



Hill Laboratories

Christchurch

Client Number 6706

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Authorised Representative

Mrs Debra McLachlan
SI Quality Assurance and Health and Safety Coordinator

Programme

Biological Testing Laboratory

Accreditation Number 685

Initial Accreditation Date 1 September 1998

Conformance Standard

ISO/IEC 17025:2017
General requirements for the competence of testing and calibration laboratories

Laboratory Services Summary

General Microbiology

1.11 Foods
1.12 Waters
1.71 Biological Condition

Molecular Biology

1.11 Foods
1.71 Biological Condition

Key Technical Personnel

General Microbiology

| | |
|--------------------------|--|
| Miss Carla Cuba Bejarano | 1.11, 1.12, 1.71 |
| Mrs Marisa Fonseca | 1.11, 1.12, 1.71 |
| Mrs Yu (Dominique) Gao | 1.11, 1.12, 1.71 |
| Mrs Renee Kellerhals | 1.12 |
| Miss Jill Martin | 1.11, 1.12, 1.71 |
| Ms Barbara Müller | 1.11 (selected), 1.12, 1.71 (selected) |
| Ms Paula Robson | 1.11, 1.12, 1.71 |

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Authorisation:

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Molecular Biology

| | |
|--------------------------|------------|
| Miss Carla Cuba Bejarano | 1.11, 1.71 |
| Mrs Marisa Fonseka | 1.11, 1.71 |
| Mrs Yu (Dominique) Gao | 1.11, 1.71 |
| Miss Jill Martin | 1.11, 1.71 |
| Ms Barbara Müller | 1.11, 1.71 |
| Ms Paula Robson | 1.11, 1.71 |

Operations Manager
Authorisation:

A handwritten signature in dark ink, appearing to read 'A. H. O. K. T. O.' or similar.

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General Microbiology

1.11 Foods

- (a) Cereals and cereal products
- (b) Edible oils, fats and derived products
- (c) Nuts, fruits, vegetables and derived products
- (d) Sauces, herbs, spices and condiments
- (e) Sugar and sugar confectionery
- (f) Dairy products
- (g) Meat, poultry and derived products
- (h) Fish and fish products (including shellfish)
- (i) Eggs and egg products
- (k) Non-alcoholic beverages (fruit juices, bottled water)
- (n) Other specified fresh foods (salads, airline meals)
- (o) Other specified preserved foods (dried, frozen)
- (p) Canned foods
- (q) Animal feeds

In accordance with APHA "Compendium of Methods for the Microbiological Examination of Foods" 5th Edition except where otherwise indicated.

| | |
|--------------------------------------|------------------|
| Aerobic plate count | 8.72 |
| Aerobic plate count | 8.73 |
| Aerobic plate count | 8.82 |
| Aerobic plate count | TEMPO AC |
| Anaerobic plate count | 6.7 |
| <i>Bacillus cereus</i> | 31.6 |
| <i>Bacillus cereus</i> (count) | TEMPO BC |
| Campylobacter | 30 |
| <i>Clostridium perfringens</i> | 33.7 |
| Coliform (count) | TEMPO CC |
| <i>E. coli</i> - MPN | 9.93 |
| <i>E. coli</i> - Petrifilm | 9.935 |
| <i>E. coli</i> (count) | TEMPO EC |
| Enterobacteriaceae | 9.62 (modified) |
| Enterobacteriaceae | 9.63 (modified) |
| Enterobacteriaceae (count) | TEMPO EB |
| Faecal coliforms - MPN | 9.81 (modified) |
| <i>Listeria monocytogenes</i> | ISO 11290-2:2017 |
| Mesophilic spore formers | 23 |
| pH | In-house method |
| <i>Staphylococcus aureus</i> | 39.6 |
| <i>Staphylococcus aureus</i> (count) | TEMPO STA |
| Sulphite reducing anaerobes | 33.7 |

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| Total coliforms - MPN | 9.72 |
| Total coliforms - MPN (presumptive) | 9.71 |
| Total coliforms - Petrifilm | 9.935 |
| <i>Vibrio cholerae</i> (P/A) | FDA BAM Ch. 9 |
| <i>Vibrio cholerae</i> (P/A) | APHA Ch. 40 |
| <i>Vibrio parahaemolyticus</i> (P/A) | FDA BAM Ch. 9 |
| <i>Vibrio parahaemolyticus</i> (P/A) | APHA Ch. 40 |
| <i>Vibrio parahaemolyticus</i> - MPN | FDA BAM Ch. 9 |
| Yeasts and moulds | 21.5 |
| Yeasts and moulds | 21.5 (modified) |

- (a) **Cereals and cereal products**
- (b) **Edible oils, fats and derived products**
- (c) **Nuts, fruits, vegetables and derived products**
- (d) **Sauces, herbs, spices and condiments**
- (e) **Sugar and sugar confectionery**
- (f) **Dairy products**
- (g) **Meat, poultry and derived products**
- (h) **Fish and fish products (including shellfish)**
- (i) **Food additives and supplements**
- (n) **Other specified fresh foods (salads, airline meals)**
- (o) **Other specified preserved foods (dried, frozen)**
- (p) **Canned foods**
- (q) **Animal feeds**

The following testing by the TEMPO automated MPN system:

Yeast and moulds TEMPO MPN

(h) Fish and fish products (including shellfish)

Escherichia coli Enumeration of *E coli* in Molluscan Bivalve Shellfish, MPI method

1.12 Waters

In accordance with APHA "Standard Methods for the Examination of Water and Wastewater" 23rd Edition except where otherwise indicated.

- (a) **Potable waters**
- (b) **Non-potable waters**
- (c) **Sewage**
- (d) **Effluent and trade wastes**
- (g) **Marine waters**

E. coli - MF 9222 I

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| <i>E. coli</i> - MF | 9222 H |
| <i>E. coli</i> - MF | 9222 H (modified) |
| <i>E. coli</i> - MPN | 9221 F (modified) |
| <i>E. coli</i> - MPN | 9221 F |
| <i>E. coli</i> - Colilert Quantitray (51 well) | 9223 B (excluding marine) |
| <i>E. coli</i> - Colilert Quantitray (97 well) | 9223 B (excluding marine) |
| <i>E. coli</i> - Colilert-18 Quantitray (51 well) | 9223 B |
| <i>E. coli</i> - Colilert-18 Quantitray (97 well) | 9223 B |
| Enterococci | 9230 C (modified) |
| Enterococci | 9230 D |
| Enterococci (excluding sewage) | MIMM 12.4 |
| Faecal coliforms - MF | 9222 D |
| Faecal coliforms - MPN | 9221 E |
| Heterotrophic plate count | 9215 B |
| Heterotrophic plate count | MIMM 11.6 |
| Total coliforms - MPN | 9221 B |
| Total coliforms - Colilert Quantitray (51 well) | 9223 B (excluding marine) |
| Total coliforms - Colilert Quantitray (97 well) | 9223 B (excluding marine) |
| Total coliforms - Colilert-18 Quantitray (51 well) | 9223 B (excluding marine) |
| Total coliforms - Colilert-18 Quantitray (97 well) | 9223 B (excluding marine) |
| Total coliforms (presumptive) - MPN | 9221 B |

(a) Potable Waters

| | |
|-------------------------------|--|
| <i>E. coli</i> | AS/NZS 4276.7 |
| Faecal coliforms | AS/NZS 4276.7 |
| Faecal streptococci | MIMM 11.7 |
| Heterotrophic plate count | AS/NZS 4276.3.1: 2007 |
| <i>Pseudomonas aeruginosa</i> | AS/NZS 4276.13 |
| <i>Pseudomonas aeruginosa</i> | APHA 9213 E |
| Sulphite reducing clostridia | Standing Committee of Analysts, The Microbiology of Drinking Water (2015) Part 6A |
| Total coliforms | AS/NZS 4276.5 |

(e) Cooling tower and industrial waters

| | |
|--|-----------------------|
| Heterotrophic plate count (22°C, 35°C) | 9215 B |
| Heterotrophic plate count | AS/NZS 4276.3.1: 2007 |
| <i>Legionella pneumophila</i> | AS/NZS 3896:2017 |
| Legionella species | AS/NZS 3896:2017 |

(f) Swimming and spa pools

| | |
|--|--------|
| Faecal coliforms - MF | 9222 D |
| Faecal coliforms - MPN | 9221 E |
| Heterotrophic plate count (22°C, 35°C, 37°C) | 9215 B |
| <i>Pseudomonas aeruginosa</i> (MF) | 9213 E |

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Staphylococcus aureus (MF) 9213 B

1.71 Biological Condition

(b) Plant hygiene evaluation (environmental swabs)

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| | |
|--------------------------------------|-----------------|
| Aerobic plate count | 8.72 |
| Aerobic plate count | 8.73 |
| Aerobic plate count | 8.82 |
| Aerobic plate count | TEMPO AC |
| <i>Bacillus cereus</i> (count) | TEMPO BC |
| Coliform (count) | TEMPO CC |
| <i>E. coli</i> | 9.93 (modified) |
| <i>E. coli</i> | 9.935 |
| <i>E. coli</i> (count) | TEMPO EC |
| Enterobacteriaceae | 9.63 (modified) |
| Enterobacteriaceae (count) | TEMPO EB |
| Faecal coliforms | 9.81 (modified) |
| <i>Staphylococcus aureus</i> (count) | TEMPO STA |
| Total coliforms | 9.935 |
| Total coliforms | 9.72 |
| Total coliforms (presumptive) | 9.71 |
| Yeasts and moulds | 21.5 |
| Yeasts and moulds | 21.5 (modified) |
| Yeasts and moulds | TEMPO MPN |

References:

| | |
|---------|--|
| APHA | American Public Health Association |
| FDA BAM | United States Food and Drug Administration Bacteriological Analytical Manual |
| MIMM | Microbiological Methods for the Meat Industry (5 th Edition) |
| NMD | NZFSANZ National Microbiological Database Technical Procedures |
| AS/NZS | Australian Standard / New Zealand Standard |
| NZTM 2 | New Zealand Dairy Industry Microbiological Test Methods Manual |
| USEPA | United States Environmental Protection Agency |

Molecular Biology

1.11 Foods

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- (f) Dairy products
- (g) Meat, poultry and derived products
- (h) Fish and fish products
- (i) Eggs and egg products
- (k) Non-alcoholic beverages
- (n) Other specified fresh foods
- (o) Other specified preserved foods
- (p) Canned foods
- (q) Animal feeds

| | |
|---|-----------------|
| Cronobacter spp. including <i>Cronobacter sakazakii</i> | In-house method |
| <i>E. coli</i> O157 | Assurance GDS |
| Listeria (PCR) | In-house method |
| <i>Listeria monocytogenes</i> (PCR) | In-house method |
| Salmonella (PCR) | In-house method |

(l) Food additives and supplements

| | |
|------------------|-----------------|
| Salmonella (PCR) | In-house method |
|------------------|-----------------|

1.71 Biological Condition

(b) Plant hygiene evaluation

| | |
|---|-----------------|
| Cronobacter spp. including <i>Cronobacter sakazakii</i> | In-house method |
| <i>Listeria monocytogenes</i> (PCR) | In-house method |
| Listeria species (PCR) | In-house method |
| Salmonella (PCR) | In-house method |

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