

Modification history

Release	Comments
Release 1	This version released with FBP Food, Beverage and Pharmaceutical Training Package version 3.0.

FBPTEC4XX10	Control and monitor fermentation
Application	<p>This unit of competency describes the skills and knowledge required to produce fermented foods or beverages.</p> <p>This unit applies to those workers who have responsibility for overseeing the production of fermented food and/or beverages and the quality assurance requirements associated with those products.</p> <p>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.</p>
Prerequisite Unit	Nil
Unit Sector	Technical (TEC)

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. Prepare for fermentation	1.1 Identify hazards in the fermentation process and manage risks 1.2 Clean and sanitise equipment and environment 1.3 Confirm availability of raw materials and starter, as required 1.4 Check quality of raw materials meets specification for end product
2. Ferment food or beverage	2.1 Inoculate food or beverage product with starter, as required and mix 2.2 Add adjuncts, specific to product 2.3 Set time, temperature and humidity for fermentation 2.4 Control temperature and humidity to facilitate fermentation 2.5 Conduct standard tests to monitor quality of product 2.6 Analyse test results and adjust process as required 2.7 Stop fermentation process when food or beverage reaches desired texture, taste and appearance 2.8 Record details of process for traceability, in line with organisational and regulatory requirements 2.9 Cool product ready for packaging
3. Conduct housekeeping activities	3.1 Clean equipment and work area in line with workplace procedures 3.2 Conduct routine maintenance activities 3.3 Dispose of waste in line with regulatory requirements

Foundation Skills	
<i>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.</i>	
Skill	Description
Numeracy skills	<ul style="list-style-type: none"> Convert units involving multiples and submultiples Use fractions, decimals, proportions and percentages to determine responses to results Use volumes (ml, L) and weights (mg, g, kg) to describe product quantities Calculate dose (mg), average mass, mass percentage, density, moisture, relative and absolute humidity

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
	<ul style="list-style-type: none"> Determine ratios, such as mass to mass, mass to volume and volume to volume percentages Calculate concentration, such as g/100mL, mg/L and dilution ml/L
Get the work done	<ul style="list-style-type: none"> Think through options to identify and respond to atypical results of tests Trace and source obvious cause of artefact or malfunction

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
FBPTEC4XX10 Control and monitor fermentation		New unit	No equivalent unit

Links	
	Companion Volumes, including Implementation Guides, are available at VETNet: https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=78b15323-cd38-483e-aad7-1159b570a5c4

TITLE	Assessment requirements for FBPTEC4XX10 Control and monitor fermentation
Performance Evidence	
<p>An individual demonstrating competency must satisfy all of the elements and performance criteria in this unit.</p> <p>There must be evidence that the individual has controlled and monitored a fermentation process on at least two separate occasions for the same product, to produce two products with consistent colour, smell, texture, taste and appearance.</p>	

Knowledge Evidence
<p>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:</p> <ul style="list-style-type: none"> • fermented products that require a starter culture to begin the fermentation process • products that are fermented with: <ul style="list-style-type: none"> • yeast, including beer, cider, wine, sour dough bread • bacteria (lactic acid fermentation which does not always require a starter), including sauerkraut, kimchi, olives, vinegar, fermented vegetables, chilli sauce, cultured butter, water kefir • fungi, including koji, miso, soy sauce, tempeh, natto • yeast and bacteria, including kombucha • bacteria and fungi, including cheese • yeast, bacteria and fungi, including milk kefir, sake • ideal temperature to promote enzyme activity, relevant to product • specific starters used for different products, including symbiotic culture of bacteria and yeast (SCOBY) for kombucha • natural starters versus commercial starters • typical adjuncts added to the fermentation process, including salt and sugar • typical basic tests, equipment and methods relevant to process, such as temperature, pH and humidity and calibration requirements • sanitation requirements and purpose • instruments and measurements used for typical tests including thermometer probe, pH meter, hygrometer and calibration requirements for each • acceptable parameters for typical test results • anaerobic pathogen risks associated with fermentation processes • effect pH has on the maturation process • air circulation requirements of specific products • possible effects of temperature fluctuations, relative humidity and air circulation on product • relationship between pH, water activity (A_w) and humidity • interpretation of test results, including simple calculations • methods for controlling atypical outcomes of tests, relevant to process • Food Standards Code in relation to fermented food • tensions between the Food Standards Code and the fermentation process • waste handling and disposal requirements • record keeping requirements for traceability of product.

Assessment Conditions
<p>Assessment of skills must take place under the following conditions:</p> <ul style="list-style-type: none"> • physical conditions: <ul style="list-style-type: none"> • skills must be demonstrated in a workplace setting or an environment that accurately represents a real fermented food or beverage production environment • resources, equipment and materials: <ul style="list-style-type: none"> • raw materials and equipment to ferment food and/or beverage • test equipment • specifications <ul style="list-style-type: none"> • specification for product.

Assessment Conditions

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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