



Australian Government

Department of Education, Employment and Workplace Relations

FDFOP2074A Prepare and monitor beer yeast propagation processes

Release: 1

FDFOP2074A Prepare and monitor beer yeast propagation processes

Modification History

New Unit

Unit Descriptor

This specialist unit has been developed for the brewing industry. It covers the skills and knowledge required to prepare and monitor yeast cultures with respect to yeast propagation production processes.

Application of the Unit

This unit applies to staff of brewery enterprises who propagate yeast cultures used in beer production.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

There are no pre-requisite units for this competency standard.

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 for propagation	1.1 Propagation requirements are identified and confirmed 1.2 Yeast cultures are prepared for use 1.3 Product and materials are confirmed and available to meet propagation requirements 1.4 Product is prepared to meet specified propagation requirements 1.5 Services are confirmed as available and ready for operation
2 Prepare equipment for culture preparation	2.1 Cleaning and sterilising equipment is checked to confirm readiness for use 2.2 Propagation equipment is selected, cleaned and sterilised according to workplace procedures 2.3 Transfer equipment is selected, cleaned and sterilised as required
3 Maintain and monitor the propagation process	3.1 Transfer operations are conducted to meet propagation requirements 3.2 The culture propagation process is conducted according to workplace procedures 3.3 Scale-up additions are made according to workplace procedures 3.4 Control points are monitored to confirm performance is maintained within specification 3.5 Equipment is monitored to confirm operating condition 3.6 Out-of-specification product, process and equipment performance is identified, rectified and/or reported
4 Complete propagation activities	4.1 The propagation process is completed according to workplace procedures 4.2 Equipment is dismantled and prepared for cleaning 4.2 Waste generated by both the process and cleaning procedures is collected, treated and disposed of, or recycled according to workplace procedures 4.3 Work is conducted in accordance with workplace environmental guidelines
5 Record information	5.1 Workplace information recorded in the appropriate format

Required Skills and Knowledge

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

Required skills includes:

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

Ability to:

- Access workplace information to identify culture propagation requirements
- Select, fit and use personal protective clothing and/or equipment
- Confirm supply of necessary product, materials and services
- Liaise with other work areas
- Prepare product and materials as required. This may include:
 - culture yeast slopes
 - oxygenated wort
 - yeast nutrients
 - oxygen supply and sterilisation
 - wort heating
 - wort sterilisation
- Confirm equipment status and condition. This may include checking:
 - cleaning and/or sterilisation requirements have been met
 - position and alignment of valves
 - integrity of door seals and small vessel tubing and condition of gas (oxy) filters
- Start up the process
- Monitor the process and equipment operation to identify out-of-specification results or non-compliance. This may involve sampling and checking:
 - temperature (wort)
 - wort gravity
 - wort oxygenation levels
 - yeast cell counts
 - yeast viability
- Monitor supply and flow of product and materials 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 and batch changeovers
- Follow confined space entry policies and procedures when required
- Sort, collect, treat, recycle or dispose of waste
- Shut down equipment in response to an emergency situation
- Shut down equipment in response to routine shutdown requirements
- Record workplace information
- Maintain work area to meet housekeeping standards

- Prepare equipment for cleaning. This may involve draining and/or dismantling equipment, and removing waste either manually or by rinsing, in preparation for sanitation
- Identify, rectify and/or report environmental non-compliance
- Carry out routine maintenance
- 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 workplace.

Knowledge of:

- Purpose and principles of propagating yeast cultures
- Relationship of propagation to alcoholic fermentation
- Stages and changes which occur during culture propagation
- Effect of process stages on end product
- Quality characteristics and uses of yeast cultures
- Product and materials preparation requirements and effect of variation on the process
- Main methods used in propagating yeast for beer production
- The fermentation reaction for yeast cultures
- Techniques that may be used to manipulate the propagation process and end product characteristics, including:
 - temperature
 - yeast strain
 - wort stream
 - wort gravity
 - additions (nutrients)
 - oxygen
- Process specifications, procedures and operating parameters
- Equipment and instrumentation components, purpose and operation
- Basic operating principles of process control systems where relevant
- 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, specifically confined space entry
- 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
- Waste handling requirements and procedures
- Recording requirements and procedures

- Routine maintenance procedures
- Aseptic techniques

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 • check and prepare product and any additions, including check of quality of yeast cultures before use • check and confirm readiness of equipment before operation • start propagation process correctly • monitor propagation process control points for performance against specifications • take appropriate corrective action for out-of-specification process and equipment performance • collect waste and store, treat or dispose of appropriately • record information appropriately.
Context of and specific resources for assessment	Assessment must occur in a real or simulated workplace where the assessee has access to: • 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

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.

Policies and procedures	Work is carried out in accordance with workplace procedures, licensing requirements and legislative requirements
Workplace information	Workplace information can include: • Standard Operating Procedures (SOPs) • specifications • production schedules and instructions • routine maintenance schedules • work notes • Material Safety Data Sheets (MSDS) • manufacturer instructions • verbal direction from manager, supervisor or senior operator.
Equipment	Equipment may include: • propagation vessels • storage vessels • sterile filtration equipment for gases • hoses and fittings and tubing • pumps • dosing equipment • mixers/shakers • testing equipment (e.g. microscope with cell counter, density meter).
Product and materials	Product and materials may include: • culture yeast slopes • oxygenated wort • yeast nutrients • oxygen supply • sterilisation materials.
Services	Services may include: • electricity • water • steam

	• compressed air • oxygen.
Confirming equipment status	Confirming equipment status involves: • checking that hygiene and sanitation standards, safety standards and pre-start requirements are met and that equipment is operational • checking the calibration status of measuring instrumentation.
Monitoring the process	Monitoring the process may involve: • the use of production data • sampling • checking temperature, gravity, cell counts, viability, oxygen levels • visual inspection.
Process set up, operation and monitoring functions	Process set up, operation and monitoring functions may be manual or involve the use of a process control system.
Control points	Control points refer to those key points in a work process that must be monitored and controlled. This includes: • food safety (critical) • quality and regulatory control points • inspection points.
Information systems	Information systems may be print or screen based.
Work hazards	Work may involve exposure to chemical, dangerous or hazardous substances.

Unit Sector(s)

Operations.