



Australian Government

FBPCHE5003 Produce a range of rennet-coagulated cheeses

Release: 1

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Modification History

Release	Comments
Release 1	This version released with the FBP Food, Beverage and Pharmaceutical Training Package Version 2.0.

Application

This unit of competency describes the skills and knowledge required to produce a range of rennet-coagulated cheeses to a commercial standard.

The unit applies to individuals employed as production managers with responsibility for overseeing operational procedures that comply with workplace health and safety, food safety, recordkeeping and quality assurance requirements for the rennet-coagulated cheese making process.

No occupational licensing or certification requirements apply to this unit at the time of publication. However, legislative and regulatory requirements for food processing exist, so local requirements must be checked. All work must comply with Australian food safety standards and relevant codes of practice.

Pre-requisite Unit

Nil

Unit Sector

Cheese (CHE)

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Manage sanitation in artisan cheese making	1.1 Sanitise or pre-ripen a container of starter culture under aseptic conditions before tipping the contents into the vat to reduce the risk of infection or contamination 1.2 Ensure all surfaces are clean and sanitised except for curing boards 1.3 Supervise stringent personal hygiene and quarantine procedures as

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	part of best manufacturing practice 1.4 Apply multi-phase cleaning systems to ensure sanitised surfaces and equipment 1.5 Review food safety related information, including milk counts and cheese bacterial counts
2. Implement procedures to prepare milk for artisan cheese making	2.1 Measure and analyse composition and counts in raw milk samples 2.2 Implement standard procedures for preparing raw milk 2.3 Carry out milk pasteurisation procedures 2.4 Maintain raw milk in an area separate from pasteurised milk operations
3. Mix ingredients in the vat for rennet-coagulated cheeses	3.1 Add colour to the milk to change the colour of the cheese according to cheese type and recipe 3.2 Add mould spores for mould-ripened cheeses according to cheese type and recipe 3.3 Add adjunct cultures to influence the texture and flavour of the ripened cheese according to cheese type and recipe 3.4 Add enzymes to alter the flavour profile of the ripened cheese according to cheese type and recipe 3.5 Acidify the milk with organic or inorganic acids before renneting according to cheese type and recipe 3.6 Use acid to partly acidify the milk prior to adding culture to control the calcium phosphate level in the curd during cheese making according to cheese type and recipe 3.7 Add cultures and rennet to milk and hold at temperature according to recipe 3.8 Maintain a log of pH and temperature to monitor yield
4. Cut and handle the curd for rennet-coagulated cheeses	4.1 Supervise curd cutting to achieve optimal yield and the required moisture level in the cheese 4.2 Monitor agitation and temperature of the curd and whey 4.3 Heat curd and whey as required and check for uneven curd or overheating according to recipe 4.4 Plan the heating schedule to ensure optimal syneresis 4.5 Remove part of the whey and replace with water to wash lactose

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	and lactic acid from the curd according to recipe 4.6 Mat the curd under the whey before it is removed to ensure proper eye development for large and small eye cheeses, according to recipe 4.7 Remove all or part of the whey from the curds by draining out the vat
5. Implement salting, curing and packaging procedures	5.1 Implement procedures to prepare the curd for salting 5.2 Apply salting treatments to ensure salt profile effects are minimised in the finished product 5.3 Place dry salted stirred or milled curd particles into moulds for pressing 5.4 Implement and monitor ripening procedures 5.5 Apply packaging appropriate for cheese type
6. Monitor and adjust process controls to produce cheese with consistent taste and quality	6.1 Identify the process objectives of rennet-coagulated cheese making 6.2 Monitor processing to control moisture in cheeses 6.3 Control the rate and the amount of acid development 6.4 Control calcium phosphate levels to influence basic cheese structure 6.5 Control texture of the cheese by regulating pH, ripening agents, salt, moisture and fat 6.6 Control cheese flavour and pH levels by adding ingredients, such as milks, cultures, coagulating agents and salt 6.7 Control processing parameters to achieve optimal yield 6.8 Age rennet-coagulated cheeses to develop optimal flavour and texture
7. Carry out sensory analysis and grading of artisan rennet-coagulated cheeses	7.1 Assess cheeses for evenness of texture, colour, finish and flavour 7.2 Grade cheeses according to texture, colour, finish and flavour 7.3 Analyse organoleptic properties of rennet-coagulated cheeses to identify possible changes to process controls
8. Meet workplace requirements for food safety, quality and environmental management	8.1 Record food safety related information 8.2 Maintain records of cheese manufacture 8.3 Implement work health and safety and environmental protection procedures using a risk management approach

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	8.4 Dispose of waste and review environmental impacts for the cheese making operation

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential for performance in this unit of competency but are not explicit in the performance criteria.

Skill	Description
Reading	Interpret recipes and specifications from a variety of sources to consolidate information for cheese production
Numeracy	- Weigh and measure ingredients for cheese making - Sample cheese to analyse pH, moisture and salts - Calculate cheese yields
Navigate the world of work	Follow policies, procedures and legislative requirements for cheese making process

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
FBPCHE5003 Produce a range of rennet-coagulated cheeses	FDFCH4003A Produce a range of rennet-coagulated cheeses	Updated to meet Standards for Training Packages Unit code updated to reflect AQF level Changes to Performance Criteria to clarify the intent of the unit	Equivalent unit

Links

Companion Volume Implementation Guides are found in VETNet: -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=78b15323-cd38-483e-aad7-1159b570a5c4>

Assessment Requirements for FBPCHE5003 Produce a range of rennet-coagulated cheeses

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Performance Evidence

An individual demonstrating competency in this unit must satisfy all of the elements and performance criteria of this unit.

There must be evidence that the individual has safely and effectively overseen the production of at least two different rennet-coagulated cheeses, including:

- sampling fresh milk and analysing results
- preparing milk for cheese making
- carrying out standardisation and pasteurisation procedures
- adjusting milk to renneting temperature and monitoring temperature
- adding optional additives to influence flavour, colour and texture during ripening
- adding starter for acidification by lactic acid or acid for direct or part-acidified milk for cheese making
- adding rennet to promote coagulation
- testing readiness of curd for cutting
- using stainless steel wire or nylon line knives to cut the curd into small particles
- carrying out agitation and optional cooking procedure
- carrying out cheese washing procedures, appropriate to type of cheese
- carrying out drainage operations
- carrying out further curd treatment, depending on the cheese type
- carrying out salting or brining process
- managing process control for moisture, pH, calcium phosphate levels, microbiology, texture and flavour in rennet-coagulated cheese making
- carrying out sampling for chemical and microbiological testing of cheese
- managing ripening process for rind cheeses, mould-ripened cheeses and bacterial surface ripened cheeses for optimum quality
- assessing rennet-coagulated cheeses for organoleptic qualities
- conducting tests for pH, moisture and salt levels in cheese
- maintaining records for cheese making
- developing operating procedures for the cheese making process.

Knowledge Evidence

An individual must be able to demonstrate the knowledge required to perform the tasks outlined in the elements and performance criteria of this unit. This includes knowledge of:

- the common processes for making different types of rennet-coagulated cheeses, including:
 - pasta filata
 - eye cheese
 - cheddar
- the main components of milk and cheese (both curds and whey)
- types and impact of inhibitory substances in milk, including bacteriophage
- specifications of product at each stage of rennet-coagulated cheese making
- milk preparation for cheese making (standardisation and pasteurisation)
- types of starters used and their role in the fermentation process
- types of adjunct cultures and their role in the flavour and texture characteristics of the ripened cheese
- use of additives to the milk for modifying the flavour, texture and colour of the ripened cheese
- use of bacterial cultures and coagulating enzymes
- processes of coagulation and syneresis and their role in rennet-coagulated cheese making
- critical control points in the manufacture of each cheese type
- principles of brine salting and maintenance of brine salting systems for brine salted cheeses
- principles of dry salting for dry salted cheeses
- effects of pH and temperature on cheese processing performance and product quality
- lactic acid bacteria and their role in cheese making
- microbial contaminants of cheese (lipolytic bacteria, yeasts, moulds, bacillus, listeria, Escherichia coli, salmonella, coliforms and staphylococci) and their impact on cheese quality
- sampling and testing procedures
- yeasts and moulds and other microorganisms of significance in cheese making
- contamination/food safety risks associated with the process, and related control measures
- techniques used to monitor the cheese making process, such as inspecting, measuring and testing
- common causes of variation and corrective action required for each cheese making process
- organoleptic properties and their relationship to process control and ingredients in cheese making
- contamination risk of inoculants and contaminants
- food safety and quality assurance standards and procedures
- yield efficiency
- aseptic conditions and techniques for cheese making
- cleaning and sanitation procedures in line with Australian Standards for cleaning in the dairy industry

- routine maintenance procedures for cheese making equipment
- product/batch changeover procedures
- work health and safety hazards and controls
- procedures for recording production and performance information
- environmental issues and controls relevant to the process, including waste collection and handling procedures
- Food Standards Code
- state/territory, Commonwealth and industry requirements relevant to food processing.

Assessment Conditions

Assessment of skills must take place under the following conditions:

- physical conditions:
 - skills must be demonstrated in a workplace setting or an environment that accurately represents a real workplace
- resources, equipment and materials:
 - ingredients, production process and related equipment for rennet-coagulated cheese
 - sampling and testing equipment and procedures
 - food safety related information, including milk counts and cheese bacterial counts for milk used
- specifications:
 - manufacturers' advice and product specifications.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

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