Integrity ● Consistency ● Exceptional Lab Services
Environmental Chemistry, Inc.

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SAMPLE CONTAINERS, PRESERVATION, AND HOLDING TIMES
WATER SAMPLES

Parameter	Container	Volume mL	Chemical Preservation	Temperature	Holding Time Extraction/Analysis, Days
Alkalinity	Plastic	200	None	> 0 ≤ 6°C	14
Ammonia	Plastic	400	H_2SO_4	> 0 ≤ 6°C	28
Biochemical Oxygen Demand (BOD)	Plastic	1000	None	> 0 ≤ 6°C	48 hours
Bromide	Plastic	100	None	> 0 ≤ 6°C	28
Chemical Oxygen Demand (COD)	Plastic	50	H_2SO_4	> 0 ≤ 6°C	28
Chloride	Plastic	100	None	> 0 ≤ 6°C	28
Chlorine, Residual	Plastic	100	None	> 0 ≤ 6°C	Onsite
Chromium, Hexavalent (Cr6)	Plastic	500	None/NH_3SO_4 Buffer to pH 9.3-9.7	> 0 ≤ 6°C	24 hours or 28 days
Fecal Coliform	Sterile Plastic	200[1,2]	$Na_2S_2O_3$	< 10°C	6 hours
Enterococci Bacteria	Sterile Plastic	200[1,2]	$Na_2S_2O_3$	< 10°C	6 hours
Color	Plastic	100	None	> 0 ≤ 6°C	48 hours
Formaldehyde	Amber Glass	500	None	> 0 ≤ 6°C	72hours
Formic Acid	Glass, TFE Cap	100	None	> 0 ≤ 6°C	7
Cyanide, Total and Amenable	Plastic	400	NaOH	> 0 ≤ 6°C	14
Dioxins/Furans (SUB)	Amber Glass, TFE Cap	2000[1]	None[3]	> 0 ≤ 6°C	30/44
Fluoride	Plastic	100	None	> 0 ≤ 6°C	28
Halogens, Total	Glass, TFE Cap	500	None	> 0 ≤ 6°C	28
Halogens, Total Organic (TOX) (SUB)	Amber Glass, TFE Cap	500	H_2SO_4	> 0 ≤ 6°C	28
Hardness	Plastic	100	HNO_3	None	180
Herbicides (SUB)	Amber Glass, TFE Cap	2000[1]	None[3]	> 0 ≤ 6°C	7/40
Ignitability	Glass, TFE Cap	200	None	> 0 ≤ 6°C	14
Mercury	Plastic	60	HNO_3	None	28
Metals, except Cr6	Plastic	200	HNO_3	None	180
Methanol and Glycols	VOA or Amber Glass/TFE Cap	40	None	> 0 ≤ 6°C	14 (Not Specified in Method)
Nitrate-Nitrite	Plastic	100	H_2SO_4	> 0 ≤ 6°C	28
Nitrite	Plastic	200	None	> 0 ≤ 6°C	48 hours
Nitrate	Plastic	100	None	> 0 ≤ 6°C	48 hours
Oil and Grease	Wide Mouth Glass[2]	2000[1]	HCl	> 0 ≤ 6°C	28
Organic Carbon, Total (TOC)	Plastic	100	H_2SO_4	> 0 ≤ 6°C	28
Orthophosphate	Plastic	200	None	> 0 ≤ 6°C	48 hours
Pesticides/PCB's, Organochlorine	Amber Glass, TFE Cap	2000[1]	None [3]	> 0 ≤ 6°C	7/40
Petroleum Hydrocarbons, Total	VOA[2]	120	HCl	> 0 ≤ 6°C	7
pH	Plastic	100	None	> 0 ≤ 6°C	Onsite
Phenolics	Glass	1000	H_2SO_4	> 0 ≤ 6°C	28
Phosphorous, Total	Plastic	200	H_2SO_4	> 0 ≤ 6°C	28
Reactivity	Glass, TFE Cap	50	None	> 0 ≤ 6°C	14
Semivolatile Organics	Amber Glass, TFE Cap	2000[1]	None[3]	> 0 ≤ 6°C	7/40
Solids, Suspended	Plastic	1000	None	> 0 ≤ 6°C	7
Specific Conductance	Plastic	100	None	> 0 ≤ 6°C	28
Sulfate	Plastic	100	None	> 0 ≤ 6°C	28
Sulfide	Plastic	100	NaOH/ZnAc	> 0 ≤ 6°C	7
Sulfite	Plastic	500	EDTA	> 0 ≤ 6°C	Onsite
Surfactants (SUB)	Plastic	1000	None	> 0 ≤ 6°C	48 hours
Volatile Organics	VOA[2]	120	HCl[3] or None	> 0 ≤ 6°C	14 or 7

[1] Volume does not include enough to perform QC analysis on the sample. Double the Volume Required for QC Sample for 5 % of samples (minimum 1) for large projects. For sampling events with only 1-2 samples, double the volume every 4 Sample Events. Multiple containers are required to achieve required volume.

[2] Dedicated Sample Container required for this analysis. For other analysis, enough containers are required to achieve the total volume for all tests from a particular container type.

[3] $Na_2S_2O_3$ is added if samples contain residual chlorine. This is expected if Wastewater Outfall Samples are collected after chlorination. Client will need to identify.

Legend: Dedicated Container Short Hold Time

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SAMPLE CONTAINERS, PRESERVATION, AND HOLDING TIMES
SOIL SAMPLES and CHEMICAL WASTE

Parameter	Container	Sample Amount, Grams[1]	Temperature	Holding Time Extraction/Analysis for Solid, Days
Alkalinity	Glass, TFE Cap	50	> 0 ≤ 6°C	14/14[2]
Ammonia	Glass, TFE Cap	50	> 0 ≤ 6°C	28[2]
Bromide	Glass, TFE Cap	50	> 0 ≤ 6°C	28/28[2]
Chloride	Glass, TFE Cap	50	> 0 ≤ 6°C	28/28[2]
Chromium, Hexavalent (CR6)	Glass, TFE Cap	400	> 0 ≤ 6°C	30/4
Cyanide, Total and Amenable	Glass, TFE Cap	50	> 0 ≤ 6°C	14
Dioxins/Furans (SUB)	Glass, TFE Cap	200	> 0 ≤ 6°C	30/45
Fluoride	Glass, TFE Cap	50	> 0 ≤ 6°C	28/28[2]
Halogens, Total	Glass, TFE Cap	50	> 0 ≤ 6°C	28
Hardness	Glass, TFE Cap	NA	NA	180
Herbicides (SUB)	Glass, TFE Cap	200	> 0 ≤ 6°C	14/40
Mercury	Glass, TFE Cap	10	None	28
Metals, except Cr6	Glass, TFE Cap	50	None	180
Methanol, Glycols	Glass, TFE Cap	50	> 0 ≤ 6°C	14[2]
Nitrate-Nitrite	Glass, TFE Cap	50	> 0 ≤ 6°C	28/28[2]
Oil and Grease	Glass, TFE Cap	100	> 0 ≤ 6°C	28
Organic Carbon, Total (TOC)	Glass, TFE Cap	50	> 0 ≤ 6°C	28
Orthophosphate	Glass, TFE Cap	50	> 0 ≤ 6°C	14/2[2]
Pesticides/PCB's, Organochlorine	Glass, TFE Cap	200	> 0 ≤ 6°C	14/40
Petroleum Hydrocarbons, Total[3]	Glass, TFE Cap	50	> 0 ≤ 6°C	14
pH	Glass, TFE Cap	50	> 0 ≤ 6°C	14[2]
Phenolics	Glass, TFE Cap	50	> 0 ≤ 6°C	28[2]
Phosphorous, Total	Glass, TFE Cap	50	> 0 ≤ 6°C	28[2]
Semivolatile Organics	Glass, TFE Cap	200	> 0 ≤ 6°C	14/40
Solids	Glass, TFE Cap	50	> 0 ≤ 6°C	14[2]
Specific Conductance	Glass, TFE Cap	50	> 0 ≤ 6°C	28[2]
Sulfate	Glass, TFE Cap	50	> 0 ≤ 6°C	28[2]
Sulfide	Glass, TFE Cap	50	> 0 ≤ 6°C	7
Volatile Organics[3]	Glass, TFE Cap	50	> 0 ≤ 6°C	14

[1] A 4 oz. Soil jar is expected to hold at least 125 grams of sample in most cases. For most Remediation projects collecting Bulk samples, one 2 oz. jar dedicated for Volatiles and an 8 oz. jar for Semivolatile Organics, Pesticides/PCBs, Metals, and Inorganics will be sufficient.

[2] Denotes ECI holding time. Regulatory specification is either "As Soon as Possible" or not given.

[3] Containers/Storage listed are for bulk sampling. For remediation projects, Client will need to provide QA Project Plan to specify container types/sampling method, storage.

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COMMON WASTE CHARACTERIZATION PROTOCOL

Parameter	Container	Sample Amount [1]	Temperature	Holding Time Extraction/Analysis for Solid, Days
TCLP/SPLP Metals (except Mercury) [4,5] TCLP Mercury4,[4,5]	Glass, TFE Cap	500 gm [4]	> 0 ≤ 6°C	180/180 28/28
TCLP/SPLP Semivolatiles, Pesticides, Herbicides, Glycols4,[5]	Glass, TFE Cap	500 gm [4]	> 0 ≤ 6°C	14/7/40
TCLP/SPLP Volatiles [4,5]	Glass, TFE Cap	100 gm	> 0 ≤ 6°C	14/14
Reactivity	Glass, TFE Cap	50 gm	> 0 ≤ 6°C	14[2]
Corrosivity to Steel (Liquid Waste Only)	Glass, TFE Cap	500 mL	> 0 ≤ 6°C	14[2]
Corrosivity, pH	Glass, TFE Cap	50 gm	> 0 ≤ 6°C	14[2]
Ignitability	Glass, TFE Cap	200 gm	> 0 ≤ 6°C	14[2]
BTU	Glass, TFE Cap	5 gm	> 0 ≤ 6°C	14[2]
Chlorine, Total	Glass, TFE Cap	5 gm	> 0 ≤ 6°C	14[2]

[1] A 4 oz. Soil jar is expected to hold at least 125 grams of sample in most cases. For most Remediation projects collecting Bulk samples, one 2 oz. jar dedicated for Volatiles and an 8 oz. jar for Semivolatile Organics, Pesticides/PCBs, Metals, and Inorganics will be sufficient.

[2] Denotes ECI holding time. Regulatory specification is either “As Soon as Possible” or not given.

[3] Containers/Storage listed are for bulk sampling. For remediation projects, Client will need to provide QA Project Plan to specify container types/sampling method, storage.

[4] TCLP Metals, Semivolatiles, and Glycols are all performed from the same subsample. 500 grams of sample is required for any/all analyses. Tests are listed separately in chart due to different holding times. For most waste samples, one 4 oz. container dedicated for Volatiles and one 16 oz. container for all of the other common protocol is sufficient. However, for very low density material, such as cloth or paper, additional sample may be required. A dedicated container is required for Volatile analysis as per method 1311.

[5] Samples must not be refrigerated if refrigeration may lead to a permanent change in physical state.