

Laboratory Accreditation Programmes

Schedule to
CERTIFICATE OF ACCREDITATION

Hill Laboratories

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Authorised Representative:
 Ms Gillian Lees
 Quality Manager

Programme
 Chemical Testing Laboratory

Accreditation Number: 365

Date of Accreditation: 15 April 1988

Conformance Standard

NZS ISO/IEC 17025:2005

General requirements for the competence of testing and calibration laboratories

Testing Services Summary

Plants and Soils

2.36 Agricultural Products and Agricultural Materials

Water and Environmental

2.41 Waters
 2.58 Environmental Monitoring

ICP

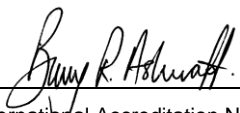
2.31 Foods
 2.36 Agricultural Products and Agricultural Materials
 2.41 Waters
 2.58 Environmental Monitoring
 2.61 Biological Specimens
 2.70 Instrumental Techniques

Organics

2.31 Foods
 2.41 Waters
 2.58 Environmental Monitoring
 2.70 Instrumental Techniques

Food and Stockfood

2.31 Foods
 2.32 Drugs and Pharmaceuticals

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2.36 Agricultural Products and Agricultural Materials

Air Quality

2.58 Environmental Monitoring
2.70 Instrumental Techniques

Key Technical Personnel

Plants and Soils

Ms Fiona Calvert 2.36
Mr Stephen Haylett-Petty 2.36
Dr Roger Hill 2.36
Ms Wendy Homewood 2.36
Dr Gordon Rajendram 2.36

Water and Environmental

Mr Graham Corban 2.41, 2.58
Mr Jon Harris 2.41, 2.58
Miss Ara Heron 2.41, 2.58
Mrs Karen Nichol 2.41, 2.58
Dr Peter Robinson 2.41, 2.58
Mrs Carole Rodgers-Caroll 2.41, 2.58
Dr Jane Sherrard 2.41, 2.58

ICP

Mrs Thiru Malar Sriitharan 2.31
Mr Richard Schriener 2.31, 2.36(h)(i), 2.41, 2.58, 2.61, 2.70(c)
Mr Mark Bryant 2.31, 2.58(d)
Ms Fiona Calvert 2.36
Mr Stephen Haylett-Petty 2.36
Dr Roger Hill 2.36
Ms Wendy Homewood 2.36
Dr Gordon Rajendram 2.36
Mr Graham Corban 2.41, 2.58
Mr Jon Harris 2.41, 2.58
Miss Ara Heron 2.41, 2.58
Mrs Karen Nichol 2.41, 2.58
Dr Peter Robinson 2.41, 2.58
Mrs Carole Rodgers-Caroll 2.41, 2.58
Dr Jane Sherrard 2.41, 2.58

Organics

Ms Helen McGowan 2.31(n; selected tests)
Miss Ara Heron 2.31(n; selected tests), 2.41, 2.58
Mr Graham Corban 2.31(n; selected tests), 2.41, 2.58, 2.70(d)
Dr Peter Robinson 2.31(n; selected tests), 2.41, 2.58, 2.70(d)(f)
Mr Jason Clague 2.31(n; selected tests), 2.61 (b)(c)
Mr Shaun Clay 2.31(n; selected tests), 2.61 (b)(c), 2.70(d)(f)(g)
Dr Bruce Morris 2.31(n; selected tests), 2.70(d)
Mrs Karen Nichol 2.41, 2.58; selected tests
Mrs Carole Rodgers-Caroll 2.41, 2.58; selected tests

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Mr Alistair Boyd	2.41, 2.58(c), 2.70(d)(f)(g)
Dr Jonathan Hill	2.41(selected tests), 2.58(a, c; selected tests), 2.70(f)(g)
Mr Richard Schriener	2.70(f)(g)
Food and Stockfood	
Mr Mark Bryant	2.31(selected tests), 2.36(c; selected tests)
Mrs Thiru Malar Sriitharan	2.31(selected tests), 2.36(c; selected tests)
Mr Richard Schriener	2.31(j)(k)
Mr Derek Yang	2.31(k; selected tests)
Ms Fiona Calvert	2.36(c; selected tests)
Mr Stephen Haylett-Petty	2.36(c; selected tests)
Dr Roger Hill	2.36(c; selected tests)
Ms Wendy Homewood	2.36(c; selected tests)
Dr Gordon Rajendram	2.36(c; selected tests)
Air Quality	
Dr Ian Graves	2.58
Miss Ara Heron	2.58
Mr Graham Corban	2.58, 2.70(d)
Dr Peter Robinson	2.58, 2.70(d)

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Plants and Soils

2.36 Agricultural Products and Agricultural Materials

In accordance with in-house test methods except where otherwise indicated.

(g) Soils

- pH of soils and soil extracts
- Cation exchange capacity
- Lime requirement
- Total soluble salts
- Resin extractable phosphorus
- Phosphate retention
- Organic matter (Dumas combustion, calculation)
- Total carbon (Dumas combustion)
- Available nitrogen
- Total nitrogen (Dumas combustion)
- Sulphate-sulphur (ion chromatography)
- Reserve magnesium
- Reserve potassium
- Volume weight
- Extractable chloride (CaSO₄, water extracts)
- Hot water extractable boron
- Extractable organic sulphur

Base saturation levels (percent saturation) of:

Calcium	Magnesium	Potassium	Sodium
Extractable:			
Aluminium	Cadmium	Calcium	Cobalt
Copper	Iron	Magnesium	Manganese
Phosphorus	Potassium	Sodium	Zinc

(h) Plants

- Nitrate (nitrogen)
- Total nitrogen (Dumas combustion)
- Crude protein (Dumas combustion, calculation)
- Sulphate-sulphur
- Chloride
- Iodine
- Neutral detergent fibre (Ankom fibre instrument)
- Acid detergent fibre (Ankom fibre instrument)

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Soluble sugars (colorimetric method)
 Ash AOAC 942.05
 Residual Moisture NFTA 2.1.4 (3hrs @ 105°C)

(i) Other agricultural products and related materials

Nutrient solutions:

Nitrate (nitrogen)
 Ammonium (nitrogen)
 Chloride
 Conductivity
 pH

Growing media (potting mix, composts):

pH
 Conductivity
 Nitrate (nitrogen)
 Ammonium (nitrogen)
 DTPA extraction for metals
 Nitrogen drawdown index

Water and Environmental

2.41 Waters

- (a) Potable waters**
- (b) Non-potable waters**
- (c) Sewage**
- (d) Effluents and trade wastes**
- (h) Boiler waters**

The following tests are in accordance with APHA "Standard Methods for the Examination of Water and Wastewater" (21st Edition) except where otherwise indicated.

Acidity	2310 B (modified)
Alkalinity (as CaCO ₃)	2320 B (modified)
Ammonium (nitrogen)	4500-NH ₃ F (modified, discrete analyser)
Ammonium (nitrogen)	4500-NH ₃ H
Ammonium (nitrogen)	In-house method
Bicarbonate	4500-CO ₂ D
Biochemical oxygen demand	5210 B (modified)
Bromate	USEPA 300.1
Bromide	4110 B

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Bromide	USEPA 300.1
Carbonate	4500-CO ₂ D
Chemical oxygen demand	5220 D
Chloramines	4500-Cl G
Chlorate	USEPA 300.1
Chloride	4110 B
Chloride	4500-Cl E (modified, discrete analyser)
Chloride	USEPA 300.1
Chlorine	4500-Cl G
Chlorite	USEPA 300.1
Chromium (VI)	3500-Cr B (modified, discrete analyser)
Colour	2120 B
Conductivity	2510 B
Cyanide	4500-CN C
Cyanide	4500-CN E (modified, discrete analyser)
Cyanide	4500-CN I (modified)
Cyanide	4500-CN N (modified)
Dissolved reactive phosphorus	4500-P E (modified, discrete analyser)
Dissolved reactive phosphorus	4500-P G
Fluoride (potable water only)	4110 B
Fluoride (potable water only)	USEPA 300.1
Fluoride	4500-F C
Free carbon dioxide	4500-CO ₂ D
Hardness	2340 B
Langelier saturation index (LSI)	2330 B
Mercury	3112 B (AAVG)
Mercury	USEPA 245.7 (CVAF)
Nitrate	4110 B
Nitrate	USEPA 300.1
Nitrate (nitrogen)	4500-NO ₃ I (modified)
Nitrite	USEPA 300.1
Nitrite (nitrogen)	4500-NO ₂ B
Nitrite (nitrogen)	4500-NO ₃ I (modified)
Oil and Grease	1664 (modified)
Oil and Grease	5220 D
pH	4500-H B
Phenols	5530 B
Phenols	5530 D (Auto analyser)
Phosphate	4110 B
Phosphate	USEPA 300.1
Reactive silica	4500-SiO ₂ F (modified)
Reactive silica	4500-SiO ₂ F (modified, discrete analyser)
Ryzner index (RI)	2330 B
Sulphate	4110 B
Sulphate	USEPA 300.1
Sulphide	4500-S ₂ I (modified, microdistillation)
Sulphite	4500-SO ₃ B
Suspended solids	2540 D

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Tannins and lignins	5550 B
Total and nonpurgeable organic carbon	5310 B (modified)
Total dissolved solids	2540 C (modified)
Total Kjeldahl nitrogen	4500-N _{org} D (modified, discrete analyser)
Total Kjeldahl nitrogen	4500-N _{org} D (modified)
Total phosphorus	4500-P B (modified, discrete analyser)
Total phosphorus	4500-P E (modified, discrete analyser)
Total phosphorus	4500-P H (modified)
Total phosphorus	NWASCO Miscellaneous Publication No. 38 (1982)
Total solids	2540 B
Turbidity	2130 B
Ultraviolet absorption	5910 B
Unionised hydrogen sulphide (calculation)	4500-S ₂ H
Volatile Fatty Acids	In-house by IC

2.58 Environmental Monitoring

(a) Waters

The following tests are in accordance with APHA "Standard Methods for the Examination of Water and Wastewater" (21st Edition) except where otherwise indicated.

Acidity	2310 B (modified)
Alkalinity (as CaCO ₃)	2320 B (modified)
Ammonium (nitrogen)	4500-NH ₃ F (modified, discrete analyser)
Ammonium (nitrogen)	4500-NH ₃ H
Ammonium (nitrogen)	In-house method
Bicarbonate	4500-CO ₂ D
Biochemical oxygen demand	5210 B (modified)
Bromate	USEPA 300.1
Bromide	4110 B
Bromide	USEPA 300.1
Carbonate	4500-CO ₂ D
Chemical oxygen demand	5220 D
Chloramines	4500-Cl G
Chlorate	USEPA 300.1
Chloride	4110 B
Chloride	4500-Cl E (modified, discrete analyser)
Chloride	USEPA 300.1
Chlorine	4500-Cl G
Chlorite	USEPA 300.1
Chromium (VI)	3500-Cr B (modified, discrete analyser)
Colour	2120 B
Conductivity	2510 B
Cyanide	4500-CN C
Cyanide	4500-CN E (modified, discrete analyser)

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Cyanide	4500-CN I (modified)
Cyanide	4500-CN N (modified)
Dissolved reactive phosphorus	4500-P E (modified, discrete analyser)
Dissolved reactive phosphorus	4500-P G
Fluoride (potable water only)	4110 B
Fluoride (potable water only)	USEPA 300.1
Fluoride	4500-F C
Free carbon dioxide	4500-CO ₂ D
Hardness	2340 B
Langelier saturation index (LSI)	2330 B
Mercury	3112 B (AAVG)
Mercury	USEPA 245.7 (CVAF)
Nitrate	4110 B
Nitrate	USEPA 300.1
Nitrate (nitrogen)	4500-NO ₃ I (modified)
Nitrite	USEPA 300.1
Nitrite (nitrogen)	4500-NO ₂ B
Nitrite (nitrogen)	4500-NO ₃ I (modified)
Oil and Grease	1664 (modified)
Oil and Grease	5220 D
pH	4500-H B
Phenols	5530 B
Phenols	5530 D (Auto analyser)
Phosphate	4110 B
Phosphate	USEPA 300.1
Reactive silica	4500-SiO ₂ F (modified)
Reactive silica	4500-SiO ₂ F (modified, discrete analyser)
Ryzner index (RI)	2330 B
Sulphate	4110 B
Sulphate	USEPA 300.1
Sulphide	4500-S ₂ I (modified, microdistillation)
Sulphite	4500-SO ₃ B
Suspended solids	2540 D
Tannins and lignins	5550 B
Total and nonpurgeable organic carbon	5310 B (modified)
Total dissolved solids	2540 C (modified)
Total Kjeldahl nitrogen	4500-N _{org} D (modified, discrete analyser)
Total Kjeldahl nitrogen	4500-N _{org} D (modified)
Total phosphorus	4500-P B (modified, discrete analyser)
Total phosphorus	4500-P E (modified, discrete analyser)
Total phosphorus	4500-P H (modified)
Total phosphorus	NWASCO Miscellaneous Publication No. 38 (1982)
Total solids	2540 B
Turbidity	2130 B
Ultraviolet absorption	5910 B
Unionised hydrogen sulphide (calculation)	4500-S ₂ H
Volatile Fatty Acids	In-house by IC

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2.58 Environmental Monitoring

(c) Soils and sludges

Mercury	Cold vapour AAS
Oil and Grease	APHA 5220 E

ICP

2.31 Foods

(f) Dairy products

The following elements in accordance with ICP-OES methodology:

Calcium	Iron	Magnesium	Phosphorus
Potassium	Sodium	Sulphur	Zinc

The following elements in accordance with ICP-MS methodology:

Antimony	Aluminium	Arsenic	Boron
Bismuth	Cadmium	Cobalt	Chromium
Copper	Iodine	Lithium	Lead
Manganese	Mercury	Molybdenum	Nickel
Selenium	Silver	Tin	Zinc

(g) Meat, poultry and derived products

The following elements in accordance with ICP-MS methodology:

Arsenic	Cadmium	Lead	Mercury
Selenium			

2.36 Agricultural Products and Agricultural Materials

(g) Soils

The following elements in accordance with ICP-OES methodology:

Total phosphorus	Total sulphur
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The following elements in accordance with ICP-MS methodology:

Total selenium

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(h) Plants

The following elements in accordance with ICP-OES methodology:

Aluminium	Boron	Calcium	Copper
Iron	Magnesium	Manganese	Phosphorus
Potassium	Sodium	Sulphur	Zinc

The following elements in accordance with ICP-MS & OES methodology:

Cobalt	Molybdenum	Selenium
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(i) Other agricultural products and related materials

Molybdenum (by ICP-MS)

The following elements in accordance with ICP-OES methodology:

Boron	Calcium	Copper	Iron
Magnesium	Manganese	Phosphorus	Potassium
Sodium	Sulphur	Zinc	

2.41 Waters

- (a) Potable waters**
- (b) Non-potable waters**
- (c) Sewage**
- (d) Effluents and trade wastes**
- (h) Boiler waters**

The following analytes in accordance with in-house ICP-MS methods:

Aluminium	Antimony	Arsenic	Bismuth
Boron	Cadmium	Calcium	Chromium
Cobalt	Copper	Iodine	Iron
Lead	Lithium	Magnesium	Manganese
Mercury	Molybdenum	Nickel	Phosphorus
Potassium	Selenium	Silver	Sodium
Tin	Zinc		

The following analyte in accordance with in-house ICP-OES methods:

Sulphur			
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2.58 Environmental Monitoring

(a) Waters

The following in accordance with APHA and USEPA digestion procedures and analysis by the techniques indicated.

Detection limits for potable and non-potable water depend in the technique used e.g. ICP-MS or ICP-OES and are available from the laboratory on request.

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

(c) Soils and sludges

Acid extractable and TCLP/SPLP extractable metals by ICP-MS:

Detection limits depend on the matrix tested e.g. soils or marine sediments and are available from the laboratory on request.

Antimony	Arsenic	Barium	Bismuth
Boron	Cadmium	Caesium	Chromium
Cobalt	Copper	Lanthanum	Lead
Mercury	Molybdenum	Nickel	Rubidium
Selenium	Silver	Strontium	Thallium
Tin	Uranium	Zinc	

(d) Other materials (fish and shellfish)

By acid digestion followed by analysis by the following techniques:

Detection limits depend on the technique used e.g. ICP-MS or ICP-OES and are available from the laboratory on request.

By ICP-MS:

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Aluminium	Arsenic	Cadmium	Chromium
Cobalt	Copper	Lead	Manganese
Mercury	Nickel	Zinc	

By ICP-OES:

Aluminium	Calcium	Chromium	Copper
Iron	Magnesium	Manganese	Potassium
Sodium	Zinc		

2.61 Biological Specimens

Acid extractable metals by digestion and analysis by ICP-MS.

(a) Residues in specified human specimens (human hair)

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

(b) Residues in specified veterinary specimens (Tissue, urine, serum, and whole blood including meat and meat fat)

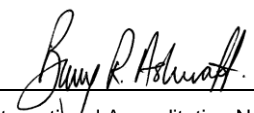
Aluminium	Antimony	Arsenic	Barium
Bismuth	Boron	Cadmium	Caesium
Chromium	Cobalt	Copper	Gallium
Iron	Lanthanum	Lead	Lithium
Manganese	Mercury	Molybdenum	Nickel
Rubidium	Selenium	Silver	Strontium
Tellurium	Thallium	Tin	Uranium
Zinc			

2.70 Instrumental Techniques

(c) Inductively Coupled Plasma-Mass Spectrophotometry

All techniques pertain to classes of test 2.31, 2.36, 2.41, 2.58, 2.61 as detailed above.

Explanatory Note:

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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 APHA "Standard Methods for the Examination of Water and Wastewater" 21st Edition
 USEPA United States Environmental Protection Agency

Organics

2.31 Foods

Testing is carried out at the Clyde Street site unless otherwise stated:

(n) Residues in foodstuffs

In accordance with validated in-house methods in selected matrices by the techniques specified.

Volatile chlorinated hydrocarbons (organic solvents) in dry dairy products by an in-house head space by GCMS method.

2.41 Waters

- (a) Potable waters
- (b) Non-potable waters
- (c) Sewage
- (d) Effluents and trade wastes
- (h) Boiler waters

The following tests are in accordance with USEPA methods except where otherwise indicated.

GCMS

Volatile organic compounds (VOC) including:

- BTEX
- Trihalomethanes
- Halogenated Aliphatics
- Haloaromatics
- Monoaromatic hydrocarbons
- Ketones

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Halogenated volatile disinfection by-products (HVDB) (a. potable only)
 Epichlorohydrin (a. potable only)
 Halogenated acetic acids (HAA) (a. potable only)

Semi-volatile organic compounds (SVOC) including:

- Multiresidue pesticides
- Polyaromatic hydrocarbons (PAH)
- Polychlorinated biphenyls (PCB)
- Organochlorine pesticides (OCP)
- Acid herbicides (AHB)
- Tributyltin compounds (MBT, DBT, TBT, TPhT)
- Amine acid chelating agents (EDTA & NTA) (a. potable only)

LCMS

AlkylQuats
 Acrylamide
 Formaldehyde
 Acid Herbicides (including PCP)
 Glyphosate (including glyphosate and AMPA)
 Sulfonyl ureas
 Methoprene
 Multiresidue pesticides (a. potable only) including:

- Oryzalin
- Oxamyl
- Isoproturon
- Primisulfuron Methyl
- Thiabendazole
- Aldicarb (including Sulfoxide & Sulphone)

HPLC

Formaldehyde

GE-ECD


Organochlorine pesticides (OCP)

GC-FID

Total petroleum hydrocarbons (TPH)
 Gases in ground water

2.58 Environmental Monitoring

(a) Waters

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The following tests are in accordance with USEPA methods except where otherwise indicated. A full listing of the compounds and their detection limits are available from the laboratory on request.

GCMS

Volatile organic compounds (VOC) including:

- BTEX
- Trihalomethanes
- Halogenated Aliphatics
- Haloaromatics
- Monoaromatic hydrocarbons
- Ketones

Halogenated volatile disinfection by-products (HVDB) (a. potable only)

Epichlorohydrin (a. potable only)

Halogenated acetic acids (HAA) (a. potable only)

Semi-volatile organic compounds (SVOC) including:

- Multiresidue pesticides
- Polyaromatic hydrocarbons (PAH)
- Polychlorinated biphenyls (PCB)
- Organochlorine pesticides (OCP)
- Acid herbicides (AHB)
- Tributyltin compounds (MBT, DBT, TBT, TPhT)
- Amine acid chelating agents (EDTA & NTA) (a. potable only)

LCMS

AlkylQuats

Acrylamide

Formaldehyde

Acid Herbicides (including PCP)

Glyphosate (including glyphosate and AMPA)

Sulfonylureas

Methoprene

Multiresidue pesticides (a. potable only) including:

- Oryzalin
- Oxamyl
- Isoproturon
- Primisulfuron Methyl
- Thiabendazole
- Aldicarb (including Sulfoxide & Sulphone)

HPLC

Formaldehyde

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GE-ECD

Organochlorine pesticides (OCP)

GC-FID

Total petroleum hydrocarbons (TPH)
 Gases in ground water

(c) Soils and sludges

The following tests are in accordance with USEPA methods except where otherwise indicated. A full listing of the compounds and their detection limits are available from the laboratory on request.

Volatile organic compounds (VOC) including:

- BTEX
- Trihalomethanes
- Halogenated Aliphatics
- Haloaromatics
- Monoaromatic hydrocarbons
- Ketones

Semi-volatile organic compounds (SVOC) including:

- Polyaromatic hydrocarbons (PAH)
- Polychlorinated biphenyls (PCB)
- Organochlorine pesticides (OCP)
- Acid herbicides (AHB)
- Tributyltin compounds (MBT, DBT, TBT, TPhT)

LCMS

Acid Herbicides (including PCP)
 Sulfonyl ureas
 Imidacloprid

GE-ECD

Organochlorine pesticides (OCP)

GC-FID

Total petroleum hydrocarbons (TPH)

(d) Fish and shellfish

GCMS

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Semi-volatile organic compounds (SVOC):

- Tributyltin compounds (MBT, DBT, TBT, TPhT)

2.70 Instrumental Techniques

- (d) **Gas chromatography, including MSD (2.31n, 2.36, 2.41, 2.58)**
 (f) **High performance liquid chromatography (2.31)**
 (g) **Liquid chromatography – mass spectrophotometry (2.31, 2.41, 2.58, 2.61)**

All techniques pertain to classes of test shown in parenthesis 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.

Testing is carried out at the Innovation Park Site for the following 2.31, 2.61 unless otherwise stated:

2.31 Foods

- (n) **Residues in foodstuffs and crops**

In accordance with validated in-house methods in selected matrices except by the techniques specified.

GCMS

Acid herbicides
 Dithiocarbamate
 p-Dichlorobenzene (honey, propolis, bee's wax)(SPME)

GC-ECD

4,4'-DDE (in raw milk) (SPME, in-house headspace)

GC-ECD/NPD, GCMS

Organochlorine pesticides (OC) (meat, meat fat)
 Organonitrogen pesticides (ON) (meat, meat fat)
 Organophosphorous pesticides (OP) (meat, meat fat)
 Synthetic pyrethroid pesticides (SP) (meat, meat fat)
 Methylglyoxal (MGO) (honey)

LC-MSMS

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Multi-residue screening (and LC-MS)
 Tutin (honey: water extraction)
 Tutin (honey: aceto-nitrile extraction)
 Mycotoxins (grain and grain products):

- Fumonisin
- Trichothecenes
- Zearalenone
- Ochratoxin A

HPLC

Ochratoxin (wine)	
Aflatoxins (peanut & barley) (and LC-MSMS)	AOAC 991.31
5-hydroxymethylfurfural (HMF) (honey)	JOAC:2005, p121-127 (modified)
Zearalenone	
Ochratoxin	

2.61 Biochemical Tests

(b) Tissue, urine, serum and whole blood (including meat and meat fat)

The following are analysed using the methods stated:

Macrocyclic lactone	HPLC-fluorescence
Levamisole and benzimidazoles	HPLC-UV
Praziquantel	HPLC-UV
Praziquantel	HPLC-LC-MS
Morantel	LC-MS

(c) Milk


Aflatoxin M1	HPLC-fluorescence
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References:

AOAC Official Methods of Analysis of AOAC International (18th Edition)
 USEPA United States Environmental Protection Agency
 APHA APHA "Standard Methods for the Examination of Water and Wastewater" (21st Edition)

Food and Stockfood

2.31 Foods

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Testing is carried out at Innovation Park site unless otherwise specified.

- (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**
- (f) **Dairy products**
- (g) **Meat, poultry and derived products**
- (h) **Fish and fish products**
- (i) **Eggs and egg products**
- (k) **Non-alcoholic beverages**
- (o) **Other prepared foods**

The following tests in selected matrices in accordance with validated in-house methods except where otherwise indicated:

Nitrogen (protein)*	AOAC 968.06 (modified)
Patulin (in clear apple juice)	In-house based on AOAC 2002.02
Ash	AOAC 942.05
Ash	AOAC 920.153
Moisture	AOAC 934.01

(j) Alcoholic beverages

The following tests in wine in accordance with the requirements for NZFSA Recognised Export Wine Laboratories.

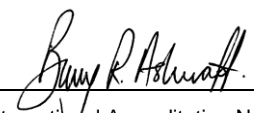
Actual Alcoholic Strength	OIV MA-E-AS312-01-TALVOL
Total Alcoholic Strength	By calculation
Total Acidity	OIV MA-E-AS313-01-ACITOT
Volatile Acidity	OIV MA-E-AS313-02-ACIVOL
Total Dry Extract	OIV MA-E-AS2-03-EXTSEC
Total Sugars	In-house method
Total Sulphur Dioxide	OIV MA-E-AS323-04-DIOSOU (modified)
Citric Acid	Dionex method Application Note 143 (modified)

The following tests in wine in accordance with the following methods.

Specific Gravity/Density	OIV MA-E-AS2-01-MASVOL
Sorbic and benzoic acid	AOAC 994.11 (modified)

2.32 Drugs and Pharmaceuticals

(e) Hormones and their preparations

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Progesterone in powder	HPLC (in-house)
Progesterone in silicone implants	HPLC (in-house)

2.36 Agricultural Products and Agricultural Materials

(c) Stockfoods

Ash	AOAC 942.05 (modified)
Moisture	AOAC 934.01 (modified)
Crude fat	AOAC 960.39
Crude fat*	AOAC 991.36 (modified)
Crude fibre*	AOAC 962.09 (modified)
Protein*	AOAC 968.06 (modified)

*Testing is carried out at Clyde Street.

References:

BS	British Standard
BS EN	British / European Standard
AOAC	Official Methods of Analysis of AOAC International (18 th Edition)
OJEC	Official Journal of European Communities

Air Quality

2.58 Environmental Monitoring

Testing performed at 25 Te Aroha Street unless otherwise specified:

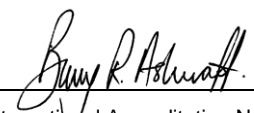
(b) Air

A full listing of the compounds and their detection limits are available from the laboratory on request. The following tests in accordance with NIOSH except where otherwise indicated:

GC-MS

Monochromatic hydrocarbons*	NIOSH 1501 (charcoal tubes and badges)
Volatile Organic Compounds in Air by Automated Thermal Desorption (ATD)	USEPA TO-17

GC-FID/FID

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Vinyl chloride	NIOSH 1007 (charcoal tubes only)
Alcohols IV	NIOSH 1403 (charcoal tubes only)
Monochromatic hydrocarbons*	NIOSH 1501 (charcoal tubes and badges)

* Instrumental analysis is carried out at Clyde Street

HPLC

Formaldehyde	NIOSH 2016 (DNPH impregnated silica tubes and badges)
Formaldehyde	USEPA TO-11A (modified) (DNPH impregnated silica tubes and badges)
Acetaldehyde	USEPA TO-11A (modified) (DNPH impregnated silica tubes and badges)
Gluteraldehyde	NIOSH 2532 (DNPH impregnated silica tubes and badges)

Gravimetric

PM ₁₀ Low Volume	AS/NZS 3580.9.9:2006 (modified)
PM ₁₀ High Volume	AS/NZS 3580.9.6:2003
Total Suspended Particulate (TSP) High volume	AS/NZS 3580.9.3:2003

References:

NIOSH	National Institute for Occupational Safety and Health
USEPA	United States Environmental Protection Agency
AS/NZS	Australian and New Zealand Standard

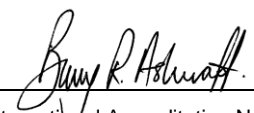
2.70 Instrumental Techniques

- (d) **Gas chromatography, including MSD**
- (f) **High performance liquid chromatography, including MSD**

All techniques pertain to classes of test 2.58 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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