



## ENVIRONMENTAL SAMPLING GUIDE

**This sampling guide presents only general information for commonly requested parameters in water, soil, or sediments samples. It is not possible to specify detailed sampling and preservation methods for the collection of all types of samples.**

The result of any test method is dependent on the condition on the sample on which it is performed. The primary objective of the sampling is to collect a portion of material that is small enough to be conveniently transported to and handled in the laboratory, while still being representative of the original material.

### General Sampling Guidelines

- Many laboratories provide routine sample containers, labels preservation chemicals and field filtration kits free of charge.
- The holding times listed are recommended maximum times that samples may be held between collection and extraction or analysis. Certain sample compositions may make the practical holding times shorter or longer
- A separate container is not required for each parameter requested. More than one parameter can be analysed from the same container if the recommended container type and preservation are the same.
- Appropriate precautions MUST be taken when using chemical preservatives. In general, avoid inhaling fumes and contact with skin, eyes and clothing.
- Contact Laboratory Quality Management Services P/L if more information is required.

### Water Samples

- Fill bottles leaving enough room to add preservatives, if required, and allow for mixing, unless "NO HEADSPACE" is specified.
- For parameters where "NO HEADSPACE" is required, it is important to minimise air bubbles in the sample. Fill each container carefully until a meniscus forms above the lip. Tighten the lid down over the meniscus. If any

significant bubbles are visible, the sample should be recollected using a fresh container.

- Sample preservation should be performed immediately upon collection. If preservation is not possible, keep samples cold (4°C) and deliver them to your analytical laboratory as soon as possible.
- If preservatives have already been added to the container (this will be identified on the label) DO NOT RINSE the containers prior to filling.

### Soil/Sediment Samples

- Soil or sediment samples are not preserved but should be kept cold (4°C).
- Fill containers as full as possible and use the appropriate lid.

### For all Samples

1. Seal sample containers well
2. Label all sample containers with non-removable markings
3. Keep all samples cold (4°C) but avoid freezing unless otherwise instructed.
4. Complete the laboratory sample submission or Chain of Custody forms with all required information
5. Pack samples carefully in an Esky to avoid sample breakage.
6. Send samples to your laboratory as soon as possible after collection

### References

- APHA Standard Methods for the Examination of Water and Wastewater, American Public Health Association
- EPA US Environmental Protection Agency. Test Methods for Evaluating Solid Wastes SW-846 and /or Methods and Guidance for the Analysis of Water Plastic (High Density Polyethylene or equivalent)
- P Plastic
- G Glass

PARAMETERS IN WATER	MINIMUM VOLUME	CONTAINER TYPE	PRESERVATION & STORAGE	HOLDING TIME (SAMPLE/ EXTRACT)
<b>Inorganic Parameters - Water</b>				
Acidity / Alkalinity	100mL	P or G	None	14 d
Ammonia	100mL	P or G	H <sub>2</sub> SO <sub>4</sub> <sup>(2,6)</sup>	28 d
Ammonia – low level	100mL	P or G	None	24 hrs
Bacteriological Tests	250mL	G Sterile	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	24 hrs
BOD	250mL	P or G	None	48 hrs
Chloride or Sulfate	100mL	P or G	None	28 d
Chromium IV	100mL	P or G	None	24 hrs
COD	50mL	P or G	H <sub>2</sub> SO <sub>4</sub> <sup>(2,6)</sup>	28 d
Colour	50mL	P or G	None	48 hrs
Conductivity	100mL	P or G	None	28 d
Cyanide	1000mL	P or G	NaOH, Dark <sup>(4,5,7)</sup>	14 d
Dissolved Oxygen	100mL	G	No Headspace/ Winkler Kit /Dark	8 hrs
Fluoride	100mL	P	None	28 d
Hardness	100mL	P or G	HNO <sub>3</sub> <sup>(2)</sup>	6 m
Metals, Dissolved	100mL	P or G	Filtration, HNO <sub>3</sub> <sup>(2,12)</sup>	6 m (after filtration)
Metals, Total	100mL	P or G	HNO <sub>3</sub> <sup>(2,12)</sup>	6m



PARAMETERS IN WATER	MINIMUM VOLUME	CONTAINER TYPE	PRESERVATION & STORAGE	HOLDING TIME (SAMPLE/ EXTRACT)
<b>Inorganic Parameters - Water</b>				
Mercury	100mL	P or G	HNO <sub>3</sub> <sup>(2)</sup>	28 d
Nitrate or Nitrite	100mL	P or G	None	48 hrs
Nitrate + Nitrite (N+N)	100mL	P or G	None or H <sub>2</sub> SO <sub>4</sub> <sup>(2, 8)</sup>	48 hrs / 28 d
pH	50mL	P or G	None	0.25 hrs
Phenols (4AAP, colorimetric)	100mL	P or G	H <sub>2</sub> SO <sub>4</sub> <sup>(2, 6)</sup>	28 d
Phosphate	100mL	P or G	None	48 hrs
Residual Chlorine	100mL	P or G	None	0.25 hrs
Solids (TDS / TSS)	250mL	P or G	None	7 d
Sulfide	100mL	P or G	Zinc acetate & NaOH	7 d
Surfactants	500mL	P or G	None	48 hrs
TKN / Organic N	100mL	P or G	H <sub>2</sub> SO <sub>4</sub> <sup>(2, 6)</sup>	28 d
TOC	100mL	G	H <sub>2</sub> SO <sub>4</sub> <sup>(2, 6)</sup>	28 d
Turbidity	100mL	P or G	Dark	48 hrs
<b>Organic Parameters - Water</b>				
Volatile Organics				
VOC, BETX, VPH, MTBE etc	2 x 40mL	G Vial, Teflon cap	No Headspace <sup>(1)</sup> H <sub>2</sub> SO <sub>4</sub> or HCl	7-14 d
Semi-Volatile (Extractable) Organics				
Phenolics (Chlorinated & Non-Chlorinated)	1000mL	G, Teflon cap	None <sup>(1)</sup>	7 d / 40 d
Extractable Petroleum Hydrocarbons (EPH)	500mL <sup>(9,11)</sup>	G, Teflon cap	None	7 d / 40 d
Oil & Grease (Total or Mineral)	500mL <sup>(9)</sup>	G, Teflon cap	H <sub>2</sub> SO <sub>4</sub> or HCl <sup>(2)</sup>	28 d / 40 d
Organochlorine Pesticides (OCP)	1000mL	G, Teflon cap	None <sup>(1)</sup>	7 d / 40 d
Organophosphorous Pesticides (OPP)	1000mL	G, Teflon cap	NaOH or H <sub>2</sub> SO <sub>4</sub> <sup>(3)</sup>	7 d / 40 d
Polycyclic Aromatic Hydrocarbons (PAH)	500mL <sup>(9,11)</sup>	G Amber, Teflon cap	Dark, None <sup>(1)</sup>	7 d / 40 d
Polychlorinated Biphenyls (PCB)	500mL	G, Teflon cap	None <sup>(1)</sup>	7 d / 40 d
Resin Acids / Fatty Acids	500mL	G, Teflon cap	None <sup>(1)</sup>	7 d / 40 d
Dioxins / Furans	1000mL	G Amber, Teflon cap	Dark, None <sup>(1,10)</sup>	30 d / 45 d
<b>Inorganic Parameters – Soil / Sediment</b>				
AVS /SEM	125 g	G	No Headspace	14 d
Particle Size	250 g	G or P	None	6 m
TOC or Moisture	125 g	G or P	None	14 d
Nitrogen, Total	125 g	G or P	None	28 d
Sulfides, Total	125 g	G or P	None	7 d
Metals	125 g	G	None	6 m
Mercury	125 g	G	None	28 d
<b>Organic Parameters – Soil / Sediment</b>				
Volatile Organics <sup>(13)</sup>	125 g	G, Teflon Lid	No Headspace	7-14 d / 40d
Semi-Volatile (Extractable) Organics <sup>(13)</sup>	125 g	G, Teflon Lid	None	14 d /40 d
Oil & Grease (Total or Mineral)	125 g	G, Teflon Lid	None	28 d/ 40 d

- For samples where free chlorine might be present, EPA recommends preservation with 80mg Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>/L sample.
- Adjust samples to pH<2 with specified acid.
- Adjust samples to pH 6-8 using NaOH or H<sub>2</sub>SO<sub>4</sub>
- If oxidising agents (eg. Chlorine) present add 0.1g NaAsO<sub>2</sub> /L. Refer APHA
- For samples where sulfide may be present, analyse immediately or pre-treat with PbCO<sub>3</sub>
- Analyse immediately if not preserved
- Adjust samples to pH>12 with NaOH

- When sample is preserved with acid, NO<sub>3</sub> & NO<sub>2</sub> cannot be determined as individual species
- Since the whole sample is used for analysis, laboratory replicates cannot be performed. It is recommended that a field duplicate be submitted.
- If sample has pH>9, adjust to pH7-9 with H<sub>2</sub>SO<sub>4</sub>
- EPH & PAH can be analysed from the same container and are required to calculate Light & Heavy Extractable Petroleum Hydrocarbons (LEPH & HEPH)