

# Sampling methods for chemical analysis of water samples



## taking the water sample

Correct sampling, storage and transportation are critical to the accuracy of analysis. Samples should be collected carefully to make sure the most representative sample possible is obtained—well mixed flowing water where possible. Use only clean containers for collecting samples, these are provided free of charge with analysis and can be picked up from MPL Laboratories.

## general and potable water and inorganic analysis

Samples for drinking water supplies should ideally be taken at both the source of supply and at a tap commonly used. The water should be allowed to run for several minutes to flush the system and the sample container should be flushed with water before collecting the sample.

Water samples from wells/bores should be collected after the pump has run long enough to deliver water representative of ground water; this will avoid collection of stagnant water.

Plastic bottles are normally sufficient for this type of sampling. A 500mL sample is required which should be filled to the top to exclude air, forwarded for analysis within 24 hours and kept cool if possible.

## mpl laboratories drinking water (dwa)

500mL unpreserved plastic bottle

Analysis includes pH, Electrical Conductivity, Total Dissolved Salts, Sodium, Potassium, Calcium, Magnesium, Cadmium, Copper, Iron, Manganese, Lead, Chloride, Sulfate, Nitrite, Nitrate, Bicarbonate, Carbonate and Hydroxide. Results are reported versus Australian Drinking water guidelines.

## mpl laboratories extended water analysis (ewa)

500mL unpreserved plus 100mL glass bottle specially preserved for Mercury, Analysis includes all parameters listed for DWA plus Aluminium, Boron, Barium, Beryllium, Cobalt, Chromium, Molybdenum, Nickel, Silicon, Strontium, Titanium, Vanadium, Zinc, Arsenic, Mercury and Selenium.

## mpl laboratories potable water analysis (dwa + standard micro)

500mL unpreserved plastic bottle and 500mL plastic sterilised (for Microbiological)

Standard Micro covers analysis for Total Plate Count, Total Coliforms, Thermotolerant Coliforms, Faecal Enterococci and E.Coli. Results for all analysis given versus drinking water guidelines. Other specific analysis types (eg microbiological or organics analysis) require different sample bottles as given below in the sample preservation information.

It is important to use the correct containers. If not, the analysis may be adversely affected. This table is taken from AS5667.1

ANALYTE	CONTAINER	PRESERVATIVE	TRANSPORTATION
pH, EC, Alkalinity	Polythene	Fill to exclude air	Transport Chilled to lab ASAP
BOD, COD, NH <sub>3</sub> , NO <sub>2</sub> , NO <sub>3</sub> , NO <sub>x</sub> , PO <sub>4</sub> , Total Nitrogen, Total Phosphorus	Polythene	Fill to exclude air	Store at 1 to 4°C, transport to lab within 24 hrs
Oil & Grease	Glass 500mL	None	Store at 1° to 4°C
Hydrocarbons, other organics	Glass 500mL	None	Store at 1° to 4°C
B, Br, Cl, K, Ca, Mg, Na, F, Si, TDS, Turbidity, SO <sub>4</sub>	Polythene	None	None
Al, As, Ba, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Ni, Se, Zn	Polythene	Acidify with 1mL HNO <sub>3</sub> to pH<2	None
Mercury	Brown Glass 100mL	Acidify with HNO <sub>3</sub> /K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub>	None
Sulphide	Polythene	Field Filter and preserve with zinc acetate/NaOH	Store at 1° to 4°C
Ferrous Iron	Polythene	Field filter and acidify with HCl. Exclude air	None
Legionella	Sterile PET	Sodium thiosulphate	Store at 1 to 4°C, transport to lab within 24 hrs
Bacterial (micro testing)	Sterile PET	Sodium thiosulphate	Store at 1 to 4°C, transport to lab within 24 hrs
Cyanide Species	Black Polythene	Adjust pH to > 11.5 with NaOH, if H <sub>2</sub> S present add PbCO <sub>3</sub>	Store at 1 to 4°C, transport to lab within 24 hrs
TOC	100mL Glass	None	Transport Chilled to lab within 1 week.