

<b>Title</b>	<b>Describe ethanol distillation principles, equipment, and control and protection systems in a dairy processing workplace</b>		
<b>Level</b>	<b>4</b>	<b>Credits</b>	<b>5</b>

<b>Purpose</b>	<p>This unit standard is for people employed in the dairy processing industry.</p> <p>People credited with this unit standard are able to describe: ethanol distillation principles and associated equipment; and ethanol distillation equipment control and protection systems, in a dairy processing workplace.</p>
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<b>Classification</b>	Dairy Processing > Milk Products
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<b>Available grade</b>	Achieved
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### Guidance information

- 1 All evidence presented in this unit standard must be in accordance with:
  - Health and Safety at Work Act 2015;
  - Site requirements.
- 2 This unit standard is intended for a dairy processing workplace. While all performance criteria must be met, it is noted that all range statements within this unit standard are indicative and dependent on enterprise and site-specific equipment, procedures, and practices.
- 3 **Definition**  
*Site requirements* mean the site-specific documented methods for performing work activities and include health, safety, environmental, and quality management requirements. They may refer to manuals, codes of practice, or policy statements.

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### Outcomes and performance criteria

#### Outcome 1

Describe ethanol distillation principles and associated equipment in a dairy processing workplace.

#### Performance criteria

- 1.1 Describe principles of ethanol distillation in accordance with site requirements.

- 1.2 Describe site distillation components and explain in terms of their purpose and function.
- Range columns, accumulators and/or vessels, reboilers, condensers, heaters, coolers, ejectors and/or vacuum loops, driers, separators; evidence of at least six components required.
- 1.3 Describe external auxiliary equipment for each type of distillation equipment in terms of their purpose and function.
- Range feed systems, analysers, reflux lines, pumps, heaters, coolers, chemical injection systems, compressors.
- 1.4 Describe internal components for each type of distillation equipment in terms of their purpose and function.
- Range pall rings, bubble cap trays, column trays, downcomers, weirs.

**Outcome 2**

Describe ethanol distillation equipment control and protection systems in a dairy processing workplace.

**Performance criteria**

- 2.1 Describe control systems for distillation equipment and auxiliary systems in terms of their function in accordance with site requirements.
- Range flow, pressure, temperature, level.
- 2.2 Describe equipment protection systems in terms of their purpose and inputs.
- Range control system, alarm and/or trip systems, purge systems and/or boilout, mechanical relief valves, emergency depressurisation systems.

<b>Planned review date</b>	31 December 2024
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**Status information and last date for assessment for superseded versions**

Process	Version	Date	Last Date for Assessment
Registration	1	26 September 2019	N/A

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

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**Comments on this unit standard**

Please contact the Primary Industry Training Organisation [standards@primaryito.ac.nz](mailto:standards@primaryito.ac.nz) if you wish to suggest changes to the content of this unit standard.