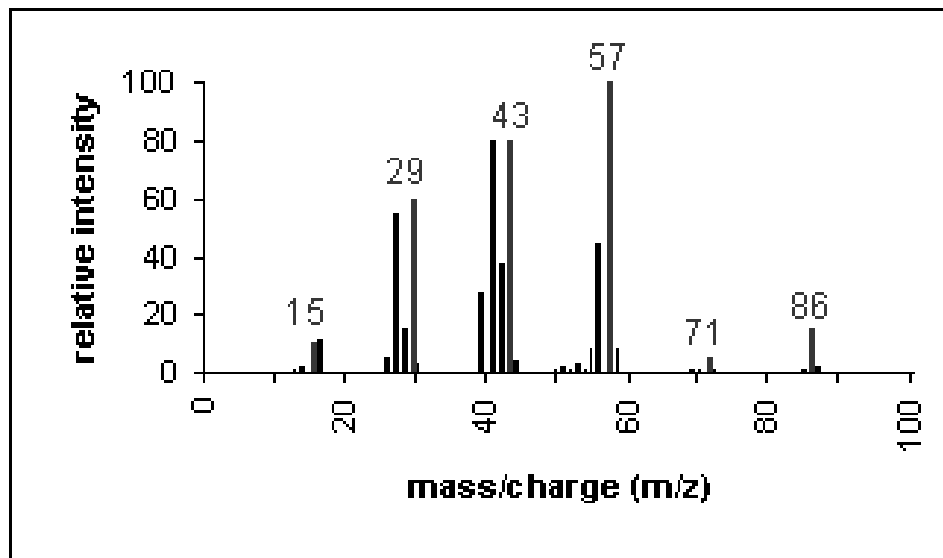
A. Example of a Mass Spectrum

Hexane (an Alkane)

C_6H_{14}

MW = 86.18

The fragmentation pattern contains clusters of peaks 14 mass units apart (which represent loss of $(CH_2)_nCH_3$).



B. Universal Conversion Factors

To Convert	Into	Multiply By
mg/L	Parts per million (ppm)	1
mg/L	Parts per billion (ppb)	1000
mg/Kg	Parts per million (ppm)	1
mg/Kg	Parts per billion (ppb)	1000
μg/L	mg/L	0.001
μg/Kg	mg/Kg	0.001
mg/L	Percent (%)	0.0001
Centigrade	Fahrenheit	$1.8 \times ^\circ\text{C} + 32$
Fahrenheit	Centigrade	$0.556 \times ^\circ\text{F} - 17.8$
Grains	Grams	0.0648
Grams	Milligrams	1000
Grams	Grains	15.43
Grams	Kilograms	0.001
Inches	Centimeters	2.540
Kilograms	Pounds	2.205
Liters	Gallons	0.2642
Liters	Quarts	1.057
Gallons (water)	Cubic feet (ft ³)	7.48
Gallons (water)	Pounds	8.33
Parsecs	Light Years	3.26
Pony	Jigger	0.5

Pressure Conversion Table

Pressure	PSI	Atm	kg/cm ²	Torr	kPa	Bar	Inches Hg
PSI	1.0	0.068	0.0703	51.713	6.8948	0.06895	2.0359
Atm	14.696	1.0	1.0332	760	101.32	1.0133	29.921
kg/cm ²	14.223	0.967	1.0	735.5	98.06	0.9806	28.958
Torr	0.0193	0.00132	0.00136	1.0	0.1330	0.00133	0.0394
kPa	0.1450	0.00987	0.0102	7.52	1.0	0.0100	0.2962
Bar	14.5038	0.9869	1.0197	751.88	100	1.0	29.5300
Inches Hg	0.49612	0.0334	0.0345	25.400	3.376	0.03376	1.0

C. Source Material

Methods and procedures as published in the 40 CFR Part 136

EPA - 600/4-79-019, *Handbook for Analytical Quality Control in Water & Wastewater Laboratories*

EPA - 600/4-79-020, *Methods for Chemical Analysis for Water and Wastes*

SW-846, *Test Methods for Evaluating Solid Wastes*

Standard Methods for the Examination of Water & Wastewater, 20th Ed.

Appendix I : 40 CFR Pt. 258 Appx. I : Constituents for Monitoring Detection

Appendix II: 40 CFR Pt. 258 Appx. II: List of Hazardous Inorganic and Organic Constituents

Appendix IX: 40 CFR Pt. 264 Appx. IX: Groundwater Monitoring List

EPA – 625/R-96/010b, *Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air*

D. Method Reference

EPA Methods Index, from the “Methods of Chemical Analysis of Water and Wastes” (MCAWW)

100 Series EPA Procedures - Physical Properties

Method 110.1:	Color, Colorimetric, ADMI
Method 110.2:	Color, Colorimetric, Platinum-Cobalt
Method 110.3:	Color, Spectrophotometric
Method 120.1:	Conductance, Specific Conductance
Method 130.1:	Hardness, Total (mg/l as CaCO ₃), Colorimetric, Automated EDTA
Method 130.2:	Hardness, Total (mg/l as CaCO ₃), Titrimetric, EDTA
Method 140.1:	Odor, Threshold Odor (Consistent Series)
Method 150.1:	pH, Electrometric Measurement
Method 150.2:	pH, Electrometric Measurement (Continuous Monitoring)
Method 160.1:	Residue, Filterable, Gravimetric, Dried at 180°C (TDS)
Method 160.2:	Residue, Non-Filterable, Gravimetric, Dried at 103-105°C (TSS)
Method 160.3:	Residue, Total, Gravimetric, Dried at 103-105°C (TS)
Method 160.4:	Residue, Volatile, Gravimetric, Ignition at 550°C (TVS)
Method 160.5:	Residue, Settleable Matter, Volumetric, Imhoff Cone
Method 170.1:	Temperature, Thermometric
Method 180.1:	Turbidity, Nephelometric

200 Series EPA Procedures - Metals Analysis

Method 200.0:	Atomic Absorption Methods
Method 200.7:	Inductively Coupled Plasma - Atomic Emission Spectrometric Method for Trace Element Analysis
Method 202.1:	Aluminum (Atomic Absorption, Direct Aspiration)
Method 202.2:	Aluminum (Atomic Absorption, Furnace Technique)
Method 204.1:	Antimony (Atomic Absorption, Direct Aspiration)
Method 204.2:	Antimony (Atomic Absorption, Furnace Technique)
Method 206.2:	Arsenic (Atomic Absorption, Furnace Technique)
Method 206.3:	Arsenic (Atomic Absorption, Hydride)
Method 206.4:	Arsenic (Spectrophotometric, SDDC)
Method 206.5:	Sample Digestion Prior to Total Arsenic Analysis by SDDC or Hydride Procedures
Method 208.1:	Barium (Atomic Absorption, Direct Aspiration)
Method 208.2:	Barium (Atomic Absorption, Furnace Technique)
Method 210.1:	Beryllium (Atomic Absorption, Direct Aspiration)
Method 210.2:	Beryllium (Atomic Absorption, Furnace Technique)
Method 212.3:	Boron (Colorimetric, Curcumin)

Appendix D: Methods Index, MCAWW, cont.

Method 213.1:	Cadmium (Atomic Absorption, Direct Aspiration)
Method 213.2:	Cadmium, Atomic Absorption, Direct Furnace Technique
Method 215.1:	Calcium (Atomic Absorption, Direct Aspiration)
Method 215.2:	Calcium (Titrimetric, EDTA)
Method 218.1:	Chromium (Atomic Absorption, Direct Aspiration)
Method 218.2:	Chromium (Atomic Absorption, Furnace Technique)
Method 218.3:	Chromium (Chelation-Extraction)
Method 218.4:	Chromium, Hexavalent (AA, Chelation-Extraction)
Method 218.5:	Chromium, Hexavalent, Dissolved Hexavalent (AA, Furnace Technique)
Method 219.1:	Cobalt (Atomic Absorption, Direct Aspiration)
Method 219.2:	Cobalt (Atomic Absorption, Furnace Technique)
Method 220.1:	Copper (Atomic Absorption, Direct Aspiration)
Method 220.2:	Copper (Atomic Absorption, Furnace Technique)
Method 231.1:	Gold (Atomic Absorption, Direct Aspiration)
Method 231.2:	Gold (Atomic Absorption, Furnace Technique)
Method 235.1:	Iridium (Atomic Absorption, Direct Aspiration)
Method 235.2:	Iridium (Atomic Absorption, Furnace Technique)
Method 236.1:	Iron (Atomic Absorption, Direct Aspiration)
Method 236.2:	Iron (Atomic Absorption, Furnace Technique)
Method 239.1:	Lead (Atomic Absorption, Direct Aspiration)
Method 239.2:	Lead (Atomic Absorption, Furnace Technique)
Method 242.1:	Magnesium (Atomic Absorption, Direct Aspiration)
Method 243.1:	Manganese (Atomic Absorption, Direct Aspiration)
Method 243.2:	Manganese (Atomic Absorption, Furnace Technique)
Method 245.1:	Mercury (Manual Cold-Vapor Technique)
Method 245.2:	Mercury (Automated Cold Vapor Technique)
Method 245.5:	Mercury in Sediment (Manual Cold-Vapor Technique)
Method 246.1:	Molybdenum (Atomic Absorption, Direct Aspiration)
Method 246.2:	Molybdenum (Atomic Absorption, Furnace Technique)
Method 249.1:	Nickel (Atomic Absorption, Direct Aspiration)
Method 249.2:	Nickel (Atomic Absorption, Furnace Technique)
Method 252.1:	Osmium (Atomic Absorption, Direct Aspiration)
Method 252.2:	Osmium (Atomic Absorption, Furnace Technique)
Method 253.1:	Palladium (Atomic Absorption, Direct Aspiration)
Method 253.2:	Palladium (Atomic Absorption, Furnace Technique)
Method 255.1:	Platinum (Atomic Absorption, Direct Aspiration)
Method 255.2:	Platinum (Atomic Absorption, Furnace Technique)
Method 258.1:	Potassium (Atomic Absorption, Direct Aspiration)
Method 264.1:	Rhenium (Atomic Absorption, Direct Aspiration)
Method 264.2:	Rhenium (Atomic Absorption, Furnace Technique)
Method 265.1:	Rhodium (Atomic Absorption, Direct Aspiration)
Method 265.2:	Rhodium (Atomic Absorption, Furnace Technique)
Method 267.1:	Ruthenium (Atomic Absorption, Direct Aspiration)

Appendix D: Methods Index, MCAWW, cont.

Method 267.2:	Ruthenium (Atomic Absorption, Furnace Technique)
Method 270.2:	Selenium (Atomic Absorption, Furnace Technique)
Method 270.3:	Selenium (Atomic Absorption, Gaseous Hydride)
Method 272.1:	Silver (Atomic Absorption, Direct Aspiration)
Method 272.2:	Silver (Atomic Absorption, Furnace Technique)
Method 273.1:	Sodium (Atomic Absorption, Direct Aspiration)
Method 273.2:	Sodium (Atomic Absorption, Furnace Technique)
Method 279.1:	Thallium (Atomic Absorption, Direct Aspiration)
Method 279.2:	Thallium (Atomic Absorption, Furnace Technique)
Method 282.1:	Tin (Atomic Absorption, Direct Aspiration)
Method 282.2:	Tin (Atomic Absorption, Furnace Technique)
Method 283.1:	Titanium (Atomic Absorption, Direct Aspiration)
Method 283.2:	Titanium (Atomic Absorption, Furnace Technique)
Method 286.1:	Vanadium (Atomic Absorption, Direct Aspiration)
Method 286.2:	Vanadium (Atomic Absorption, Furnace Technique)
Method 289.1:	Zinc (Atomic Absorption, Direct Aspiration)
Method 289.2:	Zinc (Atomic Absorption, Furnace Technique)

300 Series EPA Procedures - Inorganic, Non-Metals

Method 305.1:	Acidity, Titrimetric
Method 305.2:	Acidity (Titrimetric (Acid Rain))
Method 310.1:	Alkalinity (Titrimetric pH 4.5)
Method 310.2:	Alkalinity (Colorimetric, Automated Methyl Orange)
Method 320.1:	Bromide (Titrimetric)
Method 325.1:	Chloride (Colorimetric, Automated Ferricyanide, AAI)
Method 325.2:	Chloride (Colorimetric, Automated Ferricyanide, AAI)
Method 325.3:	Chloride (Titrimetric, Mercuric Nitrate)
Method 330.1:	Chlorine (Total Residual, Titrimetric, Amperometric)
Method 330.2:	Chlorine (Total Residual, Titrimetric, Back, Iodometric, Starch, or Amperometric Endpoint)
Method 330.3:	Chlorine (Total Residual, Titrimetric, Iodometric)
Method 330.4:	Chlorine (Total Residual, Titrimetric, DPD-FAS)
Method 330.5:	Chlorine (Total Residual, Spectrophotometric, DPD)
Method 335.1:	Cyanide (Amenable to Chlorination Titrimetric, Spectrophotometric)
Method 335.2:	Cyanide (Total, Titrimetric, Spectrophotometric)
Method 335.3:	Cyanide (Total, Colorimetric, Automated UV)
Method 340.1:	Fluoride (Colorimetric, SPADNS with Bellack Distillation)
Method 340.2:	Fluoride (Potentiometric, Ion Selective Electrode)
Method 340.3:	Fluoride (Colorimetric, Automated Complexone)
Method 345.1:	Iodide (Titrimetric)
Method 350.1:	Nitrogen (Ammonia, Colorimetric, Automated Phenate)

Appendix D: Methods Index, MCAWW, cont.

Method 350.2:	Nitrogen (Ammonia, Colorimetric, Titrimetric, Potentiometric - Distillation Procedure)
Method 350.3:	Nitrogen (Ammonia, Potentiometric, Ion Selective Electrode)
Method 351.1:	Nitrogen (Kjeldahl, Total, Colorimetric, Automated Phenate)
Method 351.2:	Nitrogen (Kjeldahl, Total, Colorimetric, Semi-Automated Block Digester AAll)
Method 351.3:	Nitrogen (Kjeldahl, Total, Colorimetric; Titrimetric; Potentiometric)
Method 351.4:	Nitrogen (Kjeldahl, Total, Potentiometric, Ion Selective Electrode)
Method 352.1:	Nitrate (Colorimetric, Brucine)
Method 353.1:	Nitrate-Nitrite (Colorimetric, Automated Hydrazine Reduction)
Method 353.2:	Nitrate-Nitrite (Colorimetric, Automated Cadmium Reduction)
Method 353.3:	Nitrate-Nitrite (Colorimetric, Manual Cadmium Reduction)
Method 354.1:	Nitrite (Spectrophotometric)
Method 360.1:	Oxygen (Dissolved, Membrane Electrode)
Method 360.2:	Oxygen (Dissolved, Modified Winkler (Full Bottle Technique))
Method 365.1:	Phosphorus (All Forms, Colorimetric, Automated, Ascorbic Acid)
Method 365.2:	Phosphorus (All Forms, Colorimetric, Ascorbic Acid, Single Reagent)
Method 365.3:	Phosphorus (All Forms, Colorimetric, Ascorbic Acid, Two Reagent)
Method 365.4:	Phosphorus (Total, Colorimetric, Automated, Block Digester, AAll)
Method 370.1:	Silica (Dissolved, Colorimetric)
Method 375.1:	Sulfate (Colorimetric, Automated Chloranilate)
Method 375.2:	Sulfate (Colorimetric, Automated Methyl Thymol Elude, AAll)
Method 375.3:	Sulfate (Gravimetric)
Method 375.4:	Sulfate (Turbidimetric)
Method 376.1:	Sulfide (Titrimetric, Iodine)
Method 376.2:	Sulfide (Colorimetric, Methylene Blue)
Method 377.1:	Sulfite (Titrimetric)

400 Series EPA Procedures - Aggregate Organics

Method 405.1:	Biochemical Oxygen Demand, BOD (5 day, 20 °C)
Method 410.1:	Chemical Oxygen Demand (Titrimetric, Mid-Level)
Method 410.2:	Chemical Oxygen Demand (Titrimetric, Low-Level)
Method 410.3:	Chemical Oxygen Demand (Titrimetric, High-Level for Saline Waters)
Method 410.4:	Chemical Oxygen Demand (Colorimetric, Automated; Manual)
Method 413.1:	Oil and Grease (Total Recoverable, Gravimetric, Separatory Funnel Extraction)
Method 413.2:	Oil and Grease (Total Recoverable, Spectrophotometric, Infrared)
Method 415.1:	Organic Carbon (Total, Combustion or Oxidation)
Method 415.2:	Organic Carbon (Total, UV Promoted, Persulfate Oxidation)

Appendix D: Methods Index, MCAWW, cont.

Method 418.1:	Petroleum Hydrocarbons (Total Recoverable, Spectrophotometric, Infrared)
Method 420.1:	Phenolics (Total Recoverable, Spectrophotometric, Manual 4-AAP with Distillation)
Method 420.2:	Phenolics (Total Recoverable, Colorimetric, Automated 4-AAP with Distillation)
Method 420.3:	Phenolics (Total Recoverable, Spectrophotometric, MBTH with Distillation)
Method 425.1:	Methylene Blue Active Substances (MBAS), Colorimetric
Method 430.1:	NTA (Colorimetric, Manual Zinc-Zincon)
Method 430.2:	NTA (Colorimetric, Automated, Zinc-Zincon)

EPA SDWA Approved Procedures for Organics in Drinking Water

Method 504.1:	EDB, DBCP, and 1,2,3 Trichloropropane by microextraction and GC.
Method 505	Organohalide Pesticides and PCBs by microextraction and GC.
Method 515.4:	Chlorinated Acids using Liquid-Liquid Extraction, Derivatization and GC with Electron Capture Detection.
Method 524.2:	Purgeable Organic Compounds by Capillary Column GC/Mass Spectrometry.
Method 525.2:	Organic Compounds by Liquid-Solid Extraction and Capillary Column GC/Mass Spectrometry.
Method 531.1:	N-Methylcarbamoyloximes and N-Methylcarbamates by HPLC with Post Column Derivatization
Method 547:	Glyphosate by HPLC, Post Column Derivatization, and Fluorescence Detector
Method 548.1:	Endothall by Ion Exchange Extraction, Acidic Methanol Methylation and GC/Mass Spectrometry
Method 549.2:	Diquat and Paraquat by Liquid-Solid Extraction and HPLC with a Photodiode Array UV Detector
Method 1613:	Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution and HRGC/HRMS

600 Series EPA Procedures - Methods for the Determination of Organic Compounds in Municipal and industrial Discharges

Method 601:	Determination of 29 Purgeable Halocarbons in Municipal and Industrial Discharges using Gas Chromatography as Provided under 40 CFR 136.1
Method 602:	The Determination of Various Purgeable Aromatics in Municipal and Industrial Discharges using Gas Chromatography as Provided Under 40 CFR 136.1
Method 603:	Determination of Acrolein and Acrylonitrile in Municipal and Industrial Discharges using Purge and Trap Gas Chromatography
Method 604:	Determination of Phenol and Certain Substituted Phenols in Municipal and Industrial Discharges using Gas Chromatography as

- Method 605: Provided Under 40 CFR 136.1
Determination of Certain Benzidines in Municipal and Industrial Discharges using Liquid-Liquid Extraction and High Performance Liquid Chromatography as Provided Under 40 CFR 136.1
- Method 606: Determination of Certain Phthalate Esters in Municipal and Industrial Discharges Using Liquid-Liquid Extraction and Gas Chromatography as Provided under 40 CFR 136.1
- Method 607: Determination of Certain Nitrosamines in Municipal and Industrial Discharges using Liquid-Liquid Extraction Gas Chromatography as Provided Under 40 CFR 136. 1
- Method 608: Determination of Organochlorine Pesticides and PCB's in Municipal and Industrial Discharges using Liquid-Liquid Extraction and Gas Chromatography as Provided Under 40 CFR 136.1
- Method 609: Determination of Certain Nitroaromatics and Isophorone in Municipal and Industrial Discharges using Liquid-Liquid Extraction and Gas Chromatography as Provided Under 40 CFR 136.1

Appendix D: Methods Index, MCAWW, cont.

- Method 610: Determination of Certain Polynuclear Aromatic Hydrocarbons in Municipal and Industrial Discharges using Liquid-Liquid Extraction and HPLC and/or Gas Chromatography as Provided Under 40 CFR 136.1
- Method 611: Determination of Certain Halo Ethers in Municipal and Industrial Discharges using Liquid-Liquid Extraction and Gas Chromatography as Provided Under 40 CFR 136.1
- Method 612: Determination of Certain Chlorinated Hydrocarbons in Municipal and Industrial Discharges using Liquid-Liquid Extraction and Gas Chromatography as Provided Under 40 CFR 136.1
- Method 613: Determination of 2,3,7,8-Tetrachlorodibenzo-p-Dioxin in Municipal and Industrial Discharges using Liquid-Liquid Extraction and Gas Chromatography and Mass Spectrometry as Provided Under 40 CFR 136.1
- Method 624: Determination of a Number of Purgeable Organics in Municipal and Industrial Discharges using Purge and Trap Gas Chromatography/Mass Spectrometry as Provided Under 40 CFR 136.1
- Method 625: Determination of a Number of Organic Compounds in Municipal and Industrial Discharges using Liquid-Liquid Extraction and Gas Chromatography/Mass Spectrometry as Provided Under 40 CFR 136.1
- Method 1624: Revision B -- Determination of Volatile Toxic Organic Pollutants and Additional Compounds Amenable to Purge and Trap Gas Chromatography/Mass Spectrometry
- Method 1625: Revision B -- Determination of Semivolatile Toxic Organic Pollutants and Additional Compounds Amenable to Extraction and Capillary Column Gas Chromatography/Mass Spectrometry

SW-846, Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods

Part I, Volume 1 Section A; Chapter Three - Metallic Analytes

Method 3005A:	Acid Digestion of Waters for Total Recoverable or Dissolved Metals for Analysis by FLAA or ICP Spectroscopy
Method 3010A:	Acid Digestion of Aqueous Samples and Extracts for Total Metals for Analysis by FLAA or ICP Spectroscopy
Method 3015:	Microwave Assisted Acid Digestion of Aqueous Samples and Extracts
Method 3020A:	Acid Digestion of Aqueous Samples and Extracts for Total Metals for Analysis by GFAA Spectroscopy
Method 3031:	Acid Digestion of Oils for Metals Analysis by Atomic Absorption or ICP Spectrometry
Method 3040A:	Dissolution Procedure for Oils, Greases, or Waxes
Method 3050B:	Acid Digestion of Sediments, Sludges, and Soils
Method 3051:	Microwave Assisted Acid Digestion of Sediments, Sludges, Soils, and Oils
Method 3052:	Microwave Assisted Acid Digestion of Siliceous and Organically Based Matrices
Method 3060A:	Alkaline Digestion for Hexavalent Chromium
Method 6010C:	Inductively Coupled Plasma-Atomic Emission Spectrometry
Method 6020A:	Inductively Coupled Plasma-Mass Spectrometry
Method 7000A:	Atomic Absorption Methods
Method 7020:	Aluminum (Atomic Absorption, Direct Aspiration)
Method 7040:	Antimony (Atomic Absorption, Direct Aspiration)
Method 7041:	Antimony (Atomic Absorption, Furnace Technique)
Method 7060A:	Arsenic (Atomic Absorption, Furnace Technique)
Method 7061A:	Arsenic (Atomic Absorption, Gaseous Hydride)
Method 7062:	Antimony and Arsenic (Atomic Absorption, Borohydride Reduction)
Method 7063:	Arsenic in Aqueous Samples and Extracts by Anodic Stripping Voltammetry (ASV)
Method 7080A:	Barium (Atomic Absorption, Direct Aspiration)
Method 7081:	Barium (Atomic Absorption, Furnace Technique)
Method 7090:	Beryllium (Atomic Absorption, Direct Aspiration)
Method 7091:	Beryllium (Atomic Absorption, Furnace Technique)
Method 7130:	Cadmium (Atomic Absorption, Direct Aspiration)
Method 7131A:	Cadmium (Atomic Absorption, Furnace Technique)
Method 7140:	Calcium (Atomic Absorption, Direct Aspiration)
Method 7190:	Chromium (Atomic Absorption, Direct Aspiration)
Method 7191:	Chromium (Atomic Absorption, Furnace Technique)
Method 7195:	Chromium, Hexavalent (Coprecipitation)
Method 7196A:	Chromium, Hexavalent (Colorimetric)
Method 7197:	Chromium, Hexavalent (Chelation/Extraction)
Method 7198:	Chromium, Hexavalent (Differential Pulse Polarography)

Method 7199: Determination of Hexavalent Chromium in Drinking Water, Groundwater and Industrial Wastewater Effluents by Ion Chromatography

Method 7200: Cobalt (Atomic Absorption, Direct Aspiration)

Method 7201: Cobalt (Atomic Absorption, Furnace Technique)

Method 7210: Copper (Atomic Absorption, Direct Aspiration)

Method 7211: Copper (Atomic Absorption, Furnace Technique)

Method 7380: Iron (Atomic Absorption, Direct Aspiration)

Method 7381: Iron (Atomic Absorption, Furnace Technique)

Method 7420: Lead (Atomic Absorption, Direct Aspiration)

Method 7421: Lead (Atomic Absorption, Furnace Technique)

Method 7430: Lithium (Atomic Absorption, Direct Aspiration)

Method 7450: Magnesium (Atomic Absorption, Direct Aspiration)

Method 7460: Manganese (Atomic Absorption, Direct Aspiration)

Method 7461: Manganese (Atomic Absorption, Furnace Technique)

Method 7470A: Mercury in Liquid Waste (Manual Cold-Vapor Technique)

Method 7471B: Mercury in Solid or Semisolid Waste (Manual Cold-Vapor Technique)

Method 7472: Mercury in Aqueous Samples and Extracts by Anodic Stripping Voltammetry (ASV)

Method 7480: Molybdenum (Atomic Absorption, Direct Aspiration)

Method 7481: Molybdenum (Atomic Absorption, Furnace Technique)

Method 7520: Nickel (Atomic Absorption, Direct Aspiration)

Method 7521: Nickel (Atomic Absorption, Furnace Method)

Method 7550: Osmium (Atomic Absorption, Direct Aspiration)

Method 7580: White Phosphorus (P) by Solvent Extraction and Gas 4 Chromatography

Method 7610: Potassium (Atomic Absorption, Direct Aspiration)

Method 7740: Selenium (Atomic Absorption, Furnace Technique)

Method 7741A: Selenium (Atomic Absorption, Gaseous Hydride)

Method 7742: Selenium (Atomic Absorption, Borohydride Reduction)

Method 7760A: Silver (Atomic Absorption, Direct Aspiration)

Method 7761: Silver (Atomic Absorption, Furnace Technique)

Method 7770: Sodium (Atomic Absorption, Direct Aspiration)

Method 7780: Strontium (Atomic Absorption, Direct Aspiration)

Method 7840: Thallium (Atomic Absorption, Direct Aspiration)

Method 7841: Thallium (Atomic Absorption, Furnace Technique)

Method 7870: Tin (Atomic Absorption, Direct Aspiration)

Method 7910: Vanadium (Atomic Absorption, Direct Aspiration)

Method 7911: Vanadium (Atomic Absorption, Furnace Technique)

Method 7950: Zinc (Atomic Absorption, Direct Aspiration)

Method 7951: Zinc (Atomic Absorption, Furnace Technique)

PART I, Volume 1, Section B; Chapter Four - Organic Analytes

Method 3500B:	Organic Extraction and Sample Preparation
Method 3510C:	Separatory Funnel Liquid-Liquid Extraction
Method 3520C:	Continuous Liquid-Liquid Extraction
Method 3535:	Solid-Phase Extraction (SPE)
Method 3540C:	Soxhlet Extraction
Method 3541:	Automated Soxhlet Extraction
Method 3542:	Extraction of Semivolatile Analytes Collected Using Method 0010 (Modified Method 5 Sampling Train)
Method 3545:	Pressurized Fluid Extraction (PFE)
Method 3550B:	Ultrasonic Extraction
Method 3560:	Supercritical Fluid Extraction of Total Recoverable Petroleum Hydrocarbons
Method 3561:	Supercritical Fluid Extraction of Polynuclear Aromatic Hydrocarbons
Method 3580A:	Waste Dilution
Method 3585:	Waste Dilution for Volatile Organics
Method 5000:	Sample Preparation for Volatile Organic Compounds
Method 5021:	Volatile Organic Compounds in Soils and Other Solid Matrices Using Equilibrium Headspace Analysis
Method 5030B:	Purge-and-Trap for Aqueous Samples
Method 5031:	Volatile, Nonpurgeable, Water-Soluble Compounds by Azeotropic Distillation
Method 5032:	Volatile Organic Compounds by Vacuum Distillation
Method 5035:	Closed-System Purge-and-Trap and Extraction for Volatile Organics in Soil and Waste Samples
Method 5041A:	Analysis for Desorption of Sorbent Cartridges from Volatile Organic Sampling Train (VOST)
Method 3600C:	Cleanup
Method 3610B:	Alumina Cleanup
Method 3611B:	Alumina Column Cleanup and Separation of Petroleum Wastes
Method 3620B:	Florisil Cleanup
Method 3630C:	Silica Gel Cleanup
Method 3640A:	Gel-Permeation Cleanup
Method 3650B:	Acid-Base Partition Cleanup
Method 3660B:	Sulfur Cleanup
Method 3665A:	Sulfuric Acid/Permanganate Cleanup
Method 8000B:	Determinative Chromatographic Separations
Method 8011:	1,2-Dibromoethane and 1,2-Dibromo-3-chloropropane by Microextraction and Gas Chromatography
Method 8015B:	Nonhalogenated Organics Using GC/FID
Method 8021B:	Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors
Method 8031:	Acrylonitrile by Gas Chromatography
Method 8032A:	Acrylamide by Gas Chromatography
Method 8033:	Acetonitrile by Gas Chromatography with Nitrogen-Phosphorus Detection

Method 8041:	Phenols by Gas Chromatography
Method 8061A:	Phthalate Esters by Gas Chromatography with Electron Capture Detection (GC/ECD)
Method 8070A:	Nitrosamines by Gas Chromatography
Method 8081B:	Organochlorine Pesticides by Gas Chromatography
Method 8082A:	Polychlorinated Biphenyls (PCBs) by Gas Chromatography
Method 8091:	Nitroaromatics and Cyclic Ketones by Gas Chromatography
Method 8100:	Polynuclear Aromatic Hydrocarbons
Method 8111:	Haloethers by Gas Chromatography
Method 8121:	Chlorinated Hydrocarbons by Gas Chromatography: Capillary Column Technique
Method 8131:	Aniline and Selected Derivatives by Gas Chromatography
Method 8141B:	Organophosphorus Compounds by Gas Chromatography: Capillary Column Technique
Method 8151A:	Chlorinated Herbicides by GC Using Methylation or Pentafluorobenzoylation Derivatization
Method 8260B:	Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)
Method 8270D:	Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)
Method 8275A:	Semivolatile Organic Compounds (PAHs and PCBs) in Soils/Sludges and Solid Wastes Using Thermal Extraction/Gas Chromatography/Mass Spectrometry (TE/GC/MS)
Method 8280A:	The Analysis of Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by High Resolution Gas Chromatography/Low Resolution Mass Spectrometry (HRGC/LRMS)
Method 8290:	Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS)
Method 8310:	Polynuclear Aromatic Hydrocarbons
Method 8315A:	Determination of Carbonyl Compounds by High Performance Liquid Chromatography (HPLC)
Method 8316:	Acrylamide, Acrylonitrile and Acrolein by High Performance Liquid Chromatography (HPLC)
Method 8318:	N-Methylcarbamates by High Performance Liquid Chromatography (HPLC)
Method 8321A:	Solvent Extractable Nonvolatile Compounds by High Performance Liquid Chromatography/Thermospray/Mass Spectrometry (HPLC/TS/MS) or Ultraviolet (UV) Detection
Method 8325:	Solvent Extractable Nonvolatile Compounds by High Performance Liquid Chromatography/Particle Beam/Mass Spectrometry (HPLC/PB/MS)
Method 8330:	Nitroaromatics and Nitramines by High Performance Liquid Chromatography (HPLC)
Method 8331:	Tetrazene by Reverse Phase High Performance Liquid Chromatography (HPLC)
Method 8332:	Nitroglycerine by High Performance Liquid Chromatography
Method 8410:	Gas Chromatography/Fourier Transform Infrared (GC/FT-IR) Spectrometry for Semivolatile Organics: Capillary Column

Method 8430: Analysis of Bis(2-chloroethyl) Ether and Hydrolysis Products by Direct Aqueous Injection GC/FT-IR

Method 8440: Total Recoverable Petroleum Hydrocarbons by Infrared Spectrophotometry

Method 8520: Continuous Measurement of Formaldehyde in Ambient Air

Method 4000: Immunoassay

Method 4010A: Screening for Pentachlorophenol by Immunoassay

Method 4015: Screening for 2,4-Dichlorophenoxyacetic Acid by Immunoassay

Method 4020: Screening for Polychlorinated Biphenyls by Immunoassay

Method 4030: Soil Screening for Petroleum Hydrocarbons by Immunoassay

Method 4035: Soil Screening for Polynuclear Aromatic Hydrocarbons by Immunoassay

Method 4040: Soil Screening for Toxaphene by Immunoassay

Method 4041: Soil Screening for Chlordane by Immunoassay

Method 4042: Soil Screening for DDT by Immunoassay

Method 4050: TNT Explosives in Soil by Immunoassay

Method 4051: Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) in Soil by Immunoassay

Method 3810: Headspace

Method 3820: Hexadecane Extraction and Screening of Purgeable Organics

Method 8515: Colorimetric Screening Method for Trinitrotoluene (TNT) in Soil

Method 9078: Screening Test Method for Polychlorinated Biphenyls in Soil

Method 9079: Screening Test Method for Polychlorinated Biphenyls in Transformer Oil

PART I, Volume 1, Section C; Chapter Five - Miscellaneous Test Methods

Method 5050:	Bomb Preparation Method for Solid Waste
Method 9010B:	Total and Amenable Cyanide: Distillation
Method 9012A:	Total and Amenable Cyanide (Automated Colorimetric, with Off-Line Distillation)
Method 9013:	Cyanide Extraction Procedure for Solids and Oils
Method 9014:	Titrimetric and Manual Spectrophotometric Determinative Methods for Cyanide
Method 9020B:	Total Organic Halides (TOX)
Method 9021:	Purgeable Organic Halides (POX)
Method 9022:	Total Organic Halides (TOX) by Neutron Activation Analysis
Method 9023:	Extractable Organic Halides (EOX) in Solids
Method 9030B:	Acid-Soluble and Acid-Insoluble Sulfides: Distillation
Method 9031:	Extractable Sulfides
Method 9034:	Titrimetric Procedure for Acid-Soluble and Acid-Insoluble Sulfides
Method 9035:	Sulfate (Colorimetric, Automated, Chloranilate)
Method 9036:	Sulfate (Colorimetric, Automated, Methylthymol Blue, AA II)
Method 9038:	Sulfate (Turbidimetric)
Method 9056A:	Determination of Inorganic Anions by Ion Chromatography
Method 9057:	Determination of Chloride from HCl/Cl Emission Sampling Train 2 (Methods 0050 and 0051) by Anion Chromatography
Method 9060:	Total Organic Carbon
Method 9065:	Phenolics (Spectrophotometric, Manual 4-AAP with Distillation)
Method 9066:	Phenolics (Colorimetric, Automated 4-AAP with Distillation)
Method 9067:	Phenolics (Spectrophotometric, MBTH with Distillation)
Method 9070:	Total Recoverable Oil & Grease (Gravimetric, Separatory Funnel Extraction)
Method 9071A:	Oil and Grease Extraction Method for Sludge and Sediment Samples
Method 9075:	Test Method for Total Chlorine in New and Used Petroleum Products by X-Ray Fluorescence Spectrometry (XRF)
Method 9076:	Test Method for Total Chlorine in New and Used Petroleum Products by Oxidative Combustion and Microcoulometry
Method 9077:	Test Methods for Total Chlorine in New and Used Petroleum Products (Field Test Kit Methods)
Method A:	Fixed End Point Test Kit Method
Method B:	Reverse Titration Quantitative End Point Test Kit Method
Method C:	Direct Titration Quantitative End Point Test Kit Method
Method 9131:	Total Coliform: Multiple Tube Fermentation Technique
Method 9132:	Total Coliform: Membrane-Filter Technique
Method 9210:	Potentiometric Determination of Nitrate in Aqueous Samples with Ion-Selective Electrode
Method 9211:	Potentiometric Determination of Bromide in Aqueous Samples with Ion-Selective Electrode
Method 9212:	Potentiometric Determination of Chloride in Aqueous Samples with Ion-Selective Electrode
Method 9213:	Potentiometric Determination of Cyanide in Aqueous Samples and

Method 9214: Distillates with Ion-Selective Electrode
Potentiometric Determination of Fluoride in Aqueous Samples with
Ion-Selective Electrode

Method 9215: Potentiometric Determination of Sulfide in Aqueous Samples and
Distillates with Ion-Selective Electrode

Method 9250: Chloride (Colorimetric, Automated Ferricyanide AAI)

Method 9251: Chloride (Colorimetric, Automated Ferricyanide AAI)

Method 9253: Chloride (Titrimetric, Silver Nitrate)

Method 9320: Radium-228

Appendix D: Methods Index, SW-846, cont.

PART I, Volume 1, Section C; Chapter Six - Properties

Method 1030:	Ignitability of Solids
Method 1120:	Dermal Corrosion
Method 1312:	Synthetic Precipitation Leaching Procedure
Method 1320:	Multiple Extraction Procedure
Method 1330A:	Extraction Procedure for Oily Wastes
Method 9041A:	pH Paper Method
Method 9045C:	Soil and Waste pH
Method 9050A:	Specific Conductance
Method 9080:	Cation-Exchange Capacity of Soils (Ammonium Acetate)
Method 9081:	Cation-Exchange Capacity of Soils (Sodium Acetate)
Method 9090A:	Compatibility Test for Wastes and Membrane Liners
Method 9095A:	Paint Filter Liquids Test
Method 9096:	Liquid Release Test (LRT) Procedure
Appendix A:	Liquid Release Test Pre-Test
Method 9100:	Saturated Hydraulic Conductivity, Saturated Leachate Conductivity, and Intrinsic Permeability
Method 9310:	Gross Alpha and Gross Beta
Method 9315:	Alpha-Emitting Radium Isotopes

PART II, Volume 1, Section C; Chapter Seven - Properties

Section 7.3.3.2:	Test Method to Determine Hydrogen Cyanide Released from Wastes
Section 7.3.4.1:	Test Method to Determine Hydrogen Sulfide Released from Wastes

PART II, Volume 1, Section C; Chapter Eight - Methods for Determining Characteristics

Method 1010:	Pensky-Martens Closed-Cup Method for Determining Ignitability
Method 1020A:	Setaflash Closed-Cup Method for Determining Ignitability
Method 9040B:	pH Electrometric Measurement
Method 1110:	Corrosivity Toward Steel
Method 1310A:	Extraction Procedure (EP) Toxicity Test Method and Structural Integrity Test
Method 1311:	Toxicity Characteristic Leaching Procedure
Method 0010:	Modified Method 5 Sampling Train
Appendix A:	Preparation of XAD-2 Sorbent Resin
Appendix B:	Total Chromatographable Organic Material Analysis
Method 0011:	Sampling for Selected Aldehyde and Ketone Emissions from Stationary Sources
Method 0020:	Source Assessment Sampling System (SASS)

Appendix D: Methods Index, SW-846, cont.

Method 0023A:	Sampling Method for Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofuran Emissions from Stationary Sources
Method 0030:	Volatile Organic Sampling Train
Method 0031:	Sampling Method for Volatile Organic Compounds (SMVOC)
Method 0040:	Sampling of Principal Organic Hazardous Constituents from Combustion Sources Using Tedlar® Bags
Method 0050:	Isokinetic HCl/Cl Emission Sampling Train 2
Method 0051:	Midget Impinger HCl/Cl Emission Sampling Train 2
Method 0060:	Determination of Metals in Stack Emissions
Method 0061:	Determination of Hexavalent Chromium Emissions from Stationary Sources
Method 0100:	Sampling for Formaldehyde and Other Carbonyl Compounds in Indoor Air

Miscellaneous Methods Index

(Procedures Not Otherwise Covered By EPA Reference Documents)

FL-PRO:	Petroleum Range Organics (C8-C40)
HC/SCAN	ENCO Procedure for the Identification of Various Hydrocarbon Products
M.C. Miller:	Procedure for Resistivity in Soils
MA EPH	Massachusetts Method for the Determination of Extractable Petroleum Hydrocarbons
MA VPH	Massachusetts Method for the Determination of Volatile Petroleum Hydrocarbons
TPHWG	Total Petroleum Hydrocarbons Working Group

E. Component Reference

Component	Method Reference (see footnote)
α -BHC (alpha)	608/8080/8081
β -BHC (beta)	608/8080/8081
δ -BHC (delta)	608/8080/8081
γ -BHC (Lindane) (gamma)	608/8080/8081
α -Chlordane (alpha)	608/8080/8081
β -Chlordane (beta)	608/8080/8081
γ -Chlordane (gamma)	608/8080/8081
1,1,1,2-Tetrachloroethane	601/8010/8021, 624/8240/8260
1,1,1-Trichloroethane	601/8010/8021, 624/8240/8260
1,1,2,2-Tetrachloroethane	601/8010/8021, 624/8240/8260
1,1,2-Trichloroethane	601/8010/8021, 624/8240/8260
1,1-Dichloroethane	601/8010/8021, 624/8240/8260
1,1-Dichloroethene	601/8010/8021, 624/8240/8260
1,1-Dichloropropene	601/8010/8021, 624/8240/8260
1,2,3-Trichlorobenzene	601/8010/8021, 624/8240/8260
1,2,3-Trichloropropane	601/8010/8021, 624/8240/8260
1,2,4,5-Tetrachlorobenzene	625/8270
1,2,4-Trichlorobenzene	601/8010/8021, 624/8240/8260, 625/8270
1,2,4-Trimethylbenzene	601/8010/8021, 624/8240/8260
1,2-Dibromo-3-chloropropane (DBCP)	601/8010/8021, 504/8011, 624/8240/8260
1,2-Dibromoethane (EDB)	601/8010/8021, 504/8011, 624/8240/8260
1,2-Dichlorobenzene	601/602/8010/8020/8021, 624/8240/8260, 625/8270
1,2-Dichloroethane	601/8010/8021, 624/8240/8260
1,2-Dichloropropane	601/8010/8021, 624/8240/8260
1,3,5-Trimethylbenzene	602/8020/8021, 624/8240/8260
1,3,5-Trinitrobenzene	625/8270
1,3-Dichlorobenzene	601/602/8010/8020/8021, 624/8240/8260, 625/8270
1,3-Dichloropropane	601/8010/8021, 624/8240/8260
1,3-Dinitrobenzene	625/8270
1,4-Dichlorobenzene	601/602/8010/8020/8021, 624/8240/8260, 625/8270
1,4-Dioxane	624/8240/8260, 625/8270
1,4-Naphthoquinone	625/8270
1-Methylnaphthalene	610/8100, 8310, 625/8270
1-Naphthylamine	625/8270
2,2-Dichloropropane	601/8010/8021, 624/8240/8260
2,3,4,6-Tetrachlorophenol	625/8270
2,4,5-T	615/8150/8151

Component	Method Reference (see footnote)
2,4,5-TP (Silvex)	615/8150/8151
2,4,5-Trichlorophenol	625/8270
2,4,6-Trichlorophenol	625/8270
2,4-D	615/8150/8151
2,4-DB	615/8150/8151
2,4-Dichlorophenol	625/8270
2,4-Dimethylphenol	625/8270
2,4-Dinitrophenol	625/8270
2,4-Dinitrotoluene	625/8270
2,6-Dichlorophenol	625/8270
2,6-Dinitrotoluene	625/8270
2-Acetylaminofluorene	625/8270
2-Butanone	624/8240/8260, 8015
2-Chloroethyl vinyl ether	601/8010/8021, 624/8240/8260
2-Chloronaphthalene	625/8270
2-Chlorophenol	625/8270
2-Chlorotoluene	601/8010/8021, 624/8240/8260
2-Ethoxyethanol	8015
2-Hexanone	624/8240/8260, 8015
2-Methyl-1-butanol	8015
2-Methyl-4,6-dinitrophenol	625/8270
2-Methylnaphthalene	810/8100, 8310, 625/8270
2-Methylphenol	625/8270
2-Naphthylamine	625/8270
2-Nitroaniline	625/8270
2-Nitrophenol	625/8270
2-Picoline	624/8240/8260, 625/8270
3,3'-Dimethylbenzidine	625/8270
3,3'-Dichlorobenzidine	625/8270
3,5-DCBA	615/8150/8151
3-Methyl-1-butanol	8015
3-Methylcholanthrene	625/8270
3-Methylphenol	625/8270
3-Nitroaniline	625/8270
4,4'-DDD	608/8080/8081
4,4'-DDE	608/8080/8081
4,4'-DDT	608/8080/8081
4-Aminobiphenyl	625/8270
4-Bromophenyl phenyl ether	625/8270
4-Chloro-3-methyl phenol	625/8270
4-Chloroaniline	625/8270
4-Chlorophenylphenyl ether	625/8270
4-Chlorotoluene	601/8010/8021, 624/8240/8260
4-Methyl-2-pentanone	624/8240/8260
4-Methylphenol	625/8270

Component	Method Reference (see footnote)
4-Nitroaniline	625/8270
4-Nitrophenol	615/8150/8151, 625/8270
4-Nitroquinoline 1-oxide	625/8270
5-Nitro-o-toluidine	625/8270
7,12-Dimethyl benz[a]anthracene	625/8270
a,a-Dimethylphenethylamine	625/8270
Acenaphthene	610/8100, 8310, 625/8270
Acenaphthylene	610/8100, 8310, 625/8270
Acetone	624/8240/8260
Acetonitrile	624/8240/8260
Acetophenone	625/8270
Acifluorfen	615/8150/8151
Acrolein	624/8240/8260
Acrylonitrile	624/8240/8260
Aldrin	608/8080/8081
Allyl Chloride	624/8240/8260
Aniline	625/8270
Anthracene	610/8100, 8310, 625/8270
Aramite	625/8270
Aspon	614/8140/8141
Azinphos ethyl	614/8140/8141
Azinphos methyl	614/8140/8141
Bentazon	615/8150/8151
Benzene	602/8020/8021, 624/8240/8260
Benzidine	625/8270
Benzo(a)anthracene	610/8100, 8310, 625/8270
Benzo(a)pyrene	610/8100, 8310, 625/8270
Benzo(b)fluoranthene	610/8100, 8310, 625/8270
Benzo(g,h,i)perylene	610/8100, 8310, 625/8270
Benzo(k)fluoranthene	610/8100, 8310, 625/8270
Benzoic acid	625/8270
Benzyl alcohol	625/8270
Benzyl-butylphthalate	625/8270
Bis(2-chloroethoxy) methane	625/8270
Bis(2-chloroethyl) ether	625/8270
Bis(2-chloro-isopropyl) ether	625/8270
Bis(2-ethylhexyl) phthalate	625/8270
Bolstar	614/8140/8141
Bromobenzene	601/8010/8021, 624/8240/8260
Bromochloromethane	601/8010/8021
Bromochloromethane	624/8240/8260
Bromodichloromethane	601/8010/8021, 624/8240/8260
Bromoform	601/8010/8021, 624/8240/8260
Bromomethane	601/8010/8021, 624/8240/8260
Captan	608/8080/8081

Component	Method Reference (see footnote)
Carbazole	625/8270
Carbofenthion	614/8140/8141
Carbon Disulfide	624/8240/8260
Carbon tetrachloride	601/8010/8021, 624/8240/8260
Chloramben	615/8150/8151
Chlordane (Tech. Grade)	608/8080/8081
Chlorfenvenfos	614/8140/8141
Chlorobenzene	601/602/8010/8020/8021, 624/8240/8260
Chlorobenzilate	608/8080/8081
Chloroethane	601/8010/8021, 624/8240/8260
Chloroform	601/8010/8021, 624/8240/8260
Chloromethane	601/8010/8021, 624/8240/8260
Chloroprene	624/8240/8260
Chlorpyrifos	614/8140/8141
Chlorpyrifos methyl	614/8140/8141
Chrysene	610/8100, 8310, 625/8270
cis-1,2-Dichloroethene	601/8010/8021, 624/8240/8260
cis-1,3-Dichloropropene	601/8010/8021, 624/8240/8260
Coumaphos	614/8140/8141
Crotoxyphos (Ciodrin)	614/8140/8141
Dacthal	615/8150/8151
Dalapon	615/8150/8151
Demeton-O	614/8140/8141
Demeton-S	614/8140/8141
Diallate	608/8080/8081, 625/8270
Diazinon	614/8140/8141
Dibenzo(a,h) anthracene	610/8100, 8310, 625/8270
Dibenzofuran	625/8270
Dibromochloromethane	601/8010/8021, 624/8240/8260
Dibromochloropropane	608/8080/8081
Dibromomethane	601/8010/8021, 624/8240/8260
Dicamba	615/8150/8151
Dichlorodifluoromethane	601/8010/8021, 624/8240/8260
Dichlorofenthion	614/8140/8141
Dichloroprop	615/8150/8151
Dichlorvos	614/8140/8141
Dicofol	608/8080/8081
Dicrotophos	614/8140/8141
Dieldrin	608/8080/8081
Diethyl phthalate	625/8270
Dimethoate	614/8140/8141
Dimethyl phthalate	625/8270
Di-n-butyl phthalate	625/8270
Di-n-octyl phthalate	625/8270
Dinoseb (DNBP)	615/8150/8151, 625/8270

Component	Method Reference (see footnote)
Dioxanthion	614/8140/8141
Diphenylamine	625/8270
Disulfoton (Dy-syston)	614/8140/8141
Endosulfan I	608/8080/8081
Endosulfan II	608/8080/8081
Endosulfan sulfate	608/8080/8081
Endrin	608/8080/8081
Endrin Aldehyde	608/8080/8081
Endrin Ketone	608/8080/8081
EPN	614/8140/8141
Ethanol	8015
Ethion	614/8140/8141
Ethoprop	614/8140/8141
Ethyl Methacrylate	624/8240/8260
Ethyl Methanesulfonate	625/8270
Ethylbenzene	602/8020/8021, 624/8240/8260
Famphur	614/8140/8141
Fenitrothion	614/8140/8141
Fensulfothion	614/8140/8141
Fenthion	614/8140/8141
Fluoranthene	610/8100, 8310, 625/8270
Fluorene	610/8100, 8310, 625/8270
Fonophos (Dyphonate)	614/8140/8141
Guthion	614/8140/8141
Hep. Epox. (α Isomer)	608/8080/8081
Hep. Epox. (β Isomer)	608/8080/8081
Heptachlor	608/8080/8081
Heptachlor epoxide	608/8080/8081
Hexachlorobenzene	608/8080/8081, 625/8270
Hexachlorobutadiene	601/8010/8021, 624/8240/8260, 625/8270
Hexachlorocyclopentadiene	608/8080/8081, 625/8270
Hexachloroethane	625/8270
Hexachlorophene	625/8270
Hexachloropropene	625/8270
Indeno (1,2,3-c,d)pyrene	610/8100, 8310, 625/8270
Iodomethane	624/8240/8260
Isobutanol	8015, 624/8240/8260
Isodrin	608/8080/8081
Isophorone	625/8270
Isopropanol	8015
Isopropyl Ether	602/8020/8021
Isopropylbenzene	602/8020/8021, 624/8240/8260
Isosafrole	625/8270
Kelthane	608/8080/8081

Component	Method Reference (see footnote)
Kepone	608/8080/8081
Leptophos	614/8140/8141
Malathion	614/8140/8141
MCPA	615/8150/8151
MCPP	615/8150/8151
Merphos	614/8140/8141
Methacrylonitrile	624/8240/8260
Methanol	8015
Methapyrilene	625/8270
Methoxychlor	608/8080/8081
Methyl Methacrylate	624/8240/8260
Methyl Methanesulfonate	625/8270
Methyl tert butyl ether (MTBE)	602/8020/8021, 624/8240/8260
Methylene Chloride	601/8010/8021, 624/8240/8260
Mevinphos (Phosdrin)	614/8140/8141
Mirex	608/8080/8081
Monocrotophos	614/8140/8141
m-Xylene & p-Xylene	602/8020/8021, 624/8240/8260
Naled (Dibrom)	614/8140/8141
Naphthalene	602/8020/8021, 610/8100, 8310, 625/8270
n-Butylbenzene	602/8020/8021, 624/8240/8260
Nitrobenzene	625/8270
N-Nitrosodiethylamine	625/8270
N-Nitrosodimethylamine	625/8270
N-Nitrosodi-n-butyl amine	625/8270
N-Nitrosodi-n-propyl amine	625/8270
N-Nitrosodiphenylamine	625/8270
N-Nitrosomethylethylamine	625/8270
N-Nitrosomorpholine	625/8270
N-Nitrosopiperidine	625/8270
N-Nitrosopyrrolidine	625/8270
n-Propanol	8015
n-Propylbenzene	602/8020/8021, 624/8240/8260
O,O,O-Triethyl phosphorothioate	625/8270
o-Toluidine	625/8270
o-Xylene	602/8020/8021, 624/8240/8260
p-(dimethylamino) azobenzene	625/8270
Parathion	614/8140/8141
Parathion, ethyl-	614/8140/8141
Parathion, methyl-	614/8140/8141
PCB-1016	608/8080/8082
PCB-1221	608/8080/8082
PCB-1232	608/8080/8082
PCB-1242	608/8080/8082

Component	Method Reference (see footnote)
PCB-1248	608/8080/8082
PCB-1254	608/8080/8082
PCB-1260	608/8080/8082
PCNB	608/8080/8081
Pentachlorobenzene	625/8270
Pentachloroethane	624/8240/8260
Pentachloronitrobenzene	625/8270
Pentachlorophenol	615/8150/8151, 625/8270
Perthane	608/8080/8081
Phenacetin	625/8270
Phenanthrene	625/8270
Phenol	625/8270
Phorate (Thimet)	614/8140/8141
Phosmet (Imidan)	614/8140/8141
Phosphamidon	614/8140/8141
Picloram	615/8150/8151
p-Isopropyltoluene	602/8020/8021, 624/8240/8260
p-Phenylenediamine	625/8270
Pronamide	625/8270
Propionitrile	624/8240/8260
Pyrene	610/8100, 8310, 625/8270
Pyridine	625/8270
Ronnel	614/8140/8141
Safrole	625/8270
sec-Butylbenzene	602/8020/8021, 624/8240/8260
Stiropfos (Tetrachlorvinphos)	614/8140/8141
Strobane	608/8080/8081
Styrene	602/8020/8021, 624/8240/8260
Sulfotepp	614/8140/8141
TEPP	614/8140/8141
Terbufos	614/8140/8141
tert-Butylbenzene	602/8020/8021, 624/8240/8260
Tetrachloroethene	601/8010/8021, 624/8240/8260
Thionazin (Zinophos)	614/8140/8141
Tokuthion (Protothiofos)	614/8140/8141
Toluene	602/8020/8021, 624/8240/8260
Toxaphene	608/8080/8081
trans-1,2-Dichloroethene	601/8010/8021, 624/8240/8260
trans-1,3-Dichloropropene	601/8010/8021, 624/8240/8260
trans-1,4-Dichloro-2-butene	624/8240/8260
Trichlorfon (Tugon)	614/8140/8141
Trichloroethene	601/8010/8021, 624/8240/8260
Trichlorofluoromethane	601/8010/8021, 624/8240/8260
Trichloronate (Agritox)	614/8140/8141
Trifluralin	608/8080/8081

Component	Method Reference (see footnote)
Vinyl Acetate	624/8240/8260
Vinyl chloride	601/8010/8021, 624/8240/8260
Xylenes (total)	624/8240/8260

Footnote:

Compounds and associated methods listed above should be used as a general guide. Please refer to the applicable method description for a definitive component list.

Example: Ethyl methacrylate is listed above as 624/8240/8260. The component, however, is only included in two lists: Appendix II and Appendix IX. To ensure the constituents of concern are included in the analysis, please be as specific as possible when submitting samples for analysis.

F. Sample Preservation Table

Non-Potable Water Containers, Preservation Techniques, and Holding Times
 Applicable to all Non-Potable Water Samples (including wastewater, surface water, and groundwater)

Parameter /Name	Container ₁	Preservation _{2, 3}	Maximum holding time ₄
Table IA—Bacterial Tests:			
1–5. Coliform, total, fecal, and <i>E. coli</i>	PA, G	Cool, <10 °C, 0.0008% Na ₂ S ₂ O ₃ ⁵	6 hours _{6,7}
6. Fecal streptococci	PA, G	Cool, <10 °C, 0.0008% Na ₂ S ₂ O ₃ ⁵	6 hours ₆
7. Enterococci	PA, G	Cool, <10 °C, 0.0008% Na ₂ S ₂ O ₃ ⁵	6 hours ₆
8. Salmonella	PA, G	Cool, <10 °C, 0.0008% Na ₂ S ₂ O ₃ ⁵	6 hours ₆
Table IA— Aquatic Toxicity Tests:			
9–11. Toxicity, acute and chronic	P, FP, G	Cool, ≤6 °C ⁸	36 hours
Inorganic Tests:			
1. Acidity	P, FP, G	Cool, ≤6 °C ₉	14 days
2. Alkalinity	P, FP, G	Cool, ≤6 °C ₉	14 days
4. Ammonia	P, FP, G	Cool, ≤6 °C ₉ , H ₂ SO ₄ to pH<2	28 days
9. Biochemical oxygen demand	P, FP, G	Cool, ≤6 °C ₉	48 hours
10. Boron	P, FP, or Quartz	HNO ₃ to pH<2	6 months
11. Bromide	P, FP, G	None required	28 days
14. Biochemical oxygen demand, carbonaceous	P, FP, G	Cool, ≤6 °C ₉	48 hours
15. Chemical oxygen demand	P, FP, G	Cool, ≤6 °C ₉ , H ₂ SO ₄ to pH<2	28 days
16. Chloride	P, FP, G	None required	28 days
17. Chlorine, total residual	P, G	None required	Analyze within 15 minutes
21. Color	P, FP, G	Cool, ≤6 °C ₉	48 hours
23–24. Cyanide, total or available (or CATC)	P, FP, G	Cool, ≤6 °C ₉ , NaOH to pH>12 ₁₀ , reducing agent ⁵	14 days
25. Fluoride	P	None required	28 days
27. Hardness	P, FP, G	HNO ₃ or H ₂ SO ₄ to pH<2	6 months
28. Hydrogen ion (pH)	P, FP, G	None required	Analyze within 15 minutes
31, 43. Kjeldahl and organic N	P, FP, G	Cool, ≤6 °C ₉ , H ₂ SO ₄ to pH<2	28 days

Metals:			
7 18. Chromium VI	P, FP, G	Cool, $\leq 6^{\circ}\text{C}_9$, pH = 9.3–9.7 ¹²	28 days
35. Mercury (CVAA)	P, FP, G	HNO_3 to pH<2	28 days
35. Mercury (CVAFS)	FP, G; and FP-lined cap ¹³	5 mL/L 12N HCl or 5 mL/L BrCl_{13}	90 days ¹³
3, 5–8, 12, 13, 19, 20, 22, 26, 29, 30, 32–34, 36, 37, 45, 47, 51, 52, 58–60, 62, 63, 70–72, 74, 75. Metals, except boron, chromium VI, and mercury.	P, FP, G	HNO_3 to pH<2, or at least 24 hours prior to analysis ¹⁴	6 months
38. Nitrate	P, FP, G	Cool, $\leq 6^{\circ}\text{C}_9$	48 hours
39. Nitrate-nitrite	P, FP, G	Cool, $\leq 6^{\circ}\text{C}_9$, H_2SO_4 to pH<2	28 days
40. Nitrite	P, FP, G	Cool, $\leq 6^{\circ}\text{C}_9$	48 hours
41. Oil and grease	G	Cool, $\leq 6^{\circ}\text{C}_9$, HCl or H_2SO_4 to pH<2	28 days
42. Organic Carbon	P, FP, G	Cool, $\leq 6^{\circ}\text{C}_9$, HCl, H_2SO_4 , or H_3PO_4 to pH<2.	28 days
44. Orthophosphate	P, FP, G	Cool, $\leq 6^{\circ}\text{C}_9$	Filter within 15 minutes; Analyze within 48 hours
46. Oxygen, Dissolved Probe	G, Bottle and top	None required	Analyze within 15 minutes
47. Winkler	G, Bottle and top	Fix on site and store in dark	8 hours
48. Phenols	G	Cool, $\leq 6^{\circ}\text{C}_9$, H_2SO_4 to pH<2	28 days
49. Phosphorous (elemental)	G	Cool, $\leq 6^{\circ}\text{C}_9$	48 hours
50. Phosphorous, total	P, FP, G	Cool, $\leq 6^{\circ}\text{C}_9$, H_2SO_4 to pH<2	28 days
53. Residue, total	P, FP, G	Cool, $\leq 6^{\circ}\text{C}_9$	7 days
54. Residue, Filterable	P, FP, G	Cool, $\leq 6^{\circ}\text{C}_9$	7 days
55. Residue, Nonfilterable (TSS)	P, FP, G	Cool, $\leq 6^{\circ}\text{C}_9$	7 days
56. Residue, Settleable	P, FP, G	Cool, $\leq 6^{\circ}\text{C}_9$	48 hours
57. Residue, Volatile	P, FP, G	Cool, $\leq 6^{\circ}\text{C}_9$	7 days
61. Silica	P or Quartz	Cool, $\leq 6^{\circ}\text{C}_9$	28 days
64. Specific conductance	P, FP, G	Cool, $\leq 6^{\circ}\text{C}_9$	28 days
65. Sulfate	P, FP, G	Cool, $\leq 6^{\circ}\text{C}_9$	28 days
66. Sulfide	P, FP, G	Cool, $\leq 6^{\circ}\text{C}_9$, add zinc acetate plus sodium hydroxide to pH>9	7 days

67. Sulfite	P, FP, G	None required	Analyze within 15 minutes
68. Surfactants	P, FP, G	Cool, ≤6 °C ₉	48 hours
69. Temperature	P, FP, G	None required	Analyze
73. Turbidity	P, FP, G	Cool, ≤6 °C ₉	48 hours
Organic Tests:			
13, 18–20, 22, 24–28, 34–37, 39–43, 45–47, 56, 76, 104, 105, 108–111, 113. Purgeable Halocarbons	G, FP-lined septum	Cool, ≤6 °C ₉ , 0.008% Na ₂ S ₂ O ₃ 5	14 days
6, 57, 106. Purgeable aromatic hydrocarbons	G, FP-lined septum	Cool, ≤6 °C ₉ , 0.008% Na ₂ S ₂ O ₃ 5, HCl to pH 2 ₁₆	14 days ₁₆
3, 4. Acrolein and acrylonitrile	G, FP-lined septum	Cool, ≤6 °C ₉ , 0.008% Na ₂ S ₂ O ₃ 5, pH to 4–5 ₁₇	14 days ₁₇
23, 30, 44, 49, 53, 77, 80, 81, 98, 100, 112. Phenols ₁₈	G, FP-lined cap	Cool, ≤6 °C ₉ , 0.008% Na ₂ S ₂ O ₃ 5	7 days until extraction, 40 days after extraction
7, 38. Benzidines _{18,19}	G, FP-lined cap	Cool, ≤6 °C ₉ , 0.008% Na ₂ S ₂ O ₃ 5	7 days until extraction ₂₀
14, 17, 48, 50–52. Phthalate esters ₁₈	G, FP-lined cap	Cool, ≤6 °C ₉	7 days until extraction, 40 days after extraction
82–84. Nitrosamines _{18,21}	G, FP-lined cap	Cool, ≤6 °C ₉ , store in dark, 0.008% Na ₂ S ₂ O ₃ 5	7 days until extraction, 40 days after extraction
88–94. PCBs ₁₈	G, FP-lined cap	Cool, ≤6 °C ₉	1 year until extraction, 1 year after extraction
54, 55, 75, 79. Nitroaromatics and isophorone ₁₈	G, FP-lined cap	Cool, ≤6 °C ₉ , store in dark, 0.008% Na ₂ S ₂ O ₃ 5	7 days until extraction, 40 days after extraction
1, 2, 5, 8–12, 32, 33, 58, 59, 74, 78, 99, 101. Polynuclear aromatic hydrocarbons ₁₈	G, FP-lined cap	Cool, ≤6 °C ₉ , store in dark, 0.008% Na ₂ S ₂ O ₃ 5	7 days until extraction, 40 days after extraction
15, 16, 21, 31, 87. Haloethers ₁₈	G, FP-lined cap	Cool, ≤6 °C ₉ , 0.008% Na ₂ S ₂ O ₃ 5	7 days until extraction, 40 days after extraction

29, 35–37, 63–65, 107. Chlorinated hydrocarbons ¹⁸	G, FP-lined cap	Cool, ≤6 °C ₉	7 days until extraction, 40 days after extraction
60–62, 66–72, 85, 86, 95–97, 102, 103. CDDs/CDFs ¹⁸			
Aqueous Samples: Field and Lab Preservation	G	Cool, ≤6 °C ₉ , 0.008% Na ₂ S ₂ O ₃ 5, pH<9	1 year
Solids and Mixed-Phase Samples: Field Preservation	G	Cool, ≤6 °C ₉	7 days
Tissue Samples: Field Preservation	G	Cool, ≤6 °C ₉	24 hours
Solids, Mixed-Phase, and Tissue Samples: Lab Preservation	G	Freeze, ≤-10 °C	1 year
Pesticides :			
Tests: 1–70. Pesticides ¹⁸	G, FP-lined cap	Cool, ≤6 °C ₉ , pH 5–9 ²²	7 days until extraction, 40 days after extraction
Radiological Tests:			
1–5. Alpha, beta, and radium	P, FP, G	HNO ₃ to pH<2	6 months
Bacterial Tests:			
1. <i>E. coli</i>			
2. Enterococci	PA, G	Cool, <10 °C, 0.008% Na ₂ S ₂ O ₃ 5	6 hours ⁶
Protozoan Tests:			
8. Cryptosporidium	LDPE; field filtration	0–8 °C	96 hours. ²³
9. Giardia	LDPE; field filtration	0–8 °C	96 hours ²³

Reference: This table is adapted from Federal Register, Vol. 72, No. 57, Monday, March 20, 2007

Footnotes:

1 “P” is polyethylene; “FP” is fluoropolymer (polytetrafluoroethylene (PTFE; Teflon®), or other fluoropolymer, unless stated otherwise in this Table II; “G” is glass; “PA” is any plastic that is made of a sterilizable material (polypropylene or other autoclavable plastic); “LDPE” is low density polyethylene.

2 Except where noted in this Table II and the method for the parameter, preserve each grab sample within 15 minutes of collection. For a composite sample collected with an automated sampler (e.g., using a 24-hour composite sampler; see 40 CFR 122.21(g)(7)(i) or 40 CFR Part 403, Appendix E), refrigerate the sample at ≤ 6 °C during collection unless specified otherwise in this Table II or in the method(s). For a composite sample to be split into separate aliquots for preservation and/or analysis, maintain the sample at ≤ 6 °C, unless specified otherwise in this Table II or in the method(s), until collection, splitting, and preservation is completed. Add the preservative to the sample container prior to sample collection when the preservative will not compromise the integrity of a grab sample, a composite sample, or an aliquot split from a composite sample; otherwise, preserve the grab sample, composite sample, or aliquot split from a composite sample within 15 minutes of collection. If a composite measurement is required but a composite sample would compromise sample integrity, individual grab samples must be collected at prescribed time intervals (e.g., 4 samples over the course of a day, at 6-hour intervals). Grab samples must be analyzed separately and the concentrations averaged. Alternatively, grab samples may be collected in the field and composited in the laboratory if the compositing procedure produces results equivalent to results produced by arithmetic averaging of the results of analysis of individual grab samples. For examples of laboratory compositing procedures, see EPA Method 1664A (oil and grease) and the procedures at 40 CFR 141.34(f)(14)(iv) and (v) (volatile organics).

3 When any sample is to be shipped by common carrier or sent via the U.S. Postal Service, it must comply with the Department of Transportation Hazardous Materials Regulations (49 CFR Part 172). The person offering such material for transportation is responsible for ensuring such compliance. For the preservation requirements of Table II, the Office of Hazardous Materials, Materials Transportation Bureau, Department of Transportation has determined that the Hazardous Materials Regulations do not apply to the following materials: Hydrochloric acid (HCl) in water solutions at concentrations of 0.04% by weight or less (pH about 1.96 or greater); Nitric acid (HNO₃) in water solutions at concentrations of 0.15% by weight or less (pH about 1.62 or greater); Sulfuric acid (H₂SO₄) in water solutions at concentrations of 0.35% by weight or less (pH about 1.15 or greater); and Sodium hydroxide (NaOH) in water solutions at concentrations of 0.080% by weight or less (pH about 12.30 or less).

4 Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before the start of analysis and still be considered valid (e.g., samples analyzed for fecal coliforms may be held up to 6 hours prior to commencing analysis). Samples may be held for longer periods only if the permittee or monitoring laboratory has data on file to show that, for the specific types of samples under study, the analytes are stable for the longer time, and has received a variance from the Regional Administrator under § 136.3(e). For a grab sample, the holding time begins at the time of collection. For a composite sample collected with an automated sampler (e.g., using a 24-hour composite sampler; see 40 CFR 122.21(g)(7)(i) or 40 CFR Part 403, Appendix E), the holding time begins at the time of the end of collection of the composite sample. For a set of grab samples composited in the field or laboratory, the holding time begins at the time of collection of the last grab sample in the set. Some samples may not be stable for the maximum time period given in the table. A permittee or monitoring laboratory is obligated to hold the sample for a shorter time if it knows that a shorter time is necessary to maintain sample stability. See § 136.3(e) for details. The date and time of collection of an individual grab sample is the date and time at which the sample is collected. For a set of grab samples to be composited, and that are all collected on the same calendar date, the date of collection is the date on which the samples are collected. For a set of grab samples to be composited, and that are collected across two calendar dates, the date of collection is the dates of the two days; e.g., November 14–15. For a composite sample collected automatically on a given date, the date of collection is the date on which the sample is collected. For a composite sample collected automatically, and that is collected across two calendar dates, the date of collection is the dates of the two days; e.g., November 14–15.

5 Add a reducing agent only if an oxidant (e.g., chlorine) is present. Reducing agents shown to be effective are sodium thiosulfate (Na₂S₂O₃), ascorbic acid, sodium arsenite (NaAsO₂), or sodium borohydride (NaBH₄). However, some of these agents have been shown to produce a positive or negative cyanide bias, depending on other substances in the sample and the analytical method used. Therefore, do not add an excess of reducing agent. Methods

recommending ascorbic acid (e.g., EPA Method 335.4) specify adding ascorbic acid crystals, 0.1–0.6 g, until a drop of sample produces no color on potassium iodide (KI) starch paper, then adding 0.06 g (60 mg) for each liter of sample volume. If NaBH₄ or NaAsO₂ is used, 25 mg/L NaBH₄ or 100 mg/L NaAsO₂ will reduce more than 50 mg/L of chlorine (see method “Kelada-01” and/or Standard Method 4500–CN- for more information). After adding reducing agent, test the sample using KI paper, a test strip (e.g. for chlorine, SenSafe™ Total Chlorine Water Check 480010) moistened with acetate buffer solution (see Standard Method 4500–Cl.C.3e), or a chlorine/oxidant test method (e.g., EPA Method 330.4 or 330.5), to make sure all oxidant is removed. If oxidant remains, add more reducing agent. Whatever agent is used, it should be tested to assure that cyanide results are not affected adversely.

6 Samples analysis should begin immediately, preferably within 2 hours of collection. The maximum transport time to the laboratory is 6 hours, and samples should be processed within 2 hours of receipt at the laboratory.

7 For fecal coliform samples for sewage sludge (biosolids) only, the holding time is extended to 24 hours for the following sample types using either EPA Method 1680 (LTB–EC) or 1681 (A–1): Class A composted, Class B aerobically digested, and Class B anaerobically digested.

8 Sufficient ice should be placed with the samples in the shipping container to ensure that ice is still present when the samples arrive at the laboratory. However, even if ice is present when the samples arrive, it is necessary to immediately measure the temperature of the samples and confirm that the preservation temperature maximum has not been exceeded. In the isolated cases where it can be documented that this holding temperature cannot be met, the permittee can be given the option of on-site testing or can request a variance. The request for a variance should include supportive data which show that the toxicity of the effluent samples is not reduced because of the increased holding temperature.

9 Aqueous samples must be preserved at ≤6 °C, and should not be frozen unless data demonstrating that sample freezing does not adversely impact sample integrity is maintained on file and accepted as valid by the regulatory authority. Also, for purposes of NPDES monitoring, the specification of “≤°C” is used in place of the “4 °C” and “< 4 °C” sample temperature requirements listed in some methods. It is not necessary to measure the sample temperature to three significant figures (1/100th of 1 degree); rather, three significant figures are specified so that rounding down to 6 °C may not be used to meet the ≤6 °C requirement. The preservation temperature does not apply to samples that are analyzed immediately (less than 15 minutes).

10 Sample collection and preservation: Collect a volume of sample appropriate to the analytical method in a bottle of the material specified. If the sample can be analyzed within 48 hours and sulfide is not present, adjust the pH to > 12 with sodium hydroxide solution (e.g., 5% w/v), refrigerate as specified, and analyze within 48 hours. Otherwise, to extend the holding time to 14 days and mitigate interferences, treat the sample immediately using any or all of the following techniques, as necessary, followed by adjustment of the sample pH to > 12 and refrigeration as specified. There may be interferences that are not mitigated by approved procedures. Any procedure for removal or suppression of an interference may be employed, provided the laboratory demonstrates that it more accurately measures cyanide. Particulate cyanide (e.g., ferric ferrocyanide) or a strong cyanide complex (e.g., cobalt cyanide) are more accurately measured if the laboratory holds the sample at room temperature and pH > 12 for a minimum of 4 hours prior to analysis, and performs UV digestion or dissolution under alkaline (pH=12) conditions, if necessary.

(1) SULFUR: To remove elemental sulfur (S₈), filter the sample immediately. If the filtration time will exceed 15 minutes, use a larger filter or a method that requires a smaller sample volume (e.g., EPA Method 335.4 or Lachat Method 01). Adjust the pH of the filtrate to > 12 with NaOH, refrigerate the filter and filtrate, and ship or transport to the laboratory. In the laboratory, extract the filter with 100 mL of 5% NaOH solution for a minimum of 2 hours. Filter the extract and discard the solids. Combine the 5% NaOH-extracted filtrate with the initial filtrate, lower the pH to approximately 12 with concentrated hydrochloric or sulfuric acid, and analyze the combined filtrate. Because the detection limit for cyanide will be increased by dilution by the filtrate from the solids, test the sample with and without the solids procedure if a low detection limit for cyanide is necessary. Do not use the solids procedure if a higher cyanide concentration is obtained without it. Alternatively, analyze the filtrates from the sample and the solids separately, add the amounts determined (in µg or mg), and divide by the original sample volume to obtain the cyanide concentration.

(2) SULFIDE: If the sample contains sulfide as determined by lead acetate paper, or if sulfide is known or suspected to be present, immediately conduct one of the volatilization treatments or the precipitation treatment as follows: Volatilization—Headspace expelling. In a fume hood or well-ventilated area, transfer 0.75 liter of sample to a 4.4 L collapsible container (e.g., Cubitainer™). Acidify with concentrated hydrochloric acid to pH < 2. Cap the container and shake vigorously for 30 seconds. Remove the cap and expel the headspace into the fume hood or open area by collapsing the container without expelling the sample. Refill the headspace by expanding the container. Repeat expelling a total of five headspace volumes. Adjust the pH

to > 12, refrigerate, and ship or transport to the laboratory. Scaling to a smaller or larger sample volume must maintain the air to sample volume ratio. A larger volume of air will result in too great a loss of cyanide (> 10%). Dynamic stripping: In a fume hood or well-ventilated area, transfer 0.75 liter of sample to a container of the material specified and acidify with concentrated hydrochloric acid to pH < 2. Using a calibrated air sampling pump or flowmeter, purge the acidified sample into the fume hood or open area through a fritted glass aerator at a flow rate of 2.25 L/min for 4 minutes. Adjust the pH to > 12, refrigerate, and ship or transport to the laboratory. Scaling to a smaller or larger sample volume must maintain the air to sample volume ratio. A larger volume of air will result in too great a loss of cyanide (> 10%). Precipitation: If the sample contains particulate matter that would be removed by filtration, filter the sample prior to treatment to assure that cyanide associated with the particulate matter is included in the measurement. Ship or transport the filter to the laboratory. In the laboratory, extract the filter with 100 mL of 5% NaOH solution for a minimum of 2 hours. Filter the extract and discard the solids. Combine the 5% NaOH-extracted filtrate with the initial filtrate, lower the pH to approximately 12 with concentrated hydrochloric or sulfuric acid, and analyze the combined filtrate. Because the detection limit for cyanide will be increased by dilution by the filtrate from the solids, test the sample with and without the solids procedure if a low detection limit for cyanide is necessary. Do not use the solids procedure if a higher cyanide concentration is obtained without it. Alternatively, analyze the filtrates from the sample and the solids separately, add the amounts determined (in µg or mg), and divide by the original sample volume to obtain the cyanide concentration. For removal of sulfide by precipitation, raise the pH of the sample to > 12 with NaOH solution, then add approximately 1 mg of powdered cadmium chloride for each mL of sample. For example, add approximately 500 mg to a 500-mL sample. Cap and shake the container to mix. Allow the precipitate to settle and test the sample with lead acetate paper. If necessary, add cadmium chloride but avoid adding an excess. Finally, filter through 0.45 micron filter. Cool the sample as specified and ship or transport the filtrate and filter to the laboratory. In the laboratory, extract the filter with 100 mL of 5% NaOH solution for a minimum of 2 hours. Filter the extract and discard the solids. Combine the 5% NaOH-extracted filtrate with the initial filtrate, lower the pH to approximately 12 with concentrated hydrochloric or sulfuric acid, and analyze the combined filtrate. Because the detection limit for cyanide will be increased by dilution by the filtrate from the solids, test the sample with and without the solids procedure if a low detection limit for cyanide is necessary. Do not use the solids procedure if a higher cyanide concentration is obtained without it. Alternatively, analyze the filtrates from the sample and the solids separately, add the amounts determined (in µg or mg), and divide by the original sample volume to obtain the cyanide concentration. If a ligand-exchange method is used (e.g., ASTM D6888), it may be necessary to increase the ligand-exchange reagent to offset any excess of cadmium chloride.

(3) SULFITE, THIOSULFATE, OR THIOCYANATE: If sulfite, thiosulfate, or thiocyanate is known or suspected to be present, use UV digestion with a glass coil (Method Kelada-01) or ligand exchange (Method OIA-1677) to preclude cyanide loss or positive interference.

(4) ALDEHYDE: If formaldehyde, acetaldehyde, or another water-soluble aldehyde is known or suspected to be present, treat the sample with 20 mL of 3.5% ethylenediamine solution per liter of sample.

(5) CARBONATE: Carbonate interference is evidenced by noticeable effervescence upon acidification in the distillation flask, a reduction in the pH of the absorber solution, and incomplete cyanide spike recovery. When significant carbonate is present, adjust the pH to ≥12 using calcium hydroxide instead of sodium hydroxide. Allow the precipitate to settle and decant or filter the sample prior to analysis (also see Standard Method 4500-CN.B.3.d).

(6) CHLORINE, HYPOCHLORITE, OR OTHER OXIDANT: Treat a sample known or suspected to contain chlorine, hypochlorite, or other oxidant as directed in footnote 5.

11 For dissolved metals, filter grab samples within 15 minutes of collection and before adding preservatives. For a composite sample collected with an automated sampler (e.g., using a 24-hour composite sampler; see 40 CFR 122.21(g)(7)(i) or 40 CFR Part 403, Appendix E), filter the sample within 15 minutes after completion of collection and before adding preservatives. If it is known or suspected that dissolved sample integrity will be compromised during collection of a composite sample collected automatically over time (e.g., by interchange of a metal between dissolved and suspended forms), collect and filter grab samples to be composited (footnote 2) in place of a composite sample collected automatically.

12 To achieve the 28-day holding time, use the ammonium sulfate buffer solution specified in EPA Method 218.6. The allowance in this footnote supersedes preservation and holding time requirements in the approved hexavalent chromium methods, unless this supersession would compromise the measurement, in which case requirements in the method must be followed.

13 Samples collected for the determination of trace level mercury (<100 ng/L) using EPA Method 1631 must be collected in tightly-capped fluoropolymer or

glass bottles and preserved with BrCl or HCl solution within 48 hours of sample collection. The time to preservation may be extended to 28 days if a sample is oxidized in the sample bottle. A sample collected for dissolved trace level mercury should be filtered in the laboratory within 24 hours of the time of collection. However, if circumstances preclude overnight shipment, the sample should be filtered in a designated clean area in the field in accordance with procedures given in Method 1669. If sample integrity will not be maintained by shipment to and filtration in the laboratory, the sample must be filtered in a designated clean area in the field within the time period necessary to maintain sample integrity. A sample that has been collected for determination of total or dissolved trace level mercury must be analyzed within 90 days of sample collection.

14 An aqueous sample may be collected and shipped without acid preservation. However, acid must be added at least 24 hours before analysis to dissolve any metals that adsorb to the container walls. If the sample must be analyzed within 24 hours of collection, add the acid immediately (see footnote 2). Soil and sediment samples do not need to be preserved with acid. The allowances in this footnote supersede the preservation and holding time requirements in the approved metals methods.

15 Guidance applies to samples to be analyzed by GC, LC, or GC/MS for specific compounds.

16 If the sample is not adjusted to pH 2, then the sample must be analyzed within seven days of sampling.

17 The pH adjustment is not required if acrolein will not be measured. Samples for acrolein receiving no pH adjustment must be analyzed within 3 days of sampling.

18 When the extractable analytes of concern fall within a single chemical category, the specified preservative and maximum holding times should be observed for optimum safeguard of sample integrity (i.e., use all necessary preservatives and hold for the shortest time listed). When the analytes of concern fall within two or more chemical categories, the sample may be preserved by cooling to ≤ 6 °C, reducing residual chlorine with 0.008% sodium thiosulfate, storing in the dark, and adjusting the pH to 6–9; samples preserved in this manner may be held for seven days before extraction and for forty days after extraction. Exceptions to this optional preservation and holding time procedure are noted in footnote 5 (regarding the requirement for thiosulfate reduction), and footnotes 19, 20 (regarding the analysis of benzidine).

19 If 1,2-diphenylhydrazine is likely to be present, adjust the pH of the sample to 4.0 ± 0.2 to prevent rearrangement to benzidine.

20 Extracts may be stored up to 30 days at < 0 °C.

21 For the analysis of diphenylnitrosamine, add 0.008% Na₂S₂O₃ and adjust pH to 7–10 with NaOH within 24 hours of sampling

22 The pH adjustment may be performed upon receipt at the laboratory and may be omitted if the samples are extracted within 72 hours of collection. For the analysis of aldrin, add 0.008% Na₂S₂O₃.

23 Holding time is calculated from time of sample collection to elution for samples shipped to the laboratory in bulk and calculated from the time of sample filtration to elution for samples filtered in the field

Approved Water and Wastewater Procedures, Containers Preservation and Holding Times

For Analytes not found in 40 CFR 136

Analyte	Methods	Reference ¹	Container ²	Preservation ³	Maximum Holding Time ⁴
Bromine	DPD Colorimetric ⁵	SM 4500-Cl-G	P, G	None required	Analyze immediately
Bromates	Ion Chromatography	EPA 300.0 ⁶	P, G	Cool 4°C	30 days
Chlorophylls	Spectrophotometric	SM 10200 H	P, G ⁷	Dark 4°C Filtered, dark, -20°C	48 hours chilled until filtration ⁸ , and analyze immediately or 48 hours chilled until filtration ⁸ , and 28 days (frozen) after filtration
Corrosivity	Calculated (CaCO ₃ Stability, Langelier Index)	SM 2330 ASTM D513-92	P, G	Cool 4°C ⁹	7 days ⁹
FL-PRO	Gas Chromatography	DEP (11/1/95)	G only	Cool 4°C, H ₂ SO ₄ or HCl to pH<2	7 days until extraction, 40 days after extraction
Odor	Human Panel	SM 2150	G only	Cool 4°C	6 hours
Salinity	Electrometric ¹⁰ Hydrometric ¹⁰	SM 2520 B SM 2520 C	G, wax seal	Analyze immediately or use wax seal	30 days ¹⁰
Taste	Human Panel	SM 2160 B, C, D ASTM E679-91	G only	Cool 4°C	24 hours
Total Dissolved Gases	Direct-sensing Membrane-diffusion	SM 2810	_____	_____	Analyze in-situ
Total Petroleum Hydrocarbons	Gravimetry	EPA 1664	G only	Cool 4°C, H ₂ SO ₄ or HCl to pH<2	28 days
Transparency	Irradiometric ¹¹	62-302.200(6), FAC	_____	_____	Analyze in-situ
Un-ionized Ammonia	Calculated ¹²	DEP-SOP ¹³	P, G	Cool 4°C Na ₂ S ₂ O ₃ ¹²	8 hours unpreserved 28 days preserved ¹²
Organic Pesticides ¹⁴	GC and HPLC	EPA (600-series) ¹⁴	¹⁵	¹⁵	¹⁵

¹ SM XXXX = procedures from "Standard Methods for the Examination of Water and Wastewater", APHA-AWWA-WPCF, 20th edition, 1998 and Standard Methods Online.

ASTM XXXX-YY = procedure from "Annual Book of ASTM Standards", Volumes 11.01 and 11.02 (Water I and II), 1999.

² P = plastic, G = glass.

³ When specified, sample preservation should be performed immediately upon sample collection.

⁴ The times listed are the maximum times that samples may be held before analysis and still be considered valid.

⁵ The approved procedure is for residual chlorine. However, in the absence of chlorine, the DPD colorimetric procedure can be adapted to measure bromine content of the sample. In such case, the validity of this assumption must be verified by using another procedure for chlorine which is not affected by the presence of bromine (i.e., negligible interference).

⁶ The Determination of Inorganic Anions in Water by Ion Chromatography", EPA Method 300.0, Revised August 1993, by John D. Pfaff, U. S. EPA Cincinnati, Ohio 45268.

⁷ Collect samples in opaque bottles and process under reduced light.



- 8 Samples must be filtered within 48 hours of collection. Add magnesium carbonate to the filter while the last of the sample passes through the filter..
- 9 Temperature and pH must be measured on site at the time of sample collection. 7 days is the maximum time for laboratory analysis of total alkalinity, calcium ion and total solids.
- 10 The electrometric and hydrometric analytical methods are suited for field use. The argentometric method is suited for laboratory use. Samples collected for laboratory analysis, when properly sealed with paraffin waxed stopper, may be held indefinitely. The maximum holding time of 30 days is recommended as a practical regulatory limit.
- 11 Transparency in surface waters is defined as a compensation point for photosynthetic activity, i.e., the depth at which one percent of the light intensity entering at the water surface remains unabsorbed. The DEP Chapter 62-302, FAC requires that the light intensities at the surface and subsurface be measured simultaneously by irradiance meters such as the Kahlsico Underwater Irradiometer, Model No. 268 WA 310, or an equivalent device having a comparable spectral response.
- 12 The results of the measurements of pH, temperature, salinity (if applicable) and the ammonium ion concentration in the sample are used to calculate the concentration of ammonia in the unionized state. Temperature, pH and salinity must be measured on-site at the time of sample collection. Laboratory analysis of the ammonium ion concentration should be conducted within eight hours of sample collection. If prompt analysis of ammonia is impossible, preserve samples with H₂SO₄ to pH between 1.5 and 2. Acid-preserved samples, stored at 4°C, may be held up to 28 days for ammonia determination. Sodium thiosulfate should only be used if fresh samples contain residual chlorine.
- 13 DEP Central Analytical Laboratory, Tallahassee, FL, Revision No. 1, October 3, 1983. The 1983 draft is available from the DEP Bureau of Laboratories.
- 14 Other pesticides listed in approved EPA methods (608.1, 608.2, 614, 614.1, 615, 617, 618, 619, 622, 622.1, 627, 629, 631, 632, 632.1, 633, 642, 643, 644 and 645) that are not included in Table ID of 40 CFR Part 136 (March 2007).
- 15 Container, preservation and holding time as specified in each individual method must be followed.

Sample Containers, Sample Volumes, Preservation Techniques and Holding times

For Residuals, Soil and Sediment Samples

Analyte	Methods	References	Container	Preservation	Maximum Holding Times
Volatile Organics	Purge-and-Trap GC and GC-MS	8015, 8260, 8021, 5035	See Method 5035 Table below		
Semivolatile Organics	GC, HPLC, and GC-MS	8041, 8061, 8070, 8081, 8082, 8091, 8111, 8121, 8131, 8141, 8151, 8270, 8275, 8280, 8290, 8310, 8315, 8316, 8318, 8321, 8325, 8330, 8331, 8332, 8410, 8430, 8440, FL-PRO	Glass, 8 oz widemouth with Teflon® -Lined lid	Cool 4°C ¹	14 days until extraction, 40 days after extraction
Dioxins		8290	Amber Glass, 8 oz widemouth with Teflon® -Lined lid	Cool 4°C ¹ in dark	30 days until extraction, 45 days after extraction
Total Metals-except mercury and chromium VI methods	Flame AA, Furnace AA, Hydride and ICP	All 7000-series (except 7195, 7196, 7197, 7198, 7470 and 7471), and 6010 (ICP)	Glass or plastic 8 oz widemouth (200 grams sample)	None	6 months
Chromium VI	Colorimetric, Chelation with Flame AA (200 gram sample)	7196 and 7197 (prep 3060)	Glass or plastic, 8 oz widemouth (200 gram sample)	Cool 4°± 2°C ¹	1 month until extraction, 4 days after extraction ²
Mercury	Manual Cold Vapor AA	7471	Glass or plastic 8 oz widemouth (200 grams sample)	Cool 4°± 2°C ¹	28 days
Microbiology (MPN)		MPN	Sterile glass or plastic	Cool 4°C ¹	24 hours

Recommended Sample Containers, Sample Volumes, Preservation Techniques and Holding times
For Residuals, Soil and Sediment Samples - continued

Aggregate Properties			Glass or plastic	Cool 4°C ¹	14 days
Inorganic nonmetallics all except: Sulfite, Nitrate, Nitrite & o-phosphate Elemental Phosphorus			Glass or plastic	Cool 4°C ¹	28 days
			Glass or plastic		48 hours
			Glass		48 hours

The term “residuals” include: (1) sludges of domestic origin having no specific requirements in Tables FS-1000-4 or FS-1000-9; (2) sludges of industrial origin; and (3) concentrated waste samples.

1 Keep soils, sediments and sludges cool at 4°C from collection time until analysis. No preservation is required for concentrated waste samples.

2 Storage Temperature is 4°C, ±2°C

SW846 Method 5035 Soil VOC Sample Handling, Preservation and Holding Time Table

Conc. Level	Sampling Device	Collection Procedure	Sample Container		Preservation	Sample Preparation	Max HT	Determinative Procedure
			Type	Vial Preparation				
200 ug/kg	Coring Device	5035 - Section 6.2.1	Glass Vial w/ PTFE-silicone Septum	5035 - 6.1.1	NaHSO ₄ / 4°C	5035 - Section 7.2	14 D	Any recognized VOC Method
				5035 - 6.1.1	4°C	5035 - Section 7.2	48 H	Any recognized VOC Method
				5035 - 6.1.1	4°C / -10°C,	5035 - Section 7.2	48 H / 14 D	Any recognized VOC Method
	EnCore or equivalent	5035 - Section 6.2.1	EnCore or equivalent	6.1.1,,	4°C	5035 - Section 7.2	48 H	Any recognized VOC Method
		5035 - Section 6.2.1	EnCore or equivalent	5035 - 6.1.1,	NaHSO / 4°C	5035 - Section 7.2	48 H / 14 D	Any recognized VOC Method
		5035 - Section 6.2.1	EnCore or equivalent	5035-6.1.1	4°C / -10°C,	5035 - Section 7.2	48 H / 14 D	Any recognized VOC Method
200 ug/kg	EnCore or equivalent	5035 - Section 6.2.2.3	EnCore or equivalent	5035 - 6.1.3,	4°C	5035 - Sections 7.3.2 & 7.3.3	48 H / 14 D	Any recognized VOC Method
200 ug/kg	Coring Device	5035 - Section 6.2.2.3	Glass Vial w/ PTFE-silicone Septum	6.1.3	Methanol/PEG + 4°C	5035 - Section 7.3.4	14 D	Any recognized VOC Method
	Conventional Devices	DEP SOP - Section 4.3	Glass w/ PTFE-silicone Septum	6.1.2	4°C	5035 - Sections 7.3.1 - 7.3.3	14 D	Any recognized VOC Method

SW846 Method 5035 Soil VOC Sample Handling, Preservation and Holding Time Table - continued

Oily Waste	Conventional Devices	5035 - Section 6.2.4.2	Glass w/ PTFE-silicone Septum	6.1.4	4°C	5035 - Sections 7.4.1 - 7.4.2	14 D	Any recognized VOC Method
	Conventional Devices	5035 - Section 6.2.4.1	Glass w/ PTFE-silicone Septum	6.1.4	Methanol/PEG + 4°C	5035 - Sections 7.4.3	14 D	Any recognized VOC Method
Dry Wt.	Conventional Devices		Glass with Teflon liner		4°C	5035 - Section 7.5		
Soil Screen	Conventional Devices	DEP SOP - Section 4.3	Glass w/ PTFE-silicone Septum		4°C	5035 - Section 7.1	14 D	Any recognized VOC Method

1. Maximum time allowable from time/date of collection to sample analysis.
2. Eliminate 6.1.1.2; use only organic-free water.
3. Contents of sampling device must be transported to the laboratory at 4°C and stored at -10°C.
4. In order to ensure that vials do not break during freezing, they should be stored on their side or at a slanted angle to maximize surface area.
5. Maximum allowable time at 4°C is 48 hours; maximum allowable time to sample analysis is 14 days (from time of sample collection).
6. Conducted in the laboratory.
7. Entire contents of sampling device are extruded into the sample analysis vial containing the appropriate solvent.
8. Procedures are limited only to those situations or programs in which the maximum contamination level does not exceed 200 ug/kg.
9. Methanolic preservation in the field is not recommended, but may be used if approved by an DEP program.

Drinking Water Sample Handling, Preservation and Holding Time Table

PARAMETER	METHOD	CONTAINER ²	PRESERVATIVE	STORAGE ³	HOLD TIME
General Chemistry					
Alkalinity, Total	SM18 2320B	250-ml P	-	4 deg C	14 d
Asbestos	EPA 100.2	2 x 1-L P	-	4 deg C	48 hr
Bromide	EPA 300.0 / EPA 300.1	250-ml P	-	-	28 d
Bromate	EPA 300.1	250-ml P	For chlorinated samples - 0.01mL (10uL) of ethylene diamine (EDA) + 1mL reagent water (1)	4 deg C	28 d
Chlorate	EPA 300.1	250-ml P	For chlorinated samples - 0.01mL (10uL) of ethylene diamine (EDA) + 1mL reagent water (1)	4 deg C	28 d
Chloride	EPA 300.0 / EPA 300.1	250-ml P	-	-	28 d
Chlorite	EPA 300.1	250-ml Opaque P	0.01mL EDA + 1mL reagent water (1)	4 deg C	14 d
Color	SM18 2120B / EPA110.2	250-ml P	-	4 deg C	48 hr
Conductivity (Specific Conductance)	SM18 2510B	250-ml P	-	4 deg C	28 d
Corrosivity (Langelier Saturation Index)	SM18 2330B	1-L P	-	4 deg C	14 d
Cyanide, Free (F)	SM18 4500-CN E / EPA 335.4	250-ml P	After dechlorination w/ ascorbic acid, adjust to pH \geq 12 with 1:1 NaOH	4 deg C	14 d
Fluoride by IC	EPA 300.0 / EPA 300.1 / SM4500-F-C	250-ml P	-	-	28 d
Hardness (Total as CaCO ₃), titrimetric	SM18 2340B (calculation) SM18 2340C (titrimetric) EPA130.2	500-mL P	2 mL 1:1 nitric acid	-	6 months
Nitrogen, Nitrate (NO ₃) as N	EPA 300.0 / EPA 300.1 / SM18 4500-NO ₃ -F	250-ml P	-	4 deg C	48 hr
Nitrogen, Nitrite (NO ₂) as N	EPA 300.0 / EPA 300.1 / SM18 4500-NO ₃ -F	250-ml P	-	4 deg C	48 hr
Odor	EPA 140.1/SM18 2150B	1-L A glass	-	4 deg C	24 hr

Drinking Water Sample Handling, Preservation and Holding Time Table - continued

PARAMETER	METHOD	CONTAINER 2	PRESERVATIVE	STORAGE ³	HOLD TIME
Organic Carbon, Total (TOC)	SM18 5310B / SM5310C / EPA 415.3	2 x 40-mL AV	0.1 mL 1:1 phosphoric acid	4 deg C	28 d
Perchlorate by IC	EPA 314.0	250-ml P	-	-	28 d
pH (laboratory)	EPA 150.1/SM18 4500-H-B	250-ml P	-	4 deg C	Immediate
Phosphorus, ortho as P	EPA365.3/ 365.1 / 300.0 / 300.1 / SM18 4500-P E / SM18 4500-P F	250-ml P	Field Filtered	4 deg C	48 hr
Phosphorus, Total as P	SM18 4500-P E / EPA 365.4	250-mL P	1 mL 1:1 sulfuric acid	4 deg C	28 d
Solids, Total Dissolved	SM18 2540C	500-mL P	-	4 deg C	7 d
Sulfate	EPA 300.0 / EPA 300.1 / SM18 4500-SO4-E	250-ml P	-	4 deg C	28 d
Surfactants (MBAS)	SM18 5540C / EPA 425.1	500-mL P	-	4 deg C	48 hr
Turbidity	EPA 180.1/SM18 2130B	250-ml P	-	4 deg C	48 hr
UV-254 Absorbing Constituents	SM20 5910B	250-ml P	-	4 deg C	48 hr
Metals					
Metals by ICP	EPA 200.7	250-mL P	1 mL 1:1 nitric acid	-	6 months
Metals by ICP/MS	EPA 200.8	250-mL P (1-L P for Pb/Cu)	1 mL 1:1 nitric acid	-	6 months
Mercury	EPA 245.1	250-mL P	1 mL 1:1 nitric acid	-	28 d
Chromium, Hexavalent	SM18 3500-Cr D	250-mL P	-	-	24 hr
Radiologicals					
Gross Alpha &/or Beta	EPA 900.0	½ Gal P	1 mL 1:1 nitric acid	-	6 months
Radium-226/228	EPA 903.0/904.0	½ Gal P	1 mL 1:1 nitric acid	-	6 months
Uranium	EPA 200.8	250-mL P	1 mL 1:1 nitric acid	-	6 months
Microbiological					
Bacteriological - Total and Fecal Coliform	Colilert 18 Colisure	125-mL Sterile P	20 mg Na ₂ S ₂ O ₃	-	30 hr

Drinking Water Sample Handling, Preservation and Holding Time Table - continued

PARAMETER	METHOD	CONTAINER 2	PRESERVATIVE	STORAGE ³	HOLD TIME
Bacteriological - Heterotrophic Plate Ct.	HPC SimPlate	125-mL Sterile P	20 mg Na ₂ S ₂ O ₃	4 deg C	24 hr
Micro-extractables and Semivolatiles					
Microextractables-EDB and DBCP (Z)	EPA 504.1	3 x 40-mL VOA	3 mg sodium thiosulfate	4 deg C	14d/24 hr
Microextractables-Chloral hydrate	EPA 551.1	3 x 60-mL A Glass	1g sodium sulfite/phosphate buffer	4 deg C	14d/14 d
Haloacetic Acids (Z)	EPA 552.2	3 x 60-mL A Glass	6 mg ammonium chloride	4 deg C	14d/7 d
SOCs - Pesticides and PCBs, Chlorinated (Z)	EPA 505	3-40-mL VOA	3 mg sodium thiosulfate	4 deg C	7d/24 hr
SOCs - Chlorophenoxy Herbicides	EPA 515.4	3 x 40-mL A VOA	2 mg of sodium sulfite crystals added to each vial	4 deg C	14d/28 d
SOCs – Semivolatiles (F)	EPA 525.2	1-L A Glass	50 mg sodium sulfite; When sampling, adjust pH to ≤ 2 with 2mL 1:1 HCl after dechlorinating samples	4 deg C	14d/30 d
SOCs - Carbamates	EPA 531.1	3 x 60-mL Glass	1.8mL monchloroacetic acid and 4.8 mg sodium thiosulfate per vial	4 deg C	28 d
SOCs - Glyphosate	EPA 547	3 x 40-mL VOA	10 mg sodium thiosulfate per vial	4 deg C	14 d
SOCs - Endothall	EPA 548.1	1-L A Glass	80 mg sodium thiosulfate; When sampling, adjust to pH < 2 with 4mL 1:1 HCl after dechlorination	4 deg C	7d/14 d

SOCs - Diquat/Paraquat	EPA 549.2	500-mL Amber P	80 mg sodium thiosulfate; When sampling, adjust sample to pH<2 with 20 drops of 1:1 sulfuric acid after dechlorination	4 deg C	7d/21 d
SOC's – Dioxin	EPA 1613	2 x 1-L A Glass	80 mg sodium thiosulfate if residual chlorine is present	4 deg C	12 months
Volatiles					
TTHMs (Trihalomethanes) by 524.2 (Z,F)	EPA 524.2	3 x 40-mL VOA	25 mg ascorbic acid per vial. NOTE: acidification not required if only THMs are target compounds and sodium thiosulfate used as dechlorinating agent	4 deg C	14 d
VOCs - methyl-tert-butyl ether by 524.2 (Z,F)	EPA 524.2	3 x 40-mL VOA	25 mg ascorbic acid per vial. NOTE: Current EPA guidance recommends that acid not be added to sample if MTBE is a target compound.	4 deg C	14 d
VOCs - Drinking Water by 524.2 (Z,F)	EPA 524.2	3 x 40-mL VOA	25 mg ascorbic acid per 40 mL vial; then acidify with 0.10mL 1:1 HCl in each vial.	4 deg C	14 d
<p>¹ - Bromate, Bromide, and Chlorate require no chemical preservation if chlorite is not a target analyte. These parameters can be performed on sample preserved with EDA or unpreserved. Chlorite must be preserved with EDA.</p> <p>² - The lab may substitute different size containers or combine containers dependent upon parameters requested.</p> <p>³ - Acceptance criteria for storage is 4°C +/- 2°C.</p> <p>Z - Vials must contain zero headspace after sample collection (no bubbles >5mm in diameter.)</p> <p>F - Preservation by pH adjustment must be performed in the field after dechlorination.</p>					