

Title	Apply microbiological fundamentals used in a laboratory in a primary products food processing operation		
Level	3	Credits	5

Purpose	<p>This entry-level unit standard is for people who work in a laboratory, in a primary products food processing operation.</p> <p>People credited with this unit standard are able to demonstrate knowledge of: the main types of micro-organisms and their significance; the major sources of microbial contamination; prepare to conduct microbiological tests and conduct microbiological tests, used in a primary products food processing operation.</p>
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Classification	Primary Products Food Processing > Primary Products Food Processing - Operational Skills
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Available grade	Achieved
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Guidance Information

- 1 Legislation and references relevant to this unit standard includes but is not limited to – Hazardous Substances and New Organisms Act 1996, Health and Safety in Employment Act 1992, Health and Safety in Employment Regulations 1995, Resource Management Act 1991, ISO/IEC 17025:2005/Cor1:2006 *General requirements for the competence of testing and calibration laboratories*, NZS/ISO 15189:2003 *Medical Laboratories – Particular requirements for quality and competence*, available at <http://www.standards.co.nz>.
- 2 Definitions
Organisational requirements – instructions to staff on policies and procedures which are documented in memo, electronic or manual format and are available in the workplace.
Primary products food processing operation – covers a meat processing, dairy processing, seafood or baking yeasts manufacturing operation.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of the main types of micro-organisms and their significance to a primary products food processing operation.

Range micro-organisms include but are not limited to – bacteria, fungi, and virus.

Performance criteria

- 1.1 Micro-organisms are described in terms of their relationship to food processing.
- Range evidence is required of an example of each micro-organism.
- 1.2 Micro-organisms are described in terms of their effect on product quality.
- 1.3 The factors that affect growth and survival of micro-organisms are described in terms of their effect on product quality.
- Range factors include but are not limited to – nutrition, moisture, pH, oxygen, temperature, light, osmotic pressure.
- 1.4 The morphology of micro-organisms is described in terms of size, shape, conformation, spore production, gram +ve and gram –ve.

Outcome 2

Demonstrate knowledge of the major sources of microbial contamination in a primary products food processing operation.

Range major sources of microbial contamination include but are not limited to – people, plant, environmental, raw materials.

Performance criteria

- 2.1 Major sources of microbial contamination are described in terms of their relationship to food processing.
- Range evidence is required of an example of each source.
- 2.2 Methods for minimising microbial contamination are identified in terms of organisational requirements.
- Range evidence is required of two methods.

Outcome 3

Prepare to conduct microbiological tests in a laboratory in a primary products food processing operation.

Performance criteria

- 3.1 Microscope is set up in accordance with the manufacturer's specifications.
- 3.2 Media preparation is carried out in accordance with organisational requirements.
- Range preparation includes but is not limited to – media, diluents.

3.3 Diluents are prepared in accordance with organisational requirements.

Outcome 4

Conduct microbiological tests in a laboratory in a primary products food processing operation.

Performance criteria

4.1 Product tests are conducted in accordance with organisational requirements.

Range tests include but are not limited to – swabbing, air sampling, streaking, spreading.

4.2 Test results are repeatable within test method limits in accordance with organisational requirements.

4.3 Any non-conformance is dealt with or reported in accordance with organisational requirements.

4.4 Results and calculations are recorded in accordance with organisational requirements.

Replacement information	This unit standard replaced unit standard 4311.
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This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	17 September 2015	31 December 2021
Review	2	24 October 2019	31 December 2021

Consent and Moderation Requirements (CMR) reference	0033
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.