Title	**Demonstrate knowledge of continuous flow pasteurisation for milk processing**		
Level	**4**	**Credits**	**5**

Purpose	This unit standard is for experienced people carrying out milk processing functions in a dairy processing operation. People credited with this unit standard are able to explain: heat transfer and heat treatment; the organisational requirements for continuous flow pasteurisation systems; and demonstrate knowledge of pasteurisation critical control points and control measures, used in a dairy processing operation.

Classification	Dairy Processing > Milk Processing

Available grade	Achieved

Explanatory notes

1 Legislation relevant to this unit standard includes but is not limited to the Animal Products Act 1999, Health and Safety in Employment Act 1992, and Animal Products (Dairy) Regulations 2005.

2 Definitions
Critical control point –a step in a process at which a control can be applied which is essential to prevent, eliminate, or reduce a food safety hazard to an acceptable level.
Control measure –any action and activity that can be used to prevent or eliminate a food safety hazard or reduce it to an acceptable level.
Organisational requirements – instructions to staff on policies and procedures which are documented in memo, electronic or manual format and are available in the workplace. These requirements include but are not limited to – site specific requirements, company quality management requirements, hygiene, health and safety, regulatory and legislative requirements.

Outcomes and evidence requirements

Outcome 1

Explain heat transfer and heat treatment in a dairy processing operation

Evidence requirements

1.1 Heat transfer mechanisms and the process of energy recovery are explained in terms of the use of regeneration for optimum energy recovery.

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Range heat transfer factors include but are not limited to – temperature differential, contact area, overall coefficient of heat transfer.

1.2 Heat transfer and heat exchange systems used in a dairy processing operation are explained in terms of direct and indirect forms of heat transfer.

Outcome 2

Explain the regulatory requirements for continuous flow pasteurisation systems used in a dairy processing operation.

Evidence requirements

2.1 Pasteurisation is explained in terms of its purpose.

2.2 Components of continuous flow pasteurisation systems are explained in terms of meeting minimum regulatory requirements.

Range components include but are not limited to – filter or centrifuge, heat exchanger, flow rate control systems, temperature probes, flow rate probes, holding tube, divert valves, automated data recording.

2.3 The fail safe features of pasteurisation systems are explained in terms of meeting minimum regulatory requirements.

Range fail safe features include but are not limited to – prevention of contamination by heating and cooling media, dual redundancy, divert valve fail position.

2.4 Methods of achieving key heat treatment outcomes for a pasteurisation system are identified and explained in terms of organisational requirements.

Range heat treatment outcomes include but are not limited to – pasteurisation temperature, minimum holding time, prevention of untreated produce from feeding forward in event of a failure, prevention of heat treated produce from contacting untreated produce or services, control of particle size, ensuring product contact surfaces are clean and sanitary before start up, cooling of heat treated produce, monitoring and recording of critical parameters, protection from contamination, post heat treatment handling, prevention of inadvertent modification of management and control systems.

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Outcome 3

Demonstrate knowledge of pasteurisation critical control points and control measures used in a dairy processing operation.

Evidence requirements

3.1 Operating procedures for pasteurisers are described in terms of organisational and regulatory requirements.

Range evidence is required of pre-start, processing and shut-down operating procedures.

3.2 Manual recordings are legible, accurate and complete in accordance with organisational requirements.

3.3 Automated recording is checked for conformance to operating criteria in accordance with organisational requirements.

3.4 Corrective action for failure to meet pasteurisation is described in terms of organisational and regulatory requirements.

Range evidence if required of immediate action taken, isolation of affected product, returning plant to sanitary condition, recording and reporting the incident.

3.5 Periodic maintenance is described in terms of organisational and regulatory requirements.

Range maintenance includes but is not limited to – valve seat checks, temperature probe calibration, flow rate calibration; maintenance may include but is not limited to – internal or contracted service providers.

Planned review date	31 December 2020

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	28 May 2002	31 December 2014
Revision	2	13 June 2003	31 December 2014
Rollover and Revision	3	17 July 2009	31 December 2016
Review	4	18 June 2015	N/A

Consent and Moderation Requirements (CMR) reference	0022

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.

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Please note
Providers must be granted consent to assess against standards (accredited) by NZQA, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be granted consent to assess against standards by NZQA before they can register credits from assessment against unit standards.

Providers and Industry Training Organisations, which have been granted consent and which are assessing against unit standards must engage with the moderation system that applies to those standards.

Requirements for consent to assess and an outline of the moderation system that applies to this standard are outlined in the Consent and Moderation Requirements (CMR). The CMR also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

Comments on this unit standard

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

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