eurofins

Meat Processing Services

Really Local. Truly Global.

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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 in providing premium quality testing support services for your quality control requirements and brand protection needs.

We have strategically positioned laboratory facilities in Auckland, Hastings, Taupo, Wellington, Christchurch and Dunedin, offering a full 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 read this brochure?

This brochure has been prepared for all exporters of meat and meat products. It includes all water quality details required by the Overseas Market Access Requirement (OMAR).

As one of New Zealand's leading laboratories we are able to perform all the analytical requirements needed to maintain export status, including water and effluent tests, product and NMD data entry.

Meat Processing Testing

It can be said that a finished-product is only as good as its individual components. A meat processing plant has many contributing processes that can affect the final quality of that product including, water, steam and cooling tower quality. Eurofins offers a full IANZ and RLP accredited testing service for all these important meat works areas.

Water Potability
A large component of all food types is water. It is used as an ingredient as well as for washing equipment. Some supplies are sourced from industry owned bores and treatment plants, while others come directly from a council supply, however all water should be analysed at any point where it comes in contact with a product.

The next release of the NZ Drinking Water Standards will place a mandated requirement on all water producers to comply with all process, monitoring, and compliance procedures contained in that standard. This has the potential to greatly change the operation of New Zealand's potable water production. Eurofins is happy to assist you with this change.

Water quality can change as it passes through a delivery or reticulation system, so it is important to check for various parameters that can affect the quality of your product. This should not be limited to microbiological quality as some chemical parameters can impart unwanted tastes or colours to the product.

Meat Processors are also required to comply with the Human Consumption Specs, and routinely perform Faecal Coliform, pH, Turbidity, and Chlorine monitoring as required. Eurofins can assist you with these analyses and will streamline the HC and EU OMAR analyses to minimise costs wherever possible.

Boiler Water
Boiler water should be monitored routinely by an independent IANZ-registered laboratory. Recommended tests include pH, Total Dissolved Solids, Sulphite, alkalinity species, and Phosphate. Eurofins is IANZ accredited to perform these tests, and can provide you with a full boiler testing service.

Cooling Towers
Eurofins offers cooling tower water analysis

- Legionella
- Heterotrophic Plate Count

Overseas Market Access Requirements (OMAR)

Documented Overseas Market Access Requirement takes effect for all export meat and fish premises. The OMAR includes a section on potable water quality that has two different suites of tests named: Group A and Group B.

The testing required by the OMAR covers only that portion of water used for processing. You may also be required to perform testing to meet the New Zealand Drinking Water Standards (NZDWS). Where a requirement overlaps, and the NZDWS level is stricter then this takes precedence.

Eurofins will provide a complete service for all tests required by and described in the EU OMAR as well as the Human Consumption Specs.

Frequency of testing
Frequency of testing is the first issue that will affect most exporters. The frequency of testing is still governed by the volume of water used, but extra bands have been included to minimise the impact on smaller premises.

<table>
<tr><th>Daily Water Usage
m^3</th><th>Group A
(Samples per year)</th><th>Group B
(Samples per year)</th></tr>
<tr><td>less than or equal to 100</td><td>>0</td><td>>0</td></tr>
<tr><td>More than 100 but less than or equal to 1,000</td><td rowspan="3">4

+ 3 for each 1,000 m^3/day and part thereof of the total volume</td><td>1</td></tr>
<tr><td>More than 1,000 but less than or equal to 10,000</td><td>1
+ 1 for each 4,500 m^3/day and part thereof of the total volume</td></tr>
<tr><td>More than 10,000 but less than or equal to 100,000</td><td>3
+ 1 for each 10,000 m^3/day and part thereof of the total volume</td></tr>
<tr><td>More than 100,000</td><td>12
+ 1 for each 25,000 m^3/day and part thereof of the total volume</td></tr>
</table>

Therefore a plant that uses 10,000 m^3 a day will be required to perform 34 Group A samples and 4 Group B samples per annum. Because the Group A Monitoring is included with the Group B Monitoring the count reduces to 30.

In addition to the usual tests listed in the OMAR is a requirement to test a comprehensive suite of pesticides 5 yearly. This can be included in one of the Group B Monitoring suites for that year.

Some Potable Water Test Explanations

Many different tests and units have been used in the OMAR, which may cause confusion. The following guide should assist you:

Conductivity
There are many different units for reporting conductivity and you may have seen one or more of the following

mS/m	Milli-siemens per metre (our standard unit)
mS/cm	Milli-siemens per centimetre
uS/m	Micro-siemens per metre
uS/cm	Micro-siemens per centimetre

The OMAR allows an equivalent conductivity of 275 mS/m. To compare this, most potable water supplies have a very low conductivity of around 20 mS/m.

Aesthetically acceptable
This is a term not usually used by laboratories because we prefer to use real numbers that can be compared to other real numbers. The tests listed in the OMAR with this requirement are Colour, Odour, Taste, and Turbidity.

Colour
We measure colour using a spectrophotometer, and report as True Colour Units as defined by the NZDWS.

Taste and Odour
We ask that the person collecting the samples drink some of the water and to include a comment on its taste and odour. If the quality is acceptable, we include this on our report.

Turbidity
Turbidity is required by the OMAR to be aesthetically acceptable. Eurofins follows the guidelines of the New Zealand drinking Water Standards (NZDWS) and uses a level of 5 NTU. Nephelometric Turbidity Units are measured on a dedicated turbidity machine and numbers above 5 indicate a level of light scattering particles.

pH
The OMAR calls this test Hydrogen Ion Concentration.

The range allowed for pH is 6.5 to 9.5 but you need to be aware that above a pH of 8.3, chlorine is almost useless as a disinfectant. For example, at pH 9.0 you will need a chlorine concentration of 1.4 g/m3 to provide the disinfection equivalent of 0.2 g/m3. The optimum pH for effective chlorine disinfection is 8.0.

Reporting Units and Maximum Limits
Over the years, various reporting units have been used including g/m^3 and mg/m^3, mg/L and µg/L.

The units can be described as:

g/m^3 are the same as mg/L and parts per million (ppm)
mg/m^3 are the same as µg/L and parts per billion (ppb).

Some of the limits have dropped significantly and will challenge the ability of some laboratory instruments. It is commonly accepted that an instrument should have an operating detection limit of 5 times lower than the MAV it is measuring. This means that some metals will require ICP-MS technology to satisfactorily detect the OMAR limits.

Using other techniques may increase the risk of false positives due to an increase in uncertainty at that level.

Pesticides
The 2016 OMAR changed the number and types of pesticides residues required.

The Group B suite of tests has seen the removal of four organic compounds

- Diquat
- Diazinon
- Permethrin
- Bentazone

The following seven compounds have been added, and these must be included in the laboratory test-suite from 1 November 2016.

- Aldicarb
- Molinate
- Propazine
- Terbacil
- Isoproturon
- Primisulfuron-methyl
- Pyriproxifen

These changes affect the 5-Yearly pesticides screen.

The removal of the Diquat test from the requirements will reduce the price of the 5 yearly pesticide testing.

The Group A tests will be updated when the OMAR was ratified, and the new Group B tests are included before the 1 November 2016 deadline.

OMAR Water Suite Details

The full list of Group A parameters is as follows:

- E. coli
- Coliform bacteria
- Colony Count at 22ºC
- Colour
- Turbidity
- Odour (on-site test)
- Conductivity
- pH
- Nitrite
- Aluminium
- Ammonium
- Clostridium perfringens

The cost of each test in the Group A Suite is listed on the Eurofins sample submission form.

The Group B Suite includes the following parameters. Please note that we have replaced the oxidisability test with TOC and that pesticides are listed as a separate suite below. As well as the tests listed below, a Group B Suite includes all the parameters in the Group A Suite.

- 1-2 dichloroethane
- Benzene
- Epichlorhydrin
- Tetrachloroethane and Trichloroethane
- Trihalomethanes - Total
- Vinyl chloride
- Total Pesticides
- Colour
- Conductivity @25'C
- Cyanide
- pH (hydrogen ion concentration)
- Total Organic Carbon (oxidisability)
- Turbidity
- Bromate
- Chloride
- Fluoride
- Nitrate Nitrogen
- Sulphate
- Ammonia Nitrogen
- Nitrite Nitrogen
- Mercury
- Aluminium
- Antimony
- Arsenic
- Boron
- Cadmium
- Chromium
- Copper
- Iron
- Lead
- Manganese
- Nickel
- Selenium
- Sodium
- Clostridium perfringens
- Coliform bacteria
- Colony Count at 22’C
- E.coli
- Acrylamide
- Benzo(a)pyrene
- Polycyclic aromatic hydrocarbons

Because of the important nature of the suite, Eurofins recommends that you send us ALL the analyses required for the Audit Suite, however this is not essential. It is possible for you to complete some tests in-house and get us to perform the remainder.

The price for the routine audit testing will depend on the tests you require us to complete – please check the sample submission form for details.

PLEASE NOTE - All microbiological samples used for compliance purposes will include a check to ensure the delivery temperature remains below 10'C. We will record on our report the temperature of the sample as it is received.

Every five years you will also need to analyse for the following pesticides.

- Chlorotoluron
- Diuron
- Thiabendazole
- 1080
- 2,4,5-T
- 2,4-D
- 2,4-DB
- Dichloroprop
- Fenoprop
- MCPA
- Mecoprop
- Pentachlorophenol
- Picloram
- Triclopyr
- 1,2-dibromo-3-chloropropane
- 1,2-dibromoethane
- 1,2-dichloropropane
- 1,3-dichloropropene cis
- 1,3-dichloropropene trans
- Aldrin + dieldrin
- Chlordane
- DDT + isomers
- Endrin
- Heptachlor and heptachlor epoxide
- Hexachlorobenzene
- Lindane
- Methoxychlor
- Procymidone
- Alachlor
- Aldicarb
- Atrazine
- Bromacil
- Carbofuran
- Cyanazine
- Hexazinone
- Isoproturon
- Metalaxyl
- Metolachor
- Metribuzin
- Molinate
- Oryzalin
- Oxadiazon
- Pendimethalin
- Primisulfuron methyl
- Propazine
- Pyriproxifen
- Simazine
- Terbacil
- Terbuthylazine
- Trifluralin
- Azinphos methyl
- Chlorpyriphos
- Dimethoate
- Pirimiphos methyl

The Eurofins sample submission form lists all the tests required for Group B monitoring, and it is the responsibility of each premise to tell their laboratory what tests to perform. All you need to do is tick either the individual test you require (or the full suite), then fax the form to us. We will send you the bottles you need to complete the sampling.

The price for each Group B suite will differ according to the tests you require.

If you have any queries about this process your MAF VA can assist. Alternatively, Eurofins maintains close contact with all relevant authorities and can also assist you where required.

Pesticide Residues

In addition to the above extensive testing packages, Eurofins offers one of New Zealand's largest pesticides residues suites, with over 500 compounds available.

Matrices include water and food products.

Clarifying Reporting Units

The units and limits shown in the OMAR are different from standard laboratory reporting units for nitrate, nitrite and ammonia tests. Eurofins reports use different maximum limits that are derived from the mathematics shown below.

Nitrate
Nitrate results are expressed by laboratories as NO_3-N which is not the same unit as the NO_3 used in the OMAR.

The OMAR limit for nitrate is 50 g/m^3 expressed as NO_3. We can mathematically determine the limit when reporting as NO_3-N using the formula:

$$50 \times 14/62 = 11.3 \text{ g/m}^3$$

Where: 50 is the OMAR limit
14 is the atomic weight of Nitrogen
62 is the atomic weight of Nitrate (NO_3)

Nitrite
Nitrate results are expressed by laboratories as NO_2-N which is not the same unit as the NO_2 used in the OMAR.

The OMAR limit for nitrite is 0.5 g/m^3 expressed as NO_2. We can mathematically determine the limit when reporting as NO_2-N using the formula:

$$0.5 \times 14/46 = 0.15 \text{ g/m}^3$$

Where: 0.5 is the OMAR limit
14 is the atomic weight of Nitrogen
46 is the atomic weight of Nitrate (NO_2)

Ammonia
Ammonia results are expressed by laboratories as ammonia-nitrogen which is not the same unit as ammonia used in the OMAR.

The OMAR limit for ammonia is 0.5 g/m^3 expressed as ammonium. We can mathematically determine the limit when reporting as ammonia-nitrogen using the formula:

$$0.5 \times 14/18 = 0.39 \text{ g/m}^3$$

Where: 0.5 is the OMAR limit
14 is the atomic weight of Nitrogen
18 is the atomic weight of Ammonium (NH_4)

Meat Processing Processes

On Site Hygiene Checks
Eurofins is accredited to perform plant hygiene evaluations on site by collecting plant and equipment swabs as well as air quality data. The quality system of each food processor should include regular hygiene checks to ensure the product is produced in a clean environment using clean equipment.

For local clients our service can include regular visits by our own sampling staff.

NMD Sampler Training
Eurofins has certified trainers on staff that perform on-site training of meat-works sample collection staff.

It is a requirement that an authorised trainer conducts sampler training and that the trainer retains all records. Eurofins is accredited to ISO17025, which requires very strict records management. All training and records management will be conducted under this management structure.

NMD Data Entry
Data can be extracted directly from our Laboratory Information Management System (LIMS) into Excel for reporting or into a format compatible with your own database. The reports we produce are very flexible and are designed with our clients' use, in mind.

As part of our contracted analytical service we enter data into the NMD database at no extra cost.

Meat Processing Products

Meat Processors manufacture a wide range of products, of which meat is only part. Eurofins offers a full range of chemical and microbiological tests that covers all products manufactured.

Eurofins is registered under the MPI RLP Program, and has been assisting meat companies with the certification of export product for many years. Our meat testing scope includes Bovine, Ovine, Cervine, Caprine, and Porcine.

We can provide sampling equipment such as swabs and diluent and templates, and will arrange for couriers as part of our contractual obligations. The list below shows all currently accredited tests we are able to perform.

Meat and Meat Product - Microbiological Tests
The following tests are all accredited with IANZ and NZFSA and are tested in accordance with MIMM "Microbiological Methods for the Meat Industry" (3ed)

2000 and the following NZ Food Safety Authority (Animal Products) National Microbiological Database (NMD) Technical Procedures: Farmed Animals.

- Aerobic Plate Count at 30°C
- Escherichia coli
- E coli 0157:H7 & nSTEC
- Staphylococci (coagulase positive)
- Salmonella
- Listeria monocytogenes
- Clostridium perfringens
- Sulphite-reducing anaerobes

Meat and Meat Product - Chemical Tests
Eurofins is RLP and IANZ accredited to perform proximate analyses on meat and meat products including meat and bone meal. The tests include:

- Ash
- Carbohydrate
- Fat
- Moisture
- Protein
- Calcium

Tallow
Please ask about our Tallow testing service, which includes all the usual tests such as Free Fatty Acids, Peroxide Value and Moisture.

Meat Processing Outputs

As well as producing products for sale, meat works also generate by-products that must be disposed of. These by-products include air and water wastes that may need treatment to meet Resource Consent requirements. Eurofins has a long history of working with Resource Consents and offer a full analytical testing service.

Air Discharges
Factory discharges are being closely scrutinised as environmental improvements continue. Eurofins is IANZ accredited to perform the analyses of NOx (nitrite) and SOx (sulphate) in stack discharges as well as particulate matter. The particulate matter can be further analysed for metals content if required.

Effluent Discharges
All factories and food processors produce waste. Eurofins can provide all the analytical testing you need, whether these are regulated by local council Trade Waste by-laws or Resource Consents.

Testing services include but are not limited to:

- Ammonia
- Biochemical Oxygen Demand
- Chemical Oxygen Demand
- Metals
- Microbiological analysis
- Oil and Grease
- Sulphide
- Suspended Solids
- Total and dissolved nitrogen species including Kjeldahl
- Total and dissolved phosphorus species

Other Effluent Treatments
Eurofins is IANZ-accredited to perform all the usual chemistry parameters that are performed on DAF tanks. This includes all stages of effluent treatment such as grease traps, clarifiers, biofilters, and wetland discharge.

Sampling Information

"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 food safety. Many things can go wrong before the sample reaches a laboratory so we offer assistance to minimise risk associated with:

- Inappropriate sample types and locations
- Incorrect sampling technique and labelling
- Sample contamination
- Sample homogeneity
- Delivery timeframes

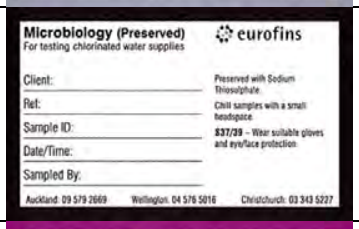
Our service provides clear and easy to follow sampling procedures using colour coded labels wherever possible. Eurofins has its own team of samplers so we know what is needed to ensure accurate and safe sampling under all types of conditions.

Delivery to Eurofins
Microbiological samples should be delivered to the laboratory as soon as possible but within 24 hours and between 0° and 10° Celsius.

Please ask for a copy of our “Assuring Sample Integrity” brochure.

Sampling Containers

Please let us know when you are ready to sample and we will prepare sampling kits for you.

Group A Monitoring Kit:	**Bottle Label**
Aluminium, Iron	
Bacteria Tests – Enterococci, E. coli, Coliform bacteria, Clostridium perfringens	
pH, conductivity, colour, turbidity	
Nitrite, ammonia	

Human Consumption Tests	**Bottle Label**
Faecal coliforms	
pH and turbidity	

The Group B monitoring suite adds six additional bottles for the standard suite and nine bottles for the five yearly pesticide suite. Please let us know at least a week in advance so we can prepare these kits for you.

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