



Cawthron Institute

Client Number 34

Private Bag 2, Nelson Mail Centre, Nelson, 7042
98 Halifax Street East, The Wood, Nelson, 7010

Telephone 03 548-2319

www.cawthron.org.nz

Authorised Representative

Mrs Anneke van Laanen
Quality Manager – Analytical Science

Programme

Chemical Testing Laboratory

Accreditation Number 107

Initial Accreditation Date 12 September 1978

Conformance Standard

ISO/IEC 17025:2017

General requirements for the competence of testing and calibration laboratories

Laboratory Services Summary

General Chemistry

2.31 Foods
2.70 Instrumental Techniques

Waters General

2.41 Waters
2.58 Environmental Monitoring

Residues/Organics

2.36 Agricultural Products and Agricultural Materials
2.41 Waters
2.58 Environmental Monitoring
2.60 New Zealand Shellfish Quality Assurance Programme
2.70 Instrumental Techniques

Instrumental

2.31 Foods
2.32 Drugs and Pharmaceuticals
2.61 Biological Specimens
2.70 Instrumental Techniques

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Key Technical Personnel

General Chemistry


Mr Michael Boundy	2.31; selected, 2.70 (b)(d1)(d2)
Mr Aaron Brownlow	2.31; selected
Ms Paveena Chomphoosri	2.31; selected
Miss Rebecca D'Souza	2.31; selected
Ms Linsey Ferguson	2.31; selected
Mr Joshua Fitzgerald	2.31; selected
Dr Colin Hayman	2.31; selected
Ms Tracy Healy	2.31 (f)(IgG)
Mrs Navneet Kaur	2.31; selected
Mr David Lewis	2.31; selected
Dr Matt Miller	2.31; selected
Mr Sam Murray	2.31; selected
Mr Paul Parker	2.31; selected, 2.70 (b)
Mr Andrew Selwood	2.70 (b)(d1)(d2)
Ms Susannah Thompson	2.31; selected
Mr Roel van Ginkel	2.31; selected, 2.70 (b)(d1)(d2)

Waters General

Mr Michael Boundy	2.58 (c); selected
Ms Emillie Burger	2.58 (c); selected
Mr Mark Englefield	2.41; selected
Ms Christine Harley	2.58 (c); selected
Christina Harris	2.41; selected
Mrs Krishna Harris	2.41; selected
Mrs Penny Harrison	2.58 (c); selected
Mr Joepette Hermostilla	2.41; selected, 2.58 (c); selected
Mr Daniel List	2.58 (c); selected
Ms Sumali Nanayakkara	2.58 (c); selected
Ms Sally Robinson	2.41; selected, 2.58 (c); selected
Mr Sarbjit Singh	2.41; selected
Mr Roel van Ginkel	2.58 (c); selected

Residues/Organics

Mr Michael Boundy	2.41 (a)(b); selected, 2.58 (a; selected, d), 2.60 (b), 2.70 (d2)
Ms Emillie Burger	2.41 (a)(b); selected, 2.58 (a; selected, d), 2.60 (b); selected
Mr Joshua Fitzgerald	2.41 (a)(b); selected, 2.58 (a); selected
Ms Christine Harley	2.58 (d); selected
Mrs Penny Harrison	2.41 (a)(b); selected, 2.58 (a; selected, d), 2.60 (b); selected
Dr Colin Hayman	2.36
Mr Joepette Hermostilla	2.58 (d); selected
Mr Daniel List	2.58 (d); selected
Ms Sumali Nanayakkara	2.58 (d); selected
Mr Paul Parker	2.41 (a)(b); selected, 2.58 (a; selected)
Ms Sally Robinson	2.58 (d); selected
Mr Andrew Selwood	2.70 (d2)
Mr Roel van Ginkel	2.41 (a)(b); selected, 2.58 (a; selected, d), 2.60 (b), 2.70 (d2)

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Instrumental

Ms Paveena Chomphosri

2.31, 2.32, 2.61

Mr David Lewis

2.31, 2.32, 2.61

Operations Manager
Authorisation:

A handwritten signature in dark ink, appearing to read 'A. H. O. M. S.', written over a light blue background.

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General Chemistry

2.31 Foods

- (a) Cereals and cereal products
- (b) Edible oils, fats and their products
- (c) Nuts, fruits and vegetables and derived products
- (d) Sauces, herbs, spice and condiments
- (e) Sugars and sugar confectionery
- (f) Dairy products
- (g) Meat, poultry and derived products
- (h) Fish and fish products
- (i) Eggs and egg products
- (j) Alcoholic beverages
- (k) Non-alcoholic beverages
- (l) Food additives and supplements
- (m) Essential nutrients, including vitamins
- (n) Residues in foodstuffs
- (o) Other specified foods

These terms of accreditation provide for the performance of the following tests to methods such as those from the references listed below, as well as in-house methods

2-MCPD, 3-MCPD, and glycidol in edible oils and fats (by GCMS)	AOCS CD29B-13 (modified)
Acid value, Free Fatty Acid (as oleic) content of fats and oils	Laboratory Handbook for Oil and Fat Analysis; 1966
Ash – acid insoluble (sand)	Pearsons Composition and Analysis of Foods 9 th Edition, 1991
Ash – total	AOAC 900.02
Ash – total	AOAC 920.153
BHA / BHT / Ethoxyquin (fishmeal)	JAOAC 93, 1, 2010 (modified)
Bound 2-MCPD, bound 3-MCPD, and bound glycidol in infant formula (by GCMS)	AOAC 2018.12 (modified)
Brix determination (fruit, fruit juices)	Reichert AR200 Refractometer User's Guide
Carbohydrates	Calculation
CBD, CBDA, THC and THCA in hemp seed protein, flour and cake (by LC-UV)	AOAC 2018.10 (modified)
CBD, CBDA, THC and THCA in hemp seed & mixed oils	In-house (UHPLC-UV)
Cholesterol (by GC)	JAOAC Vol 76, No.4, 1993 (modified)
Dicyandiamide (DCD) in dairy products (by LC-MS)	MacMahon, S. et al (2012) J.Chrom. A 1220, 101-107 (modified)
Energy	Calculation
Ethanol in beverages (by Head GC with FID)	DSIR Report CD2274: 1978
Fat – crude	AOAC 991.36

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Fat – total	AOAC 948.15 (modified)
Fatty acid/methyl esters	AOAC 963.22
Histamine (by LC-UV)	Cinquina et al, 2003. J. Chromatography A, 1032, pages 79-85 (modified)
Histamine in fish and fish products (by UPLC-QDA)	In-house (UHPLC-MS)
IgG in colostrum products	J. Agric. Food. Chem. 2011, 59, 5248-5256
Impurities in fish oils	IUPAC (6 th Edition)
Iodine value (Wij's method)	AOAC 993.20
Isoeugenol in salmon	UPLC-FLR (In-house)
Lactoferrin	In-house by Affinity HPLC
Melamine	USFDA Library no 4421, Vol. 24, October 2008
Moisture – drying at 105 °C	AOAC 950.46 (modified)
Moisture – drying in vacuum at 70 °C	AOAC 926.12
Nucleotides in dairy products (by LC-UV)	AOAC 2011.20
p-Anisidine	AOCS Cd-18-90
Peroxide value of fats and oils	AOAC 965.33
pH in foods	AOAC 981.12
Protein – Kjeldahl nitrogen	AOAC 981.10 (modified)
Salt (as sodium chloride or chloride)	AOAC 937.09 / 935.47
Saponification value in oils	IUPAC (6 th Edition) 2.202
Soluble Dietary Fibre	AOAC 985.29 / 993.19
Titrateable acidity – total	AOAC 942.15 (B)
Total dietary fibre in food	AOAC 985.29
Total sialic acid in dairy products (by LC-MS/MS)	J. Chrom B 848, 2007, 251-257 (modified)
Total sugars (Analytical Biochemistry)	Anal Biochem 47, 1972
Total volatile bases (Nitrogen)	J. Food Protection 52, 1989, GC
Vitamin A – oils, fats (spreads), fish	COST'91 (modified)
Vitamin C (by UPLC)	Lateef, Agilent Technologies (modified)
Vitamin D3 – oils, fats (spreads), fish	COST'91 (modified)
Vitamin E – oils, fats (spreads), fish, (as alpha-tocopherol)	COST'91 (modified)

2.70 Instrumental Techniques

- (b) High performance liquid chromatography (HPLC)**
- (d1) Liquid chromatography – mass spectrometry (LC-MS)**
- (d2) Liquid chromatography – mass spectrometry (LC-MS/MS)**

All techniques pertain to class of test 2.31 as detailed above.

Explanatory Note:

This 2.70 class of test allows specifically approved senior analysts to develop, validate and use a new test method by the specified instrumental technique for a non-routine analysis in the classes of tests specified. The report over the analyst's personal signature may be endorsed with the IANZ logo. Should the method become routine, an IANZ technical assessment is required before the method can appear on the laboratory's scope of routine accredited tests.

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Waters General

2.41 Waters

(d) Effluents and trade wastes

The following tests are in accordance with APHA “Standard Methods for the Examination of Water and Wastewater” (Online Edition) except where otherwise indicated.

Ash free dry weight 10200-I (modified)

- (a) Potable waters**
- (b) Non-potable waters**

Conductivity 2510 B
 pH 4500-H⁺ B
 Turbidity 2130 B

2.58 Environmental Monitoring

(c) Soils and sludges

Detection limit data available from the laboratory on request

Anatoxin-a	In-house by LC-MS based on Bogialli et al
Ash free dry weight	APHA 10200-I (modified)
Chlorophyll-a	NIWA Periphyton Monitoring Manual (mod.)
Cylindrospermopsin	In-house by LC-MS based on Bogialli et al
Deoxycylindrospermopsin	In-house by LC-MS based on Bogialli et al
Dihydro-anatoxin-a	In-house by LC-MS based on Bogialli et al
Dihydro-homoanatoxin-a	In-house by LC-MS based on Bogialli et al
Homoanatoxin-a	In-house by LC-MS based on Bogialli et al
Microcystins	In-house by LC-MS based on Spooft et al
Nodularin	In-house by LC-MS based on Spooft et al
Saxitoxins	JAOAC (2015), Int 98(3) 609-621 (modified)

Residues/Organics

2.36 Agricultural Products and Agricultural Materials

(c) Stockfoods and licks

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(d) Essential nutrients in stock foods and licks including vitamins

Bromoform In-house by GC-MS

2.41 Waters

- (a) Potable waters**
- (b) Non-potable waters**

Anatoxin-a	In-house by LC-MS based on Bogialli et al
Cylindrospermopsin	In-house by LC-MS based on Bogialli et al
Deoxycylindrospermopsin	In-house by LC-MS based on Bogialli et al
Dihydro-anatoxin-a	In-house by LC-MS based on Bogialli et al
Dihydro-homoanatoxin-a	In-house by LC-MS based on Bogialli et al
Homoanatoxin-a	In-house by LC-MS based on Bogialli et al
Microcystins	In-house by LC-MS based on Spooft et al
Nodularin	In-house by LC-MS based on Spooft et al
Saxitoxins	JAOAC (2015), Int 98(3) 609-621 (modified)
Rotenone	UPLC – Di Donna et al. Rapid Communications in Mass Spectrometry 2005, pages 1575–1577 (modified)

2.58 Environmental Monitoring

- (a) Waters**

Potable and non-potable waters

Anatoxin-a	In-house by LC-MS based on Bogialli et al
Cylindrospermopsin	In-house by LC-MS based on Bogialli et al
Dihydro-anatoxin-a	In-house by LC-MS based on Bogialli et al
Dihydro-homoanatoxin-a	In-house by LC-MS based on Bogialli et al
Deoxycylindrospermopsin	In-house by LC-MS
Homoanatoxin-a	In-house by LC-MS based on Bogialli et al
Microcystins	In-house by LC-MS based on Spooft et al
Nodularin	In-house by LC-MS based on Spooft et al
Saxitoxins	JAOAC (2015), Int 98(3) 609-621 (modified)
Rotenone	UPLC – Di Donna et al. Rapid Communications in Mass Spectrometry 2005, pages 1575–1577 (modified)

- (d) Algal materials**

Ash free dry weight	APHA 10200-I (modified)
Anatoxin-a	In-house by LC-MS based on Bogialli et al
Chlorophyll-a	NIWA Periphyton Monitoring Manual (mod.)

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Cylindrospermopsin	In-house by LC-MS based on Bogialli et al
Dihydro-anatoxin-a	In-house by LC-MS based on Bogialli et al
Dihydro-homoanatoxin-a	In-house by LC-MS based on Bogialli et al
Deoxycylindrospermopsin	In-house by LC-MS based on Bogialli et al
Homoanatoxin-a	In-house by LC-MS based on Bogialli et al
Microcystins	In-house by LC-MS based on Spooft et al
Nodularin	In-house by LC-MS based on Spooft et al
Saxitoxins	JAOAC (2015), Int 98(3) 609-621 (modified)

2.60 New Zealand Shellfish Quality Assurance Programme

(b) Shellfish toxin assay

ASP (Domoic acid) by UVD	JAOAC (1995), 78(2), 543-554 (modified)
ASP / DSP / NSP / PTX / AZP / YTX by LC-MS	JAOAC (2005), Int 88:761-772 (modified)
NSP by LC-MS	In-house by LC-MS
PSP by LC-MS	JAOAC (2015), Int 98(3) 609-621
PSP by LC-MS (including lobster and abalone)	JAOAC (2015), Int 98(3) 609-621 (modified)
Tetrodotoxin	JAOAC (2015), Int 98(3) 609-621

Individual toxins analysed available from the Laboratory on request

2.70 Instrumental Techniques

(d1) Liquid chromatography – mass spectroscopy (LC-MS)

The above technique pertain to classes of test 2.41, 2.58, 2.60 as detailed above.

Explanatory Note:

This 2.70 class of test allows specifically approved senior analysts to develop, validate and use a new test method by the specified instrumental technique for a non-routine analysis in the classes of tests specified. The report over the analyst's personal signature may be endorsed with the IANZ logo. Should the method become routine, an IANZ technical assessment is required before the method can appear on the laboratory's scope of routine accredited tests.

Instrumental

2.31 Foods

- (a) Cereals and cereal products**
- (b) Edible oils, fats and their products**
- (c) Nuts, fruits and vegetables and derived products**

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- (d) Sauces, herbs, spice and condiments**
- (f) Dairy products**
- (g) Meat, poultry and derived products**
- (h) Fish and fish products**
- (i) Eggs and egg products**
- (j) Alcoholic beverages**
- (k) Non-alcoholic beverages**
- (l) Food additives and supplements**
- (m) Essential nutrients, including vitamins**
- (n) Residues in foodstuffs**
- (o) Other specified foods**

Inorganic arsenic

The Analyst

The following metals by In-house digestion and APHA 3125 B inductively coupled plasma mass spectroscopy (ICP-MS):

Aluminium	Antimony	Arsenic	Barium
Beryllium	Bismuth	Boron	Cadmium
Caesium	Calcium	Chromium	Cobalt
Copper	Iron	Lead	Lithium
Magnesium	Manganese	Mercury	Molybdenum
Nickel	Phosphorus	Potassium	Rubidium
Selenium	Silver	Sodium	Strontium
Thallium	Tin	Uranium	Vanadium
Zinc			

The following elements in accordance with the Journal of Analytical Atomic Absorption:1998 - ICP-MS analysis following TMAH digestion

Arsenic	Bromide	Iodine	Selenium
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(h) Fish and fish products

Methyl mercury by liquid-liquid extraction and IMEP-115 (modified) method using ICP-MS.

2.32 Drugs and Pharmaceuticals

(i) Nutraceuticals

Inorganic arsenic

The Analyst

The following elements in accordance with the Journal of Analytical Atomic Absorption:1998 - ICP-MS analysis following TMAH digestion

Arsenic	Bromide	Iodine	Selenium
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Methyl mercury by liquid-liquid extraction and IMEP-115 (modified) method using ICP-MS.

2.61 Biological Specimens

(a) Residues in specified human specimens (Urine)

Mercury In-house based on APHA 3125 B

2.70 Instrumental Techniques

(i) Inductively coupled plasma mass spectrometry (ICP-MS)


The above technique pertain to classes of test 2.31, 2.32, 2.61 as detailed above.

Explanatory Note:

This 2.70 class of test allows specifically approved senior analysts to develop, validate and use a new test method by the specified instrumental technique for a non-routine analysis in the classes of tests specified. The report over the analyst's personal signature may be endorsed with the IANZ logo. Should the method become routine, an IANZ technical assessment is required before the method can appear on the laboratory's scope of routine accredited tests.

References:

- APHA American Public Health Association
- AOCS American Oil Chemists' Society
- AOAC AOAC International
- COST'91 European Co-operation in the Field of Scientific and Technical Research
- ISO International Organization for Standardization
- IUPAC International Union of Pure and Applied Chemistry
- JAOAC Journal of the Association of Official Analytical Chemists
- NIWA National Institute of Water & Atmospheric Research
- OIV-MA Compendium of International Methods for the Analysis of Wine and Musts (2011 Edition)
- USFDA United States Food and Drug Administration

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