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| Title | Prepare and monitor chemical solutions in a laboratory in a primary products food processing operation | | |
| Level | 4 | Credits | 5 |

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| Purpose | People credited with this unit standard are able to: prepare a chemical solution; standardise and use volumetric chemical solutions; and monitor the quality of chemical solutions, in a laboratory in a primary products food processing operation. |
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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 include but are not limited to:
 - Hazardous Substances and New Organisms Act 1996;
 - Health and Safety at Work Act 2015,
 - Health and Safety in Employment Regulations 1995;
 - Resource Management Act 1991;
 - ISO/IEC 17025:2018 *General requirements for the competence of testing and calibration laboratories*, available at <http://www.standards.co.nz> and any subsequent amendments.
- 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, dairy, seafood, fruit and vegetable and honey processing, food and beverage manufacturing and other related industries.
- 3 *Solutions* may include but are not limited to – strong or weak acids and bases, oxidising and reducing agents, solutions used for titrations, stains for cells and tissues, enzymes and buffers.
- 4 All evidence presented in this unit standard must be in accordance with organisational requirements.

Outcomes and performance criteria

Outcome 1

Prepare a chemical solution in a laboratory in a primary products food processing operation.

Range evidence for the preparation of three solutions is required.

Performance criteria

- 1.1 Select procedure for solution preparation.
- 1.2 Select equipment, materials and solvent of specified purity.
- 1.3 Calculate and measure quantities of reagents for solution preparation.
- 1.4 Prepare specified dilutions.
- 1.5 Prepare solutions to achieve homogenous mix of specified concentration.
- 1.6 Label and store solutions to maintain identity and stability.

Outcome 2

Standardise and use volumetric chemical solutions in a laboratory in a primary products food processing operation.

Performance criteria

- 2.1 Perform specified dilutions.
- 2.2 Standardise solution using appropriate procedure.
- 2.3 Label and store solutions to maintain identity and stability.
- 2.4 Determine concentration of unknown solutions using standard volumetric solutions.
- 2.5 Calculate and report concentration of solutions.

Outcome 3

Monitor the quality of chemical solutions in a laboratory in a primary products food processing operation.

Performance criteria

- 3.1 Check solutions for visual deterioration and expiry date.
- 3.2 Re-standardise or dispose of dated or deteriorated solutions.

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| Replacement information | This unit standard replaced unit 22001. |
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| Planned review date | 31 December 2026 |
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Last date for assessment for superseded versions

| Process | Version | Date | Last Date for Assessment |
|--------------|---------|-------------------|--------------------------|
| Registration | 1 | 17 September 2015 | 31 December 2024 |
| Review | 2 | 24 March 2022 | N/A |

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| Consent and Moderation Requirements (CMR) reference | 0022 |
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Comments on this unit standard

Please contact the Hanga-Aro-Rau Manufacturing, Engineering, and Logistics Workforce Development Council qualifications@hangaarorau.nz if you wish to suggest changes to the content of this unit standard.