



TGM for the Implementation of the Hawai'i State Contingency Plan

Appendix 11-B

Laboratory Methods for Groundwater

Appendix 11-B

Laboratory Methods, Containers, Preservation, and Holding Times for Groundwater Samples

Parameter	Method	Container	Preservation	Holding Time
TPH-G	5035/8015; LUFT	40 mL jar with septum cap	≤6°C	7 days
			HCl to pH<2 and ≤6°C	14 days
TPH-D	5035/8015; 3550/8270; 3540/8270; LUFT	1 L Amber Glass Jar	≤6°C<	7 day (4°C only)
TPH-O	8015; EPA 1664	1 L Amber Glass Jar	≤6°C	E: 7 days A: 40 days
			HCl to pH<2 and ≤6°C (1664 only)	
BTEX, MtBE	(BTEX only) 8260; EPA 602; EPA 624	40 mL jar with septum cap	≤6°C	7 days
	(BTEX and MTBE) 8260; EPA 524.2		HCl to pH<2 and ≤6°C	14 days
PAHs	8270; 8310; EPA 610; EPA 625	1 L Amber Glass Jar	≤6°C	E: 7 days A: 40 days
HVOCs	8260; EPA 601; EPA 608; EPA 624; EPA 625	40 mL jar with septum cap	≤6°C	7 days
			HCl to pH<2 and ≤6°C	14 days
VOCs			4°C	7 days

Laboratory Methods, Containers, Preservation, and Holding Times for Groundwater Samples

Parameter	Method	Container	Preservation	Holding Time
	8260; EPA 624	40 mL jar with septum cap	HCl to pH<2 and ≤6°C	14 days
SVOCs	8270; EPA 625	1 L Amber Glass Jar	≤6°C	E: 7 days A: 40 days
Metals (except Mercury and Chromium VI)	6010; 6020; EPA 200 Series	250 mL Plastic Container	HNO ₃ to pH<2 and ≤6°C	6 months
Mercury	7470; EPA 245.1	250 mL Plastic Container	HNO ₃ to pH<2 and ≤6°C	28 days
Chromium VI	7196	250 mL Plastic Container	≤6°C	24 hours
PCBs	8082; EPA 608	1 L Amber Glass Jar	≤6°C	E: 7 days A: 40 days
Chlorinated Herbicides	8151; EPA 615	1 L Amber Glass Jar	≤6°C	E: 7 days A: 40 days
Organochlorine Pesticides	8081; EPA 608	1 L Amber Glass Jar	≤6°C	E: 7 days A: 40 days
Triazine Pesticides	8141; 8270; EPA 619	1 L Amber Glass Jar	≤6°C	E: 7 days A: 40 days
Organophosphorus Pesticides	8141; 8270; EPA 622; EPA 614	1 L Amber Glass Jar	≤6°C	E: 7 days A: 40 days
Carbamates	8321; EPA 632	1 L Amber Glass Jar	≤6°C	E: 7 days A: 40 days
Fumigants	8260; EPA 504.1; EPA 524.2	40 mL jar with septum cap	≤6°C	7 days
			HCl to pH<2 and ≤6°C	14 days
Pentachlorophenol	8270; 8151; EPA 625	1 L Amber Glass Jar	≤6°C	E: 7 days A: 40 days
Glyphosate	EPA 547	1 L Amber Glass Jar	0.008% Na ₂ S ₂ O ₃ (pH 5-8) and ≤6°C	14 days
Cyanide	9014; EPA 335.2/335.3	500 mL Plastic Container	NaOH to pH>12 and ≤6°C	14 days

Laboratory Methods, Containers, Preservation, and Holding Times for Groundwater Samples

Parameter	Method	Container	Preservation	Holding Time
Dioxins/Furans	8290; EPA 613; EPA 1613	1 L Amber Glass Jar	≤6°C	E: 30 days A: 45 days

Notes:

-
- BTEX Benzene, toluene, ethylbenzene, and xylene
- Dioxins Polychlorinated dibenzodioxins
- Furans Polychlorinated dibenzofurans
- HVOCs Halogenated volatile organic compounds
- MTBE Methyl-tert butyl ether
- PAHs Polynuclear aromatic hydrocarbons
- PCBs Polychlorinated biphenyls
- SVOCs Semi-volatile organic compounds
- TPH-G Total petroleum hydrocarbons as gasoline
- TPH-D Total petroleum hydrocarbons as diesel
- TPH-O Total petroleum hydrocarbons as oil
- VOCs Volatile organic compounds
- ≤ Less than or equal to
- °C Degree Celsius
- g Gram
- L Liter
- mL Milliliter
- HCl Hydrochloric acid
- NaOH Sodium hydroxide
- NaS₂O₃ Sodium thiosulfate
- HNO₃ Nitric acid
- E Hold time to extraction
- A Hold time after extraction until analysis
- pH A measure of the acidity or alkalinity of a solution.
- EPA Where the term "EPA" is used with a given method number the prefix indicates that the method comes from Environmental Protection Agency (EPA) wastewater and drinking water standards, both

published and maintained by the EPA Safe Drinking Water Act (SDWA) and/or Clean Water Act (CWA). For methods that are presented without the "EPA" notation, the methods come from the guidance document "Test Methods for Evaluating Solid Waste Physical/Chemical Methods" (SW-846). Although SW-846 was written by the EPA originally, they are guidance documents and not prescriptive as the EPA prefix methods.