



Australian Government

Department of Education, Employment and Workplace Relations

FDFOP2068A Operate a beer maturation process

Release: 1

FDFOP2068A Operate a beer maturation process

Modification History

New Unit.

Unit Descriptor

This unit covers the conditioning of green beer upon completion of the fermentation process including flavour maturation, clarification, stabilisation, conditioning, as well as use of additions and agents.

Application of the Unit

This unit applies to operators and other personnel responsible for conditioning of green beer. The unit applies to beer conditioning processes in both large and small breweries. Work is undertaken to specifications and requirements developed by brewers, supervisors or other qualified personnel. The unit includes complying with quality and standard operating procedures and conducting of routine changeovers. Where changeovers require maintenance related skills, the unit FDFOP2011A Conduct routine maintenance should be considered.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

FDFOP2071A Identify key stages and beer production equipment in a brewery

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 Prepare the maturation process for production	1.1 Maturation requirements are confirmed 1.2 Clarification requirements are confirmed including specifications for any additions and agents 1.3 Materials are confirmed and available to meet production requirements 1.4 Services are confirmed as being ready for operation 1.5 Equipment is checked to confirm readiness for use 1.6 The maturation process is set to meet production requirements
2 Operate and monitor beer maturation equipment	2.1 Equipment is started up according to company procedures 2.2 Control points are monitored to confirm performance is maintained within specification 2.3 System and sub-system outputs meet specification 2.4 Equipment is monitored to confirm operating condition 2.5 Out-of-specification product, process, equipment performance is identified, rectified and/or reported 2.6 Size and product changeovers are completed in accordance with batch instructions and standard operating procedures 2.7 Workplace information for the beer maturation process is recorded in the appropriate format
3 Shut down the system	3.1 The system is shut down according to company procedures 3.2 Equipment is cleaned and maintained to meet the cleaning schedule and procedural requirements 3.3 Waste generated by both the process and cleaning procedures is collected, treated and disposed of or recycled according to company procedures
4 Contribute to continuous improvement of the system	4.1 Quality or process outputs are assessed against specifications 4.2 Opportunities for improvement are identified and investigated 4.3 Proposals for improvements are developed and implemented within company planning arrangements and according to company procedures
5 Record information	5.1 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 includes:

Ability to:

- handle dangerous goods according to required procedures
- monitor control points within the maturation process
- confirming equipment status including checking that hygiene and sanitation standards are met and that all safety guards are in place and equipment is operational
- operate equipment and controls to achieve specifications including:
 - required temperature
 - required concentration of finings and other additions
 - transfers
 - disposal of sediment and other waste
- undertake corrective action in the event of variation to specification
- identify OHS hazards and implement appropriate action
- select, fit and use personal protective clothing and equipment
- procedures and responsibilities for reporting and solving problems
- environmental issues and controls
- shutdown process and equipment and implement cleaning requirements associated with changeovers
- waste handling requirements and procedures
- record production and other data according to procedures
- collect samples and conduct tests according to enterprise procedures
- clean and sanitise equipment according to enterprise procedures
- use oral communication skills/language competence 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:

Knowledge of:

- purpose and principles of the maturation process
- relationship between the maturation process, fermentation process and the filtration process
- stages and changes which occur during maturation
- requirements of maturation
- purpose of temperature control and cold storage in the maturation process
- purpose of protein absorbing agents
- purpose of oxygen scavenging agents
- purpose of tannin absorbing agents
- procedures for vessel transfer

- quality characteristics to be achieved
- process specifications, procedures and operating parameters
- significance and methods of monitoring control points within the maturation process
- equipment and instrumentation components, purpose and operation
- common causes of variation and corrective action required
- OHS hazards and controls
- environmental issues and controls
- waste handling requirements and procedures
- recording requirements and procedures
- cleaning and sanitation procedures
- purpose of finings
- cask maturation
- sampling and testing procedures
- routine maintenance procedures

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: • access workplace information to identify production requirements and beer type for beer maturation process • confirm the supply of necessary materials and services to the maturation process • confirm equipment status and condition • set up and start the maturation process • receive green beer from the fermentation process or complete the maturation process in the fermentation tank • add additions and agents • monitor the maturation process and equipment operation to identify out-of-specification results or non-compliance • take corrective action in response to out-of-specification results or non-compliance • monitor supply and flow of materials to and from the process • report and/or record corrective action as required • conduct product/beer-type changeovers • dispose of waste sediment.
Context of and specific resources for assessment	Assessment of this unit must occur in a real or simulated workplace where the assessee has access to: • work procedures including advice on OHS policy, system and procedures including relevant legislation and codes of practice, safe work practices, food safety and environmental requirements • standard operating procedures and related advice • personal protective clothing and equipment as required • relevant hazard control equipment and storage areas for hazardous goods as required

	• emergency and/or evacuation procedures for the potential range of hazards • manual handling equipment as required • maturation process equipment • maturation production ingredients including green beer supply, additions and agents • cleaning schedule as required • sampling and testing schedules as required • documentation and recording requirements and procedures.
Method of assessment	This unit should be assessed together with core units and other units of competency relevant to the function or work role. Examples could be: • FDFOP2003A Clean equipment in place • FDFOP2004A Clean and sanitise equipment • FDFOP2011A Conduct routine maintenance • FDFOP2013A Apply sampling procedures • FDFOP2030A Operate a process control interface • MSL973001A Perform basic tests.
Guidance information for assessment	To ensure consistency in one's performance, competency 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

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.

Maturation process	The maturation process may include: • Receiving fermented 'green beer' from the fermentation process • storing 'green beer' • adding agents and additives • monitoring temperature • clarification • conditioning • stabilisation • filtration • production quality checks • transferring matured beer to bright beer tanks.
Indicators of out of specification beer during maturation	During monitoring of beer maturation, out of specification results may be indicated by: • haze • colour • bitterness • incorrect levels of • carbon dioxide • oxygen • proteins • tannins.
Materials used include:	Materials used includes green beer (fermented wort) and any of the following: • clarifying agents • finings • sugar • colouring/caramel • hop extracts • head stabilising agents • carbon dioxide (CO₂).
Services:	May include: • power

	• gas • water • steam • compressed air • refrigeration.
Maturation equipment	Maturation equipment may include: • filters • valves • pumps • tanks • mixing and blending equipment • dosers • cellars • heat exchangers/chillers • cleaning equipment • equipment accessories • monitoring and chemical analysis instruments (oxygen, carbon dioxide, starch, gravity, acidity, colour and bitterness) • transfer systems. Process equipment and operation and monitoring functions may be manual or involve the use of a process control system.
Maturation system controls	The maturation control system for operation and monitoring may be manual or involve the use of a process control system include and may also involve the use of production data such as performance control charts.
Control points	Control points to those key points in a work process which much be monitored and controlled. This includes food safety (critical) quality and regulatory control points as well as inspection points.
Workplace information	Workplace information may includes Standard Operating Procedures (SOPs), product and equipment manuals and specifications and production schedules. The information may be print or screen based.

Unit Sector(s)

Operations.