



Australian Government

Department of Education, Employment and Workplace Relations

FDFCH3001A Coordinate cheese making operations

Release: 2

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Modification History

April 2012: Minor typographical corrections.

Unit Descriptor

This unit of competency covers the skills and knowledge required to carry out cheese making through the operation of an integrated industrial process under the direction of the cheese manufacturing manager.

Application of the Unit

This unit applies to advanced operators in industrial cheese enterprises. It typically applies to staff with responsibility for implementing operational procedures for a multi-stage cheese manufacturing process, carrying out basic tests, keeping records and complying with personal safety, food safety and quality standards. The supervision of operator level staff may be involved. This unit includes testing and recording of data at critical control points and making a limited range of adjustments to the production process, based on variances established by testing. The unit doesn't include milk preparation processes, and covers cheese production only to bulk packaging, excluding the subsequent curing, portioning and retail packaging processes.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Monitor milk supply and quality	1.1 Milk supply is confirmed for the batch 1.2 Sample data on milk is checked for composition, homogeneity, somatic cell count and disk assay, as required 1.3 Milk is maintained at required temperature for inoculation with the required culture
2. Prepare cheese making equipment and add ingredients	2.1 Safe work practices are applied and reviewed based on risk assessment 2.2 Ingredients are confirmed and available to meet product requirements 2.3 Ingredients are added at pre-determined levels to meet recipe requirements 2.4 Starter and optional adjuncts are handled safely and according to procedures to maintain purity and viability 2.5 Equipment is checked to confirm readiness for use 2.6 Cheese making equipment is set and operated to meet requirements 2.7 Ingredients are loaded into the plant at the required stage 2.8 Final mix is checked against specifications
3. Carry out process control and make adjustments according to operating procedures	3.1 Correct start-up and shutdown procedures are followed 3.2 Equipment faults are identified and reported 3.3 Cheese making processes are monitored and required samples are taken according to operating procedures 3.4 Routine testing is carried out and records maintained 3.5 Timings are monitored as cheese moves through processing stages 3.6 Salt and moisture levels and pH levels are monitored and adjusted by varying the addition rate of ingredients, adjusting moisture control parameters, or changing time spent in processing stages as per operating procedures 3.7 Cheese is checked for food safety and quality requirements 3.8 Unacceptable cheese is identified, rectified and/or reported 3.9 Cheese is packaged for curing and distribution with correct batch number attached 3.10 Equipment is cleaned to meet production and hygiene requirements after each batch 3.11 Safety procedures are implemented and reviewed as part of the enterprise occupational health and safety (OHS) plan
4. Record and review cheese making	4.1 Cheese yields are monitored and compared to standards 4.2 Environmental practices and safety standards are reviewed in

ELEMENT	PERFORMANCE CRITERIA
process	accordance with legislation and workplace requirements 4.3 Workplace records are maintained according to requirements

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills include:

Ability to:

- confirm condition, type, quality and quantity of ingredients
- measure ingredients, as required
- confirm equipment status and condition
- set cheese making equipment to meet production requirements
- transfer ingredients and check that all meet specifications
- take corrective action according to operating procedures
- use equipment correctly and identify basic equipment faults
- maintain work area to meet housekeeping standards
- carry out sampling for chemical and microbiological testing of cheese
- conduct tests for ph, moisture, fat and salt levels in cheese
- implement safe work practices
- comply with environmental requirements for a cheese processing operation.

Required knowledge includes:

Knowledge of:

- the main components of milk and cheese (both curds and whey)
- purpose and basic principles of cheese making
- equipment start-up, shutdown and emergency procedures
- quality characteristics to be achieved by a cheese making process
- milk characteristics and components important in cheese making
- milk preparation for cheese making (fat and protein standardisation, and pasteurisation)
- types of starters used and their role in the fermentation process
- effect of milk characteristics on cheese processing performance
- use of coagulating enzymes to initiate the syneresis process
- use of adjunct cultures
- moisture control in cheese making
- effects of pH and temperature on cheese processing performance and product quality
- types and impact of inhibitory substances in milk
- microbial contaminants of cheese (lipolytic bacteria, yeasts, moulds, bacillus, listeria, E. coli, salmonella, coliforms and staphylococci) and their impact on cheese quality
- impact of bacteriophage on the fermentation process
- sampling and testing procedures for contaminant microbes
- operation and routine maintenance requirements of cheese making and packing plant and equipment
- operational procedures for operating the cheese making process, including adding ingredients, testing, measuring and recording, and making limited adjustments to ingredient recipes or the operation of equipment according to procedures
- common causes of variation and corrective action required for each stage of the cheese making operation
- contamination risk of inoculants and contaminants
- food safety risks associated with the process and related control measures
- organoleptic properties of cheese and their relationship to processes and ingredients in cheese making
- sampling procedures
- packaging procedures
- product/batch changeover procedures
- staff supervision
- line responsibility for reporting production and performance information
- food safety and quality assurance standards and procedures
- hygiene, cleaning and sanitation procedures in line with best manufacturing practice
- Food Standards Code
- routine maintenance procedures
- OHS hazards and controls
- environmental issues and controls relevant to the process, including waste collection and handling procedures related to the process.

Evidence Guide

<p>The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.</p>	
<p>Overview of assessment</p>	<p>A person who demonstrates competency in this unit must be able to carry out cheese making through the operation of an integrated industrial process under the direction of the cheese manufacturing manager.</p>
<p>Critical aspects for assessment and evidence required to demonstrate competency in this unit</p>	<p>Critical aspects of assessment must include evidence of the ability to coordinate an integrated industrial cheese making operation, including:</p> <ul style="list-style-type: none"> • mixing and adding ingredients • sampling and making adjustments to ingredients or timings as specified in procedures • supervising work flow and the packaging of cheese.
<p>Context of and specific resources for assessment</p>	<p>Assessment of performance requirements in this unit should be undertaken within the context of food cheese production. Competency is demonstrated by performance of all stated criteria, including the critical aspects and knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statements applicable to the workplace environment.</p> <p>Assessment must occur in a real or simulated workplace where the assessee has access to:</p> <ul style="list-style-type: none"> • production process and related equipment, manufacturers' advice and operating procedures, including advice on relevant product requirements, safe work practices, food safety, quality and environmental requirements • sampling and testing equipment and procedures • recording systems to meet food safety and quality assurance requirements • recipe instructions • specifications, control points and processing settings • milk preparation, cheese making and packaging equipment • PPE and material safety data sheets (MSDS), as required • cleaning procedures, materials and equipment, as required.
<p>Method of assessment</p>	<p>The following assessment methods are suggested:</p> <ul style="list-style-type: none"> • observation of candidate operating cheese

	<p>manufacturing equipment</p> <ul style="list-style-type: none">• written and/or oral questioning to assess knowledge and understanding• third-party supporting statement.
Guidance information for assessment	<p>Evidence should be gathered over a period of time in an industrial cheese making environment. Part of the evidence for assessment must be based on work performance in an industrial cheese plant.</p>

Range Statement

<p>The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.</p>	
Legislation	<p>Legislative requirements are typically reflected in procedures and specifications. Legislation relevant to this industry includes:</p> <ul style="list-style-type: none"> the Food Standards Code, including labelling, weights and measures legislation legislation covering food safety, environmental management, OHS, anti-discrimination and equal opportunity.
Policies and procedures	<p>Work is carried out according to:</p> <ul style="list-style-type: none"> company procedures regulatory and licensing requirements legislative requirements industrial awards and agreements.
Safe work practices	<p>Safe work practices are determined by risk assessment on site and may cover:</p> <ul style="list-style-type: none"> use of personal protective equipment (PPE) manual handling procedures exposure to hazardous substances hazards in the processing environment, such as noise, moving equipment, scalds, and trips and falls.
Cheese types	<p>Cheese types may be:</p> <ul style="list-style-type: none"> of any type but must be produced using an integrated industrial process.
Cheese inoculants	<p>Cheese inoculants include:</p> <ul style="list-style-type: none"> the lactic acid bacteria which are added to the milk as a culture in inoculation fungi.
Cheese additives	<p>Cheese additives are added to the milk after inoculation and include:</p> <ul style="list-style-type: none"> calcium chloride nitrates colour flavourings, fruit or nuts lipases.
Cheese adjuncts	<p>Cheese adjuncts are microbial populations added to</p>

	<p>cheese in addition to the normal inoculants to:</p> <ul style="list-style-type: none"> • provide consistency to flavour and texture • accelerate flavour development • produce specific attributes to meet market targets.
Milk standardisation requirements	<p>Milk standardisation requirements may:</p> <ul style="list-style-type: none"> • include standardisation of fat and protein • require the addition of skim milk or skim milk solids, or the separation of cream.
Cheese tests	<p>Cheese tests may include:</p> <ul style="list-style-type: none"> • testing for pH levels • moisture levels • fat levels • salt levels • physical testing of cheese throughout production.
Adjustments to process	<p>Adjustments to process may require:</p> <ul style="list-style-type: none"> • taking action to alter pH or moisture or adjust fat and protein levels in milk or add additional quantities of ingredients, such as salt
Multi-phase cleaning systems	<p>Multi-phase cleaning systems may include:</p> <ul style="list-style-type: none"> • cleaning multi-phase systems, such as chlorinated alkaline detergent with a chelator, followed by water and acid rinses.
Food safety related information	<p>Food safety related information may include:</p> <ul style="list-style-type: none"> • milk counts • cheese bacterial counts • manufacture and storage details.
Cleaning standards	<p>Cleaning standards include:</p> <ul style="list-style-type: none"> • AS 4709 - 2001 Guide to cleaning and sanitising of plant and equipment in the food industry • AS 1162 - 2000 Cleaning and sanitising dairy factory equipment • AS 2541 - 1998 Guide to the cleaning-in-place of dairy factory equipment.

Unit Sector(s)

Cheese.