

Title	Describe an automated clean-in-place process in a primary products food processing operation		
Level	4	Credits	10

Purpose	People credited with this unit standard are able to: describe the characteristics of soils, and clean-in-place (CIP) control systems, in a primary products food processing operation.
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Classification	Primary Products Food Processing > Primary Products Food Processing - Core Skills
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Available grade	Achieved
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Guidance Information

- 1 Legislation and regulations relevant to this unit standard include but are not limited to:
 - Health and Safety at Work Act 2015;
 - Health and Safety in Employment Regulations 1995;
 - Hazardous Substances and New Organisms Act 1996;
 - Resource Management Act 1991;
 - and any subsequent amendments.
- 2 Definitions

Clean-in-place (CIP) – systems where cleaning solutions are circulated through plant and pipework for cleaning and sanitising purposes.

Primary food processing operation – covers a meat processing, dairy processing, seafood or baking yeasts manufacturing operation.

Soil – the residues left behind on processing equipment at the end of production. Soil can be residues from the primary product process, and/or water residues.

Outcomes and performance criteria

Outcome 1

Describe the characteristics of soils encountered in a primary products food processing operation.

Performance criteria

- 1.1 Describe soil characteristics in terms of processes from which they are derived.

Range evidence of two processes is required.

- 1.2 Describe soil characteristics in terms of compositional groups.
- Range evidence of two compositional groups is required.
- 1.3 Describe soil characteristics in terms of the effects of processing conditions on the deposition of soils.
- Range characteristics include but are not limited to – pH, temperature, product concentration, time.
- 1.4 Describe CIP in terms of equipment and methods used for the provision of mechanical action and factors that influence their effectiveness.
- Range factors may include but are not limited to – spray nozzles, spray balls, turbulent flow, static mixing; evidence of one factor is required.

Outcome 2

Describe CIP control systems used in a primary products food processing operation.

Performance criteria

- 2.1 Describe temperature control in terms of control objectives, method of heating and consequences of non-conformance.
- Range control objectives include but are not limited to – optimum temperature maintenance for cleaning efficiency, minimising downtime; methods of heating include but are not limited to – plate heat exchange, shell and tube, direct steam injection; evidence of one method is required.
- 2.2 Describe concentration control in terms of methodology or means of measurement.
- Range methodology or means of measurement may include but is not limited to – timer or spanned dose, slugged dose, achieving square curve dosing, conductivity, timer dosing, calibrated vessel, volumetric dosing; evidence of three methods and/or means of measurement is required.
- 2.3 Describe CIP time control in terms of requirements to achieve optimum conditions and impact of holds.
- Range time control includes but is not limited to – sequencing (step times), pulsing, rinsing, circulating.

2.4 Describe flow and pressure control in terms of requirements to achieve optimum CIP performance.

Range flow and pressure requirements include but are not limited to – flow rates, return flow rates.

2.5 Describe monitoring of key parameters of the CIP system in terms of methods used and data generated.

Range parameters include but are not limited to – chemical strength, time, temperature, pressure, flow rate, turbidity; monitoring includes but is not limited to – automated and manual monitoring methods.

2.6 Describe data interpretation in terms of use of monitoring of system performance and system improvement.

Planned review date	31 December 2025
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Last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	18 June 2015	31 December 2024
Review	2	27 May 2021	N/A
Revision	3	26 January 2023	N/A

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.