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Non-microbial non-compliant drinking water sample

How are Australian safety standards for drinking water set?

The Australian Drinking Water Guidelines (ADWG) define what is considered safe for human consumption in Australia.

They set safe levels for various substances in drinking water, known as Health-Based Guideline Values (HBGV). These safe levels are concentrations of substances that a person can consume regularly over a lifetime without a significant risk to health. Occasional exceedances above these values are unlikely to be harmful.

The Guidelines can be located at Australian Drinking Water Guidelines (nhmrc.gov.au).

What units are used to measure water quality?

Test results for non-microbiological parameters are reported in concentration units, which are based on the laboratory's Limit of Reporting (LoR). Tests for different substances have different LoRs and are influenced by the sensitivity of the testing equipment. Laboratories report how much of the tested material (as weight) is contained in one litre (L) of water.
Some common units include:

- ng/L -nanograms per litre; this is 1,000 times smaller than 1 µg/L and the concentration is often referred to as parts per trillion (ppt).
- µg/L - micrograms per litre; the concentration is often referred to as parts per billion (ppb).
- mg/L -milligrams per litre; this is 1,000 times larger than 1 µg/L. This concentration is often referred to as parts per million (ppm).

The ADWG uses all three of these concentrations. You will need to make sure your units are the same if you make a comparison of your test result against the ADWG HBGV. Here's a simple conversion rule to help with unit comparison:

- 1 mg/L = 1,000 µg/L = 1,000,000 ng/L
- 1 ng/L = 0.001 µg/L = 0.000001 mg/L.

What does it mean if my water sample is above the ADWG values?

If your water sample contains concentrations above the guideline value, it may not be safe to consume. Some vulnerable populations may be at a greater risk, such as pregnant women, lactating mothers, infants (both breast-fed and bottle-fed), children, older people, or people who are sick or with weakened immune systems.

If your test result is the same as the guideline value, it is considered safe. However, if the concentration is close to or at the guideline value, it may indicate issues with your water supply and a resample should be taken as the first step of investigating the cause.

What should I do?

If you are on the TasWater reticulated network, you should contact TasWater on 136 992.A

As a precaution you should stop using this water for all forms of human consumption until the contamination source can be investigated and corrected by a licensed plumber. You may like to discuss your results with Public Health Services (see more information for contact details).

You should use packaged water (bottle or cask) or an alternate source of clean drinking water instead.

What is human consumption?

Human consumption includes:

- drinking
- washing and preparing food and beverages
- making ice
- making baby formula
- brushing teeth

What can I use the non-compliant water for?

Non-compliant water can still be used for other domestic purposes, such as:

- bathing (but supervise children to prevent them from drinking it), however some substances can cause skin irritation particularly in individuals with sensitive skin (see below for contact details to get specific advice)
- washing dishes (allow to air-dry afterward)
- washing laundry
- garden irrigation (ensure vegetables are washed with clean water before eating).

What should I do next?

Boiling the water does not make it safe to consume. There may be suitable treatment options for medium and long-term solutions, depending on your results.

If you use rainwater tanks, go to Rainwater tanks (health.tas.gov.au) and check enHealth guidance – Guidance on the use of rainwater tanks (health.gov.au).

You can also discuss treatment options with a licensed plumber who may install a point-of-use filter to treat your water. You should check with your local council to ensure that any changes to your collection and storage arrangements do not require any plumbing approvals.

Before using your water again, it's a good idea to re-test it to confirm that the contamination has been removed.

Why is my water contaminated?

Water can be contaminated by a range of man-made and natural substances, including chemicals used for water treatment, petroleum chemicals, toxins produced by bacteria, farming chemicals, dust, ash from fires, firefighting chemicals, and metals (see next section).

Water can also be contaminated from microbiological activity. For advice on microbiological contamination of drinking water, refer to *E. coli* in drinking water fact sheet (health.tas.gov.au).

Contamination can occur at the water's source, in the storage, in the pipes, or in your home plumbing.

What about metals in water?

Water can be contaminated from plumbing fittings and fixtures, especially if it has been stagnant for long periods of time. If your test results show high concentrations of metals, they may not represent the water quality you're drinking. Plumbing related metals include nickel, copper, lead, and manganese.

To avoid this, flush taps for at least 10 seconds each morning. If the water has been stagnant for more than 48 hours (eg. returning from holidays), flush the taps for at least two minutes. This draws fresh water through your plumbing system.

What is the laboratory Measurement of Uncertainty (MoU)?

Laboratory tests always have some level of uncertainty in their results. Multiple tests of the same sample will not always give the same result. When results are reported, they typically include a range of values, known as the Measurement of Uncertainty (MoU), to show the level of confidence in the true value. This confidence is usually set at 95%.

For example, if a lead (Pb) concentration is reported as 9.2 ± 1.3 µg/L, it means there is a 95% chance that the true concentration of lead falls between 7.9 and 10.5 µg/L.

Why has the laboratory notified the Department of Health about my non-compliant drinking water sample?

Under the Public Health Act 1997, Tasmanian water testing laboratories must notify the Director of Public Health whenever a drinking water sample does not meet Australian safety standards. These standards are set out in the Australian Drinking Water Guidelines.

The laboratory will also notify you directly.

More information

Visit the Department of Health web page on Drinking water quality (health.tas.gov.au)

Phone the Public Health Hotline on 1800 671 738 and ask to speak with the State Water Officer during business hours or the Senior Environmental Health Officer outside of office hours if your matter is urgent.