



Australian Government

Department of Education, Employment and Workplace Relations

FDFCEL2008A Perform dual column distillation (continuous still brandy) operations

Release: 2

FDFCEL2008A Perform dual column distillation (continuous still brandy) operations

Modification History

This unit supersedes and is equivalent to FDFCELDCDA Perform dual column distillation (continuous still brandy) operations.

April 2012: Minor typographical corrections.

Unit Descriptor

Unit descriptor	This specialist unit has been developed for the cellar stream of the wine sector. It covers the skills and knowledge required to start up, operate and shut down the dual column distillation process for the purpose of brandy production.
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Application of the Unit

Application of the unit	This unit applies to cellar operations staff engaged in the production of brandy using dual column distillation equipment. It covers managing the equipment and process, taking samples and tests, routine and emergency shutdowns, and keeping of records. A working knowledge of Customs and Excise regulations is also required. The unit can apply to both manual and computer-controlled distillation processes.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		
	FDFCEL2004A	Perform single column lees stripping (continuous still brandy) operations
	FDFCEL2012A	Handle spirits

Employability Skills Information

Employability skills	This unit contains employability skills.
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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. Prepare the dual column distillation process for operation	1.1 Product and materials are confirmed and available to meet production requirements 1.2 Product and materials are prepared to meet production requirements 1.3 Services are confirmed as available and ready for operation 1.4 Equipment is checked to confirm readiness for use 1.5 The process is set to meet production requirements
2. Operate and monitor the dual column distillation process	2.1 The dual column distillation process is started up according to workplace procedures 2.2 Control points are monitored to confirm performance is maintained within specification 2.3 Distillate meets specification 2.4 Equipment is monitored to confirm operating condition 2.5 Out-of-specification distillate, process and equipment performance is identified, rectified and/or reported
3. Shut down the distillation process	3.1 The process is shut down according to workplace procedures 3.2 Equipment is dismantled and prepared for cleaning 3.3 Work is conducted in accordance with workplace environmental guidelines
4. Record information	4.1 Workplace information is recorded in the appropriate format

Required Skills and Knowledge

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

Required skills include:

Note: The following required skills should be applied as appropriate to the equipment and processes that are used in the particular winery or workplace.

Ability to:

- access workplace information to identify distillation requirements
- select, fit and use personal protective clothing and/or equipment
- confirm supply of necessary product, materials and services. This may include checking temperature and alcoholic strength
- liaise with other work areas
- prepare product and materials as required. This may include heating the incoming product
- confirm equipment status and condition. This may include checking:
 - monitoring equipment
 - air pressure from compressor
 - fuel intake
 - water flow to condensers
 - receiver vessel
 - integrity of lines and fittings
- set up and start up the process. This will include any tests or procedures required to meet Customs and Excise regulations
- monitor the process and equipment operation to identify out-of-specification results or non-compliance. This may involve monitoring:
 - alcohol in the feed
 - cooling water flow rates to condensers
 - volume of charge
 - temperature of distillate
 - alcoholic strength of distillate
 - heat source
 - reflux temperatures
 - temperature of incoming wine
 - temperature throughout still and/or column
 - temperatures and strengths at take-off points
 - containers for heads, hearts and tails
 - evaporation rates
 - change characteristics
 - pressure of still and/or column
 - condensation rate and/or condensation flow
- monitor supply and flow of product, materials and services to and from the process

- take corrective action in response to out-of-specification results or non-compliance
- report and/or record corrective action as required
- conduct product or batch changeovers
- take samples and conduct tests
- shut down equipment in response to an emergency situation
- shut down equipment in response to routine shutdown requirements
- prepare equipment for cleaning. This may involve draining and/or dismantling equipment, and removing waste either manually or by rinsing, in preparation for cleaning and sanitation
- record workplace information. This will include meeting the requirements of Customs and Excise regulations
- maintain work area to meet housekeeping standards
- ensure that all Customs and Excise regulations are adhered to
- sort, collect, treat, recycle or dispose of waste according to enterprise procedures
- clean and sanitise equipment according to enterprise procedures
- carry out routine maintenance according to enterprise procedures
- carry out transfer operations according to enterprise procedures
- perform heat exchange operations according to enterprise procedures
- identify, rectify and/or report environmental non-compliance according to enterprise procedures
- use oral communication skills/language to fulfil the job role as specified by the organisation, including questioning, active listening, asking for clarification and seeking advice from supervisor
- work cooperatively within a culturally diverse workforce

Required knowledge includes:

Note: The following required knowledge should be applied as appropriate to the equipment and processes that are used in the particular winery or workplace.

Knowledge of:

- purpose and principles of dual column distillation
- types and operation of distillation systems used for brandy production, including pot stills and continuous stills and the critical differences between them. This should include:
 - structure and operation
 - affect on characteristics of end product, including flavour, aromas, alcohol content, complexity and smoothness
- link to related processes. This will include the fermentation and preparation of the product to be distilled, oak maturation, storage and any further processing requirements of the distillate
- stages and changes that occur during brandy distillation. This will include critical temperatures and specific components affected
- effect of process stages on distillate
- quality characteristics and uses of brandy and brandy spirit
- product and materials preparation requirements and effect of variation on the process
- process specifications, procedures and operating parameters
- equipment and instrumentation components, purpose and operation

- basic operating principles of process control systems where relevant
- sampling and testing procedures
- services used
- significance and method of monitoring control points within the process
- common causes of variation and corrective action required
- Occupational Health and Safety (OHS) hazards and controls. This will include:
 - the dangerous properties of ethyl alcohol
 - emergency flooding procedures
 - emergency evacuation procedures
 - handling procedures of spirits
- lock-out and tag-out procedures
- procedures and responsibility for reporting problems
- environmental issues and controls
- shutdown and cleaning requirements associated with changeovers and types of shutdowns
- recording requirements and procedures
- operational knowledge of Customs and Excise regulations
- waste handling requirements and procedures where relevant
- cleaning and sanitation procedures where relevant
- routine maintenance procedures where relevant
- transfer procedures where relevant
- heat exchange procedures where relevant

Evidence Guide

EVIDENCE GUIDE

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.

Overview of assessment

Assessment must be carried out in a manner that recognises the cultural and literacy requirements of the assessee and is appropriate to the work performed. Competence in this unit must be achieved in accordance with food safety standards and regulations.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Evidence of ability to:

- use personal protective equipment and follow other specified OHS procedures
- prepare products, including checks for temperature

EVIDENCE GUIDE

and alcoholic strength

- prepare and confirm status of equipment before distillation
- monitor distillation process control points and equipment, including taking of samples and conducting of tests
- take corrective action in response to out-of-specification results or non-compliance
- demonstrate knowledge of OHS hazards, controls and emergency procedures
- record information is recorded.

EVIDENCE GUIDE	
Context of and specific resources for assessment	<p>Assessment must occur in a real or simulated workplace where the assessee has access to:</p> <ul style="list-style-type: none"> • personal protective clothing and equipment as required • work procedures, including advice on company practices, safe work practices, food safety, quality and environmental requirements • instructions, information, specifications and schedules as required • equipment, services and corresponding information as required • products and materials as required • internal and external customers and suppliers as required • cleaning procedures, materials and equipment as required • documentation and recording requirements and procedures.
Method of assessment	This unit should be assessed together with other units of competency relevant to the function or work role.
Guidance information for assessment	To ensure consistency in one's performance, competence should be demonstrated on more than one occasion over a period of time in order to cover a variety of circumstances, cases and responsibilities, and where possible, over a number of assessment activities.

Range Statement

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>	
Policies and procedures	Work is carried out in accordance with workplace procedures, licensing requirements and legislative requirements

RANGE STATEMENT	
Workplace information	<p>Workplace information can include:</p> <ul style="list-style-type: none"> • Standard Operating Procedures (SOPs) • specifications • production schedules and instructions • work notes • Material Safety Data Sheets (MSDS) • manufacturer instructions • verbal direction from manager, supervisor or senior operator
Dual column distillation equipment	<p>Dual column distillation equipment may include:</p> <ul style="list-style-type: none"> • analyser column • rectifier column • pumps • lines and fittings • valves • flow meters • heat exchangers • pressure vessels • compressors • condensers • receival vessel • test equipment (e.g. hydrometers and thermometers) • monitoring equipment
Product and materials	<p>Product and materials may include:</p> <ul style="list-style-type: none"> • a range of wine, low wines and fuel
Services	<p>Services may include:</p> <ul style="list-style-type: none"> • power • water (hot and cold) • steam • fuel
Confirming equipment status	<p>Confirming equipment status involves:</p> <ul style="list-style-type: none"> • checking that hygiene and sanitation standards, safety standards and pre-start requirements are met and that equipment is operational • checking the operation and calibration status of measuring instrumentation
Monitoring the process	<p>Monitoring the process may involve:</p>

RANGE STATEMENT	
	<ul style="list-style-type: none"> the use of production data, such as performance control charts (manual or computerised) sampling sensory evaluation analytical tests
Process set up, operation and monitoring functions	<p>Process set up, operation and monitoring functions may be:</p> <ul style="list-style-type: none"> manual or involve the use of a process control system
Control points	<p>Control points refer to those key points in a work process that must be monitored and controlled. This includes:</p> <ul style="list-style-type: none"> food safety (critical) quality and regulatory control points inspection points
Information systems	<p>Information systems may be:</p> <ul style="list-style-type: none"> print or screen based
Work hazards	<p>Work may involve exposure to:</p> <ul style="list-style-type: none"> chemical, dangerous or hazardous substances

Unit Sector(s)

Unit sector	Wine operations
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Custom Content Section

Not applicable.