



Australian Government

Department of Education, Employment and Workplace Relations

FDFLAB2002A Perform basic microbiological tests

Release 3

FDFLAB2002A Perform basic microbiological tests

Modification History

This unit supersedes and is equivalent to FDFLABBMTA Perform basic microbiological tests.

September 2012: clarified pre-requisite information.

April 2012: Minor typographical corrections.

Unit Descriptor

Unit descriptor	This unit covers the skills and knowledge required to perform a range of microbiological tests and procedures in a winery laboratory using standard methods. Work is usually done under routine supervision.
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Application of the Unit

Application of the unit	This unit has application in a wine operations laboratory environment. It typically targets the worker responsible for applying basic laboratory principles to perform basic microbiological tests.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		
	FDFLAB2012A	Maintain aseptic environment* <i>FDFLAB2011A Use basic laboratory equipment</i>

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 to perform microbiological procedures	1.1 Materials are confirmed and available for use 1.2 Materials are prepared to meet requirements 1.3 Services are confirmed as available and ready for use 1.4 Equipment is selected, prepared and checked to confirm readiness for use
2. Perform microbiological procedures	2.1 Equipment is operated according to instructions 2.2 Procedures are carried out according to instructions 2.3 Equipment is monitored to confirm operating condition 2.4 Out-of-standard process, equipment performance or results and anomalies are identified, rectified and/or reported
3. Complete microbiological procedures	3.1 Waste generated by the procedure is disposed of according to workplace procedures 3.2 Equipment is 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 requirements
- select, fit and use appropriate personal protective clothing and/or equipment
- confirm equipment status and condition
- carry out tests according to workplace procedures
- read and interpret results as required
- record results as required and complete workplace information
- monitor the process and equipment to identify out-of-specification results or non-compliance
- take corrective action in response to out-of-specification results, anomalies or non-compliance
- report and/or record corrective action according to workplace procedures
- follow procedures to repeat or validate results as required
- differentiate between wine yeast and bacterial cells under a microscope as 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
- maintain work area to meet housekeeping standards. This will include maintenance of aseptic environment
- prepare equipment for cleaning. This may include dismantling equipment or rinsing in preparation for sanitation
- clean and sanitise equipment according to enterprise procedures
- identify, rectify or report environmental non-compliance according to enterprise procedures
- perform oil emersion and phase contrast techniques 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:

- principles of the procedure
- purpose of the procedure
- relevant standards and specifications and basic legislative requirements (e.g. quality, health, safety, labelling and equipment) and their implications

- procedure specification and operating parameters
- affect of process stages on results
- start-up and set-up procedures required
- how to read, interpret and record results as required
- normal range of results for procedures performed
- Occupational health and safety (OHS) hazards and controls
- procedures and responsibility for reporting problems
- environmental issues and controls
- procedures and responsibility for reporting problems
- cleaning and sanitising requirements of equipment and work area
- aseptic requirements and techniques
- growth characteristics of yeast/bacteria
- lock-out and tag-out procedures as required
- emergency and troubleshooting procedures for a range of operational problems
- services required
- common causes and knock-on effects of inaccuracies or contamination, and preventive or corrective action required
- shutdown sequence as required
- environmental issues and controls
- recording requirements and procedures
- cleaning and sanitising procedures where relevant
- routine maintenance procedures where relevant
- oil emersion and phase contrast techniques where relevant
- relationship with other standards 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: • prepare equipment and materials for conducting tests • conduct basic microbiological tests according to workplace requirements • interpret results and identify out-of-standard results • conduct housekeeping and dispose of waste according to workplace standards • complete documentation.
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

EVIDENCE GUIDE

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**

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 may include:

- Standard Operating Procedures (SOPs)
- specifications
- production schedules
- instructions
- work notes
- Material Safety Data Sheets (MSDS)
- manufacturer instructions
- verbal direction from laboratory manager, supervisor or senior operator

Sampling

Sampling should conform to:

- relevant food standards code

Tests

The range of tests performed may include the following techniques:

- sterile filtration, aseptic transfer, basic microscopy, slide preparation, staining, basic colony/cell identification and centrifugation

Typical tests and procedures performed at this level may include:

- yeast counts in ferments/cultures, sterility monitoring, hygiene monitoring, yeast/bacteria

RANGE STATEMENT	
	enumeration and differentiation, and other tests as required by the workplace

RANGE STATEMENT	
Equipment	Equipment may include: • personal protective equipment • inoculating loops • spreaders • pipettes • syringes • needles • flasks • tubes • filtration apparatus • microscopes • counting chambers • colony counting devices • Bunsen burners • water baths • incubators • laboratory glassware and measuring equipment • laminar flow cabinets • ultraviolet (UV) cabinets • autoclaves • microwave ovens • hot air ovens • sharps disposal receptacles • biological waste receptacles
Materials	Materials may include: • culture media • live/dehydrated cultures • filters • stains • reagents • disinfecting and sterilising agents
Equipment status	Confirming equipment status involves: • checking that hygiene and sanitation standards, safety standards, pre-start requirements are met and that equipment is operational • checking the operation and/or calibration of measuring instrumentation
Services	Services may include:

RANGE STATEMENT	
	• water • steam • gases • power
Information systems	Information systems may be: • print or screen based

Unit Sector(s)

Unit sector	Wine operations
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