eurofins

Potable Water Testing

Really Local. Truly Global.

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Summary of suites: price includes bottle delivery on standard courier routes.

PLEASE NOTE: If you do not have an account with us, payment must be made prior to testing. Please arrange for internet banking to our account: 020528-0513672-00.

Purpose
Domestic water suite with *E coli*
Domestic water suite without *E coli*
DWSNZ ground water suite
E. coli /Total Coliforms

Introduction

Eurofins is New Zealand's leading laboratory network in the areas of Food, Water and Environmental testing and sampling services. We have been providing these services in New Zealand for over 20 years.

Eurofins Scientific is the world leader in the fields of food testing and environmental laboratory services. It is also number one in the world in pharmaceutical products testing and one of the global market leaders in agroscience, genomics, pharmaceutical discovery, and central laboratory services.

We understand that New Zealand food companies pride themselves in producing good quality, high grade items for consumption in both the domestic and export markets. Our aim is to work with you by providing premium quality testing support services for your quality control requirements and brand protection needs.

We have strategically positioned laboratory facilities in Auckland, Taupo, Hastings, Wellington, Christchurch and Dunedin, offering a comprehensive scope of sampling and testing services whilst ensuring that samples from around New Zealand are processed into the laboratory as fast as possible.

Areas that we specialise in are as follows:

- Food and Feed Testing
- Food Safety and Auditing
- Fruit Quality Services
- Agricultural Testing
- Environment Testing
- Contaminated Land
- Agroscience Services
- Pharma Development
- Consumer Product Testing

Who should use this brochure?

Drinking water and its quality is very important to everybody. Poor quality drinking water can cause illness and even death, and New Zealand's small supplies are just as invulnerable to an outbreak as any country.

Small water supplies are supplies that serve fewer than 500 people. Most are privately owned, by one or many stakeholders. In many cases the infrastructure, treatment and maintenance are not up to required standards.

This brochure has been developed to assist operators of small water systems, schools, dairy farmers, food premises owners, tankered water providers, and ice manufacturers. A section is included for water treatment companies who can use the lab results to install appropriate treatments.

Small Community and Individual Drinking Water Supplies

Many New Zealanders rely on untreated water sources such as bores, springs, streams and roof supplies to meet our drinking, washing and food preparation needs. 22% of New Zealanders are currently drinking water that is either contaminated by faecal matter (4%) or of unknown quality (18%).

There are three main types of source water used for drinking:

- roof water – rainwater that is stored for future use
- surface water – streams, rivers, lakes and shallow springs and bores
- groundwater – particularly deep bores not affected by surface changes

While any test that we perform is a snapshot of the moment of sampling, we are still able to provide you with an indication of the water quality you may have at that particular time. Our test suites are based on the various requirements of the Drinking Water Standards New Zealand (DWSNZ).

Domestic Water Suite

This suite of tests is one which homeowners can use to determine the quality of their water supply - surface, ground or roof water. The suite measures a wide range of likely contaminants including:

- *E. coli* (and Total Coliforms)
- Chloride, Sulphate and Nitrate
- Arsenic, Boron, Calcium, Copper, Iron, Magnesium, Manganese, Potassium, Silica, Sodium, Zinc and Total Hardness
- pH, Conductivity, Turbidity and Alkalinity

The suite can also be tested without *E. coli*

E. coli only

We do not recommend testing drinking water sources such as creeks, springs, or roof supplies for *E. coli*. Our reasoning is that the source could become contaminated at any time and that homeowners should consider their water to be contaminated and take the necessary precautions.

Should you wish to check your water for *E. coli* we are happy to do so given the above considerations.

Rural Agricultural Water Supply Headworks

Monitoring at the Rural Agricultural Water Supply headworks must include (but is not limited to) the following test parameters

Arsenic	Associated with geothermal areas, mining or timber treatment areas, and can appear in other groundwaters.
Boron	Associated with geothermal areas.
Cadmium	A heavy metal found in fertiliser.
Chloride	High levels indicate seawater intrusion and will also affect taste and corrosiveness of the water.
Copper	
Iron	Common in many water sources and can cause taste and staining problems.
Manganese	Common in many water sources and can cause taste and staining problems.
Nitrate	Elevated levels can affect the health of infants
Phosphorus	Phosphate is an inorganic chemical that is present in water due to the weathering of rocks or from fertiliser.
Potassium	Dairy effluent contamination indicator.
Selenium	Selenium in found in New Zealand soils in low concentrations and is increased trough the use of fertilisers.
Sodium	Sodium is usually present in water sources as sodium chloride. High levels indicate seawater intrusion

Sample Bottles

The fastest way to get a sample to us is to purchase a bottle of water of 600mL or larger volume (plastic bottle, any brand). Tip the water into a cup, and refill the bottle with the water you want tested. Make sure you collect the water from the tap you drink from after flushing for at least two minutes.

Courier the sample to our address on the back page.

Lead from your taps

The Ministry of Health has identified that New Zealand has naturally acidic water that can dissolve metals such as lead out of your taps while sitting for long periods of time. The Ministry has therefore recommended that everybody flushes a cup full of water each morning before collecting your first drink of water. This also applies if you are filling kettles.

Ensuring good quality water from your tanks

There are many ways of treating water supplied from tanks:

Budget brand, unscented Bleach is a chlorine-based disinfectant. As a water disinfectant, it is very effective at killing a wide range of bacteria, but not Cryptosporidium. Bleach works quickly and when dosed and mixed well at the correct level is virtually tasteless. However, it is worth noting that chlorine can react with organic matter in the tank to form a strong tasting compound, so it is important that the tank is maintained and kept clear of sludge build-up.

To determine how much is needed to sterilise a tank, multiply the volume in litres by 0.033 to get the amount of bleach to use in mL. eg: a 38,000L tank will require 1,254mL of bleach to achieve a chlorine level of 1g/m3.

Please note that: Budget brand unscented bleaches are not recommended by Civil Defence and that because it contains detergents, Janola is not recommended.

For more information: http://www.getthru.govt.nz/how-to-get-ready/how-to-store-water/

Ultra-Violet treatment is becoming popular and is being used in water supplies serving increasingly large populations such as towns and cities. Models are available for domestic supplies.

Filters are being sold as a way to treat tank-water, but please read the fine print if you are considering this option. Most filters will only remove bad tastes and will not remove harmful bacteria. In fact – some filters can make the problem worse, by allowing the build-up of the bugs you are trying to remove.

A recent Massey University study showed that 71% of rural homes on a tank supply and using filters were contaminated with *E. coli.*

Other options include boiling your water, buying bottled water, or collecting water from your workplace. Whichever option you choose, please remember your decision will protect your family from a range of potential microbiological contaminants.

Detailed Water Quality Suite

This suite of tests has been designed for two purposes. First of all, it gives a very detailed breakdown of your water quality.

Secondly, because the suite has been established by laboratory and water treatment experts, it provides information that will allow you to set-up a treatment system. If you are testing for this reason it is important to sample at a time that the water is at its worst quality – after heavy rainfall. It may also pay to repeat the tests several times to ensure your water quality is measured under varying conditions.

Test	**Notes**
Arsenic	Associated with geothermal, mining or timber treatment
Boron	Associated with geothermal areas.
Bromide	Forms bromate when oxidised by ozone.
Calcium	Is required in order to calculate the calcium hardness
Calcium hardness	Determination of the calcium component of the water hardness. Is required for the saturation index.
Chloride	High levels indicate seawater intrusion, and will also affect taste and corrosiveness of the water.
Conductivity	Useful water quality parameter, and is used in the calculation of saturation index.
E.coli	Indicator of faecal contamination
Fluoride	Common in some water sources, is good for health at low levels, but not so good at elevated levels.
Iron (Dissolved)	Common in many water sources and can cause taste and staining problems.
Iron (Total)	Total iron is included for treatment information.
Magnesium	Is required in order to calculate the total hardness
Manganese (Dissolved)	Common in many water sources and can cause taste and staining problems.
Manganese (Total)	Total manganese is included for treatment information.
Nitrate	Elevated levels can affect the health of infants
Nitrite	Indicator of the likely contamination by human or animal waste.
pH	Useful water quality parameter, and is used in the calculation of saturation index.
Potassium	Dairy effluent contamination indicator.
Suspended solids	Needs to be below 5 mg/L for UV lamps.
T_{254}	Transmission of UV light at 254nm. Useful for determining suitability of UV treatment.
Total alkalinity	Useful water quality parameter, and is used in the calculation of saturation index.
Total hardness	Calculated from the calcium and magnesium tests. This is an indicator of likely scale formation in pipes.
Turbidity	Low turbidity needed for clarity and UV treatment.

The tests can be used on all common water sources such as Roof, Surface and Ground as summarised below:

Roof Water

Contrary to popular opinion, roof water supplies have caused many illnesses due to micro-organisms. Here are a few tips for reducing the risk of getting sick.

- Keep the roof and gutters clean.
- Install a first-flush diverter.
- Don't bury the storage tank or pipework.
- Ensure the tank is securely covered, and that birds or animals (or their wastes) can't get in. The cover should always be locked.

Because roof water may contain micro-organisms it usually needs to be disinfected before you can drink it. If you can, arrange for the storage tanks to be in series (one after the other). Then drinking water should be drawn from the last tank, because it will be have fewer microorganisms than the first tank.

There are more micro-organisms in the sludge in the bottom of the tank than near the surface, so you should de-sludge your storage tanks regularly.

If you think there may have been pesticide spray drift around your house, you should rinse the roof off, and make sure the rinsed water goes into your wastewater. We can arrange for pesticide testing if you require it.

Surface Water

All surface waters contain bugs (which we call micro-organisms), although some water is more often and more badly contaminated than other water. A catchment is the surface run-off area for the local rainfall. Water flowing over the ground can become contaminated with various things. You find more micro-organisms in catchments where there are human wastes (from septic tanks and wastewater treatment plants) and animal wastes.

Groundwater

Care must be taken when defining a groundwater source. While springs are often described as a groundwater the source of the spring may be only a few metres away and above ground. Wherever you are unsure of the source of your groundwater, always treat it as though it is surface water and therefore likely to be contaminated. Most groundwater supplies are not secure and cannot be considered safe to drink unless proven by laboratory analysis.

If you use groundwater for your water source, and you live near hydrothermal or geothermal areas, your water may contain above-average concentrations of boron, fluoride, and arsenic.

Groundwater from areas that have a lot of farming, orchards and market gardens, may contain levels of nitrate higher than the maximum acceptable value (or MAV). This usually only affects infants.

Food Premises Process Water

The New Zealand Food Safety Authority (NZFSA) requires food processing and export premises to conduct testing on the water used in their processes. The type and frequency of testing is dictated by NZFSA for the particular premises, depending on the premises type and volume of water used. It is critical for premises to conduct their water testing on an ongoing basis, as without the necessary testing a premise can be closed by NZFSA.

Eurofins is IANZ and LAS (formerly MILAB) accredited to perform a full range of water testing on food premises supplies.

Please contact us for further information.

Some specific industries have sets of tests already predetermined for that industry. Some examples include:

Winery Production Water

Under the NZFSA scope of accreditation, we are able to test water used for wine production. The tests required are

- *E.coli*
- Turbidity

Honey and Bee products Production Water

Under the NZFSA scope of accreditation, we are able to test water used for honey production. The tests are required to show if the water characteristics change after rain.

- *E. coli* and Total coliforms
- pH
- Turbidity

Orchard Production Water

Orchards that use water to wash fruit are required to demonstrate that the water is free of *E.coli.*

Egg Production Water

We are able to test water used for egg washing and production. The tests required are

- *E. coli* and Total coliforms
- pH
- Turbidity

Water Tankers

The Ministry of Health has identified that a large number of New Zealanders receive their drinking water from tankered water suppliers. The operation of these services and quality of water they supply will be included in the Drinking Water Standards NZ.

While usually seasonal it is still an important part of the drinking water system within New Zealand. The regulations apply to all tankered water suppliers and their customers:

- Use a registered tankered water provider.
- The tanker operator is required to provide upon delivery a written statement stating the delivery date and volume of water as well as the source and class of that water.
- Avoid using water from creeks or streams that may be contaminated.
- Avoid using any non-registered operator that may have used his tank for other purposes (such as emptying a septic tank) before delivering your water.

Please note that when the water is emptied into your tank it will stir up all the sediment at the bottom. This may cause contamination to spread through your pipes and into your drinking water. Also, if there is chlorine present in the tankered water, this will react with the sediment and cause a bad taste.

For these reasons, it is very important to stop anything other than water entering your water tank and for you to clean it out on a regular basis. Refer to the roof water section on page 8.

Following Ministry of Health guidelines, we can provide approved testing for water companies who use tankers to deliver water, as well as for their customers wishing to check the quality of water they have paid for.

Ice

Ice is a water product that is not included in the drinking water standards because it is considered a food. However, no food standard yet specifically covers ice, so we offer a microbiological suite recommended by our own analysts.

- *E.coli*
- Total Coliforms
- Heterotrophic plate counts at 22°C and 35°C

Sampling and Delivery Details

"The result of any test can be no better than the sample on which it is performed".

The objective of sampling is to collect a portion of material small enough in volume to be transported conveniently and handled in the laboratory while still accurately representing the material being sampled.

Sampling is an often underestimated but very crucial step in the process of determining sample integrity.

Sending Packages of Samples to Eurofins

After you have read this brochure and decided which suite you require, please fill a new 500mL or larger water bottle such as Pump, and courier it to us. For more complex sampling please contact us to arrange the delivery of bottles to you.

You will receive the bottles within a few days. Please fill them up following the instructions and then send back to us within 24 hours. We will process the samples and deliver a report within 10 working days.

- Please freeze the ice pack prior to taking sample.
- At time of sampling, fill all sample bottles provided including 'Temperature Control' bottle if included.
- Complete the submission form and the bottle labels with permanent pen.
- Courier the completed kit to us, to be received within 24 hours of sampling.

Contact

Telephone: 0800 387 63467
Email: infonz@eurofins.com
Web: www.eurofins.co.nz

Courier

Auckland
35 O'Rorke Road, Penrose, Auckland 1061

Taupo
150 Rickit Street, Taupo 3330

Wellington
85 Port Road, Seaview, Lower Hutt 5010

Hamilton
12-14 Pukete Road, Te Rapa, Hamilton 3240

Hastings
1139 Maraekakaho Road, Longlands, Hastings 4175

Christchurch
43 Detroit Drive, Rolleston 7675

Dunedin
16 Lorne Street, South Dunedin 9012