

# ERM) Environmental Laboratories

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## Sample Handling Guide

Analysis	Method	Water/Liquid				Soil/Solid			
		Container	Quantity	Preservation <sup>Note 11</sup>	Hold Time	Container	Quantity	Preservation <sup>Note 11</sup>	Hold Time
<b>Bacteria</b>				Based on 40 CFR Part 136 Table II - 2008				Based on SW-846 Rev 4 - February 2007	
Coliforms, Total ( MF)	SM 9222B	Sterile P	200mL	Cool <10°C; 0.0008% Sodium Thiosulfate	6 Hrs				
Coliforms, Total ( Presence/Absence)	SM 9221D	Sterile P	200mL	Cool <10°C; 0.0008% Sodium Thiosulfate	6 Hrs				
Coliforms, Fecal (MF)	SM 9222D	Sterile P	200mL	Cool <10°C; 0.0008% Sodium Thiosulfate	6 Hrs				
Coliforms, Fecal (MPN)	SM 9221E	Sterile P	200mL	Cool <10°C; 0.0008% Sodium Thiosulfate	6 Hrs	Sterile P	200g	Cool <10°C	24 Hrs
Escherichia coli (E. coli)	Collert	Sterile P	200mL	Cool <10°C; 0.0008% Sodium Thiosulfate	6 Hrs				
Enterococci	Entero-lerf	Sterile P	200mL	Cool <10°C; 0.0008% Sodium Thiosulfate	6 Hrs				
Heterotrophic Plate Count - (Method Criteria)	SM 9215B	Sterile P	200mL	Cool <10°C; 0.0008% Sodium Thiosulfate	24 Hrs	Sterile P	200g	Cool <10°C	24 Hrs
<b>Inorganic Tests</b>									
Acidity	SM 2310B4(a)	P	500mL	Cool ≤6°C	14 D				
Alkalinity	SM 2320B	P	500mL	Cool ≤6°C	14 D				
Ammonia	SM 4500 NH <sub>3</sub> B & D	P	500mL	Cool ≤6°C; H <sub>2</sub> SO <sub>4</sub> to pH<2	28 D				
BOD/CBOD	SM 5210B	P	1L each	Cool ≤6°C	48 Hrs				
Bromide	300/9056A	P	500mL	Cool ≤6°C	28 D	4 Oz G	100g	Cool ≤6°C	28 D
Chloride	300/9056A	P	500mL	Cool ≤6°C	28 D	4 Oz G	100g	Cool ≤6°C	28 D
Chlorine, Total Residual	SM 4500-Cl-D	G	1000mL	Cool ≤6°C; No Headspace	Immediate				
COD	SM 5220D	P	500mL	Cool ≤6°C; H <sub>2</sub> SO <sub>4</sub> to pH<2	28 D				
COD, LL	Hach 8000	P	500mL	Cool ≤6°C; H <sub>2</sub> SO <sub>4</sub> to pH<2	28 D				
Color	SM 2120B	P	500mL	Cool ≤6°C	48 Hrs				
Conductance, Specific	120.1/9050A	P	500mL	Cool ≤6°C	28 D				
Corrosivity	9040C	P	500mL		ASAP				
Corrosivity	9045D					4 Oz G	100g		ASAP
Cyanide, Amenable	9010B/9014	P	500mL	Cool ≤6°C; NaOH to pH>12 <sup>Note 1</sup>	14 D	4 Oz G	100g	Cool ≤6°C	14 D
Cyanide, Total	9010B/9014	P	500mL	Cool ≤6°C; NaOH to pH>12 <sup>Note 1</sup>	14 D	4 Oz G	100g	Cool ≤6°C	14 D
Cyanide, Available <sup>Note 10</sup>	SM 4500-CN-C/G	P	500mL	Cool ≤6°C; NaOH to pH>12 <sup>Note 2</sup>	14 D				
Cyanide, Total <sup>Note 10</sup>	SM 4500-CN-C/E	P	500mL	Cool ≤6°C; NaOH to pH>12 <sup>Note 2</sup>	14 D				
Dry Weight	SM 2540G					4 Oz G	100g	Cool ≤6°C	7 D
Fluoride	300/9056A	P	500mL	Cool ≤6°C	28 D	4 Oz G	100g	Cool ≤6°C	28 D
Hardness	SM 2340B	P	500mL	HNO <sub>3</sub> to pH<2	6 Mo				
Hexavalent Chromium	SM 3500-Cr-B	P	500mL	Cool ≤6°C; (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> Buffer to pH 9.3-9.7 <sup>Note 13</sup>	28 D <sup>Note 13</sup>				
Hexavalent Chromium	7196A	P	500mL	Cool ≤6°C	24 Hrs	4 Oz G	100g	Cool ≤6°C	30 D
Ignitability	1010A/1030	G	1L	Cool ≤6°C; Minimize Headspace		4 Oz G	100g		
Kjeldahl, Total and Total Organic Nitrogen	SM 4500 Norg C/ NH3 D	P	500mL	Cool ≤6°C; H <sub>2</sub> SO <sub>4</sub> to pH<2	28 D				
Nitrate	300/9056A	P	500mL	Cool ≤6°C	48 Hrs	4 Oz G	100g	Cool ≤6°C	48 Hrs
Nitrate-Nitrite	300/9056A	P	500mL	Cool ≤6°C; H <sub>2</sub> SO <sub>4</sub> to pH<2	28 D	4 Oz G	100g	Cool ≤6°C	
Nitrite	300/9056A	P	500mL	Cool ≤6°C	48 Hrs	4 Oz G	100g	Cool ≤6°C	48 Hrs
Oil and Grease/TPH	1664A/9070A/9071B	G	2L each	Cool ≤6°C; H <sub>2</sub> SO <sub>4</sub> to pH<2	28 D	4 Oz G	100g	Cool ≤6°C, Acidify to pH <2 When Practical	
Organic Carbon, Total	SM 5310C/9060A	P	500mL	Cool ≤6°C; H <sub>2</sub> SO <sub>4</sub> to pH<2	28 D				
Orthophosphate	300/9056A	P	500mL	Filter Immediately; Cool ≤6°C	48 Hrs	4 Oz G	100g	Cool ≤6°C	48 Hrs
Oxygen, Dissolved by Winkler Titration <sup>Note 10</sup>	SM 4500-O C	BOD Btl	600mL	Fix onsite; Store in dark	8 Hrs				
Paint Filter	9095A	P	1L			4 Oz G	100g		
pH, Hydrogen Ion	SM 4500H <sup>+</sup> B	P	500mL		Immediate				
Phenols	420.1/9065	G	1L	Cool ≤6°C; H <sub>2</sub> SO <sub>4</sub> to pH<2	28 D	4 Oz G	100g	Cool ≤6°C	28 D
Phosphorus, Total	SM 4500-P B.5/E	P	500mL	Cool ≤6°C; H <sub>2</sub> SO <sub>4</sub> to pH<2	28 D				
Reactivity	SW 846 Section 7.3	Amber G	1L	Cool ≤6°C		4 Oz G	100g	Cool ≤6°C	
Residue, Filterable (TDS)	SM 2540C	P	500mL	Cool ≤6°C	7 D				
Residue, Nonfilterable (TSS)	SM 2540D	P	500mL	Cool ≤6°C	7 D				
Residue, Settleable (SS)	SM 2540F	P	500mL	Cool ≤6°C	48 Hrs				
Residue, Total (TS)	SM 2540B	P	500mL	Cool ≤6°C	7 D				
Residue, Volatile (VS)	160.4	P	500mL	Cool ≤6°C	7 D				
Silica	200.7/6010B	P	500mL	Cool ≤6°C	28 D				
Sulfate	300/9056A	P	500mL	Cool ≤6°C	28 D	4 Oz G	100g	Cool ≤6°C	28 D
Sulfide <sup>Note 10</sup>	SM 4500-S <sup>2-</sup> F	P	1L	2N Zinc Acetate & 10N Sodium Hydroxide pH>9	7 D				
Sulfite	SM 4500-SO <sub>3</sub> <sup>2-</sup> B	P	500mL	500mL Container – 5mL of 2% EDTA	Immediate				
Surfactants (MBAS)	SM 5540C	P	500mL	Cool ≤6°C	48 Hrs				
Temperature	SM 2550B	P	500mL		Immediate				
Turbidity	180.1	P	500mL	Cool ≤6°C	48 Hrs				

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Analysis	Method	Water/Liquid				Soil/Solid			
		Container	Quantity	Preservation <sup>Note 11</sup>	Hold Time	Container	Quantity	Preservation <sup>Note 11</sup>	Hold Time
<b>Metals</b>				Based on 40 CFR Part 136 Table II - 2008				Based on SW-846 Rev 4 - February 2007	
Cation Exchange Capacity	9080	P	500mL			4 Oz G	100g		
Hexavalent Chromium	SM 3500-Cr-B	P	500mL	Cool ≤6°C; (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> Buffer to pH 9.3-9.7 <sup>Note 13</sup>	28 D <sup>Note 13</sup>				
Hexavalent Chromium	7196A	P	500mL	Cool ≤6°C	24 Hrs	4 Oz G	100g	Cool ≤6°C	30 D
Mercury	245.1/7470A/7471A	P	500mL	HNO <sub>3</sub> to pH<2	28 D	4 Oz G	100g	Cool ≤6°C	28 D
Metals except Chromium VI and Mercury	200.7/6010B/200.8/6020A	P	500mL	HNO <sub>3</sub> to pH<2, or >24 hrs before analysis <sup>Note 12</sup>	6 Mo	4 Oz G	100g		6 Mo
Dissolved Metals	200.7/6010B/200.8/6020A	P	500mL	Filter, HNO <sub>3</sub> to pH<2, or >24 hrs before analysis <sup>Note 12</sup>	Immediate				
<b>Semivolatile Organics</b>									
Carbamate Pesticides	632/8318M	Amber G	3L	Cool ≤6°C <sup>Notes 3 &amp; 8</sup>	7 D	9 Oz G	250g	Cool ≤6°C	14 D
Chlorinated Herbicides	615/8151A	Amber G	3L	Cool ≤6°C <sup>Note 3</sup>	7 D	9 Oz G	250g	Cool ≤6°C	14 D
Glycols	8015M	Amber G	2L	Cool ≤6°C	7 D	9 Oz G	250g	Cool ≤6°C	14 D
Organochlorine Pesticides & PCBs	608/617/8081A/8082	Amber G	3L	Cool ≤6°C <sup>Notes 3 &amp; 9</sup>	7 D	9 Oz G	250g	Cool ≤6°C	14 D
Organophosphorus Pesticides	614/8141A	Amber G	3L	Cool ≤6°C <sup>Note 3</sup>	7 D	9 Oz G	250g	Cool ≤6°C	14 D
PCBs	608/8082	Amber G	3L	Cool ≤6°C	365D (608)	9 Oz G	250g	Cool ≤6°C	
Polynuclear Aromatic Hydrocarbons	625/8270C/610/8310	Amber G	3L	Cool ≤6°C <sup>Note 3</sup>	7 D	9 Oz G	250g	Cool ≤6°C	14 D
Semivolatiles by GCMS	625/8270C	Amber G	3L	Cool ≤6°C <sup>Note 3</sup> / 625 adjust to pH 6-9	7 D	9 Oz G	250g	Cool ≤6°C	14 D
TPH TX 1005 - (TCEQ Protocol)	TX 1005	Tared VOA	3 ea	Cool ≤6°C; HCL to pH<2	14 D	Tared VOA	3 ea	Cool ≤6°C; after 2 D Freeze -12°C	14 D
TPH TX 1005 Dry Weight	SM 2540G					4 Oz G	100g	Cool ≤6°C	7 D
TPH TX 1006 - (TCEQ Protocol)	TX 1006	Tared VOA	3 ea	Cool ≤6°C; HCL to pH<2	14 D	Tared VOA	3 ea	Cool ≤6°C; after 2 D Freeze -12°C	14 D
TPH TX 1006 Dry Weight	SM 2540G					4 Oz G	100g	Cool ≤6°C	7 D
TPH DRO	8015B	Amber G	3L	Cool ≤6°C; HCL to pH<2	7 D	9 Oz G	250g	Cool ≤6°C	14 D
TPH DRO Oklahoma - (Method Protocol)	8000/8100	Amber G	3L	Cool ≤6°C; HCL to pH<2	7 D	9 Oz G	250g	Cool ≤6°C	7 D
TPH OA-2 - (Method Protocol)	OA-2	Amber G	3L	Cool ≤6°C	7 D	9 Oz G	250g	Cool ≤6°C	14 D
<b>TOX (Aqueous) - EOX (Solid)</b>	SM 5320/9020B	G <sup>Note 2</sup>	100mL	Cool ≤6°C; H <sub>2</sub> SO <sub>4</sub> to pH<2; No Headspace	28 D	4 Oz G <sup>Note 7</sup>	100g	Cool ≤6°C; Minimize Headspace	28 D
<b>Volatile Organics</b>									
Methanol	8015B	VOA	3 ea	Cool ≤6°C; VOA; No Headspace	14 D	9 Oz G	250g	Cool ≤6°C	14 D
BTEX	602/8021B	VOA	3 ea	Cool ≤6°C; HCL to pH<2; <sup>Note 3</sup> - No Headspace	14 D	9 Oz G	250g	Cool ≤6°C	14 D
BTEX + MTBE	602/8021B	VOA	3 ea	Cool ≤6°C <sup>Note 3</sup> - No Headspace	7 D	9 Oz G	250g	Cool ≤6°C	14 D
BTEX + MTBE	8260B	VOA	3 ea	Cool ≤6°C <sup>Note 3</sup> - No Headspace	7 D	9 Oz G	250g	Cool ≤6°C	14 D
TPH GRO	8015B/OA-1	VOA	3 ea	Cool ≤6°C; HCL to pH<2; <sup>Note 3</sup> - No Headspace	14 D	9 Oz G	250g	Cool ≤6°C	14 D
Volatile Organics by GCMS	8260B	VOA	3 ea	Cool ≤6°C; HCL to pH<2; <sup>Notes 3 &amp; 8</sup> - No Headspace	14 D	9 Oz G	250g	Cool ≤6°C	14 D
Volatile Organics - Protocol 1 <sup>Note 10</sup>	624	VOA	3 ea	Cool ≤6°C <sup>Note 3</sup> - No Headspace	3 D				
Volatile Organics - Protocol 2 <sup>Note 10</sup>	624	VOA	3 ea	Cool ≤6°C <sup>Note 3</sup> - No Headspace	14 D				
		VOA	3 ea	Cool ≤6°C; HCL to pH<2; <sup>Note 3</sup> - No Headspace	14 D				
		VOA	3 ea	Cool ≤6°C <sup>Notes 3 &amp; 4</sup> - No Headspace	14 D				
Volatile Organics - 5035 incl. Dry Weight	8260B or 8021B/5035								
Soil - 5g Sample - (TCEQ Protocol)						Tared VOA	3 ea	Cool ≤6°C; Freeze -12°C within 48 Hrs	14 D
Soil - 5g Sample w/Methanol						Tared VOA	1 ea	Cool ≤6°C; Methanol	14 D
Dry Weight Sample	SM 2540 G					4 Oz G	100g	Cool ≤6°C	7 D
<b>TCLP/SPLP</b>	1311/1312								
Metals except Mercury	6010B	P or G	1L	Cool ≤6°C <sup>See Note 5</sup>	6 Mo	9 Oz G	250g	Cool ≤6°C <sup>Note 5</sup>	6 Mo
Mercury	7470A	P or G	1L	Cool ≤6°C <sup>See Note 5</sup>	28 D	9 Oz G	250g	Cool ≤6°C <sup>Note 5</sup>	28 D
Volatiles	8260B	VOA	3 ea	Cool ≤6°C <sup>See Note 5</sup>	14 D	9 Oz G	250g	Cool ≤6°C <sup>Note 5</sup>	14 D
Semivolatiles	8270C	Amber G	2L	Cool ≤6°C <sup>See Note 5</sup>	7 D	9 Oz G	250g	Cool ≤6°C <sup>Note 5</sup>	14 D
Pesticides	8081A	Amber G	2L	Cool ≤6°C <sup>See Note 5</sup>	7 D	9 Oz G	250g	Cool ≤6°C <sup>Note 5</sup>	14 D
Herbicides	8151A	Amber G	2L	Cool ≤6°C <sup>See Note 5</sup>	7 D	9 Oz G	250g	Cool ≤6°C <sup>Note 5</sup>	14 D
Complete TCLP/SPLP		Amber G	6L	Cool ≤6°C <sup>See Note 5</sup>		2L G	2000g	Cool ≤6°C <sup>Note 5</sup>	

P=Polyethylene; G=Glass; g=grams; mL=milliliters; Hrs=Hours; L=liters; D=Days; Mo=Month

Note 1 - Test for chlorine and treat with 0.1N sodium arsenite only if present.

Note 2 - Test for chlorine and sulfide and treat only if present. Treat chlorine with sodium arsenite and sulfide with HCL and volatilization.

Note 3 - Test for chlorine and treat with sodium thiosulfate to a 0.008% solution only if present.

Note 4 - Adjust to pH 4-5. Use dilute sodium hydroxide to raise the pH and dilute hydrochloric acid to lower it.

Note 5 - Sample must be cooled to ≤6°C but not frozen unless this causes an irreversible change in the physical or chemical nature of the sample in which case the entire sample must be extracted.

Note 6 - If carbonaceous material is present or if Vinyl chloride, Styrene or 2-Chloroethyl vinyl ether are of interest either collect a second set of vials without acid preservative or collect one set without acid preservative and analyze within 7 days.

Note 7 - Container must be muffed at 400°C prior to use.

Note 8 - Adjust pH to 4-5 with 0.1N chloroacetic acid for Method 8318M.

Note 9 - Method 608 requires the addition of sodium thiosulfate to a 0.008% solution if analyzing for aldrin.

Note 10 - Requires special sample handling. Please contact Customer Service for details.

Note 11 - Cooled to the temperature range indicated but not frozen unless it can be demonstrated that this does not effect the parameter being measured.

Note 12 - Must be acid preserved at time of collection for Methods 6010B and 6020A.

Note 13 - No chemical preservative (ammonium sulfate buffer solution) required if sample analyzed within 24 hours of sample collection.

Please contact **ERM)** Environmental Laboratories for special sampling considerations associated with many of these analyses or to request complete sampling kits and supplies.

Please visit our web site at [www.ermilab.com](http://www.ermilab.com) for additional information or the Customer Access Center to request sampling kits and supplies on-line.