Australian Government

Department of Education, Employment and Workplace Relations

FDFLAB3005A Perform instrumental tests or procedures on wine samples

Release 3

FDFLAB3005A Perform instrumental tests or procedures on wine samples

Modification History

September 2012: clarified pre-requisite information.
April 2012: Minor typographical corrections.

Unit Descriptor

Unit descriptor	This unit covers the skills and knowledge required to prepare wine samples, conduct tests and record data.

Application of the Unit

Application of the unit	This unit of competency has been developed for the laboratory stream of the wine sector. It describes the work conducted by laboratory technicians who use basic instrumental tests or procedures to evaluate wines. All operations must comply with relevant standards, appropriate procedures and/or enterprise requirements.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		
	FDFLAB2006A	Record laboratory data, and
	FDFLAB2001A	Perform basic analytical tests*, or *FDFLAB2011A Use basic laboratory equipment*
	FDFLAB2002A	Perform basic microbiological tests*, or *FDFLAB2012 Maintain aseptic environment* *FDFLAB2011A Use basic laboratory equipment*
	FDFLAB2009A	Perform packaging quality control procedures* *FDFLAB2011A Use basic laboratory equipment*

Employability Skills Information

Employability skills	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 wine sample	1.1 Wine to be tested is identified and appropriate standard method and safety requirements selected 1.2 Personal protective equipment and safety procedures are applied as specified for test method 1.3 Wine sample description is recorded, compared with specification and discrepancies reported 1.4 Wine sample is prepared in accordance with testing requirements
2. Test wine sample	2.1 Wine sample is measured 2.2 Equipment and materials are set up and used according to workplace procedures 2.3 Calibration status of equipment is checked 2.4 Test method is carried out according to procedure 2.5 Results are read and interpreted 2.6 Out-of-standard results are identified and appropriate action taken 2.7 Equipment is shut down in accordance with operating procedures
3. Process data	3.1 Test data is recorded noting atypical observations 3.2 Calculated quantities are checked to ensure they are consistent with estimations 3.3 Results are recorded and reported in accordance with enterprise procedures 3.4 Trends in data and/or results are interpreted and out-of-specification or atypical results promptly reported to appropriate personnel 3.5 Basic procedure or equipment problems which have led to atypical data or results are identified and addressed
4. Maintain a safe work environment	4.1 Established work practices are applied to ensure personal safety and that of other laboratory personnel 4.2 Generation of waste is minimised and environmental standards applied including the safe disposal of laboratory wastes 4.3 Equipment and reagents are cleaned, cared for and stored as required
5. Maintain laboratory records	5.1 Approved data is recorded into enterprise system 5.2 Confidentiality of enterprise information and laboratory data is maintained 5.3 Security of enterprise information and laboratory data is ensured 5.4 Equipment logs are maintained in accordance with enterprise procedures

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 and interpret information to identify testing requirements
- select, fit and use appropriate personal protective clothing and/or equipment
- liaise with other work areas. This may include:
  - laboratory
  - winemaking
  - production
  - marketing
  - supply
- confirm supply of necessary materials, equipment and services
- prepare samples for testing
- prepare materials as required
- confirm equipment status and condition. This may include:
  - confirme that test equipment is operating accurately
  - recognise and rejecting contaminated or faulty glassware and equipment
  - perform safety checks
  - replace consumables
  - perform instrument setting and calibration
- operate equipment according to test procedure
- carry out tests
- read and interpret results
- record results and complete workplace information
- monitor the process and test equipment to identify out-of-standard results or non-compliance
- take corrective action in response to out-of-standards results, anomalies or non-compliance
- report and/or record corrective action according to workplace procedures
- follow procedures to repeat or confirm results
- 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
- prepare equipment for cleaning. This may include dismantling equipment or rinsing in preparation for sanitation
- take samples according to enterprise procedures
- clean and sanitise equipment according to enterprise procedures

- carry out routine maintenance according to enterprise procedures
- identify, rectify or report environmental non-compliance according to enterprise procedures.

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 test method
- purpose of the test
- relevant standards, specifications and basic legislative requirements (e.g. quality, health, safety, labelling and equipment) and their implications
- principles and concepts related to instrumentation operation and testing
- modes of separation and the concepts related to instrument operation and testing, where relevant
- function of key components of the instrument
- effects of modifying instrumental variables on output
- procedure for optimising equipment through changing operation parameters
- sample preparation procedures
- equipment and testing method troubleshooting procedures
- use of instrumentation for qualitative and/or quantitative analysis
- use of calibration charts
- calculation steps to give results in appropriate units
- effect of process stages on results
- start-up and set-up procedures as required
- services required
- common causes and knock-on effects of inaccuracies or contamination, and preventive or corrective action required
- how to read and interpret results
- recording requirements and procedures
- occupational health and safety (OHS) hazards and controls
- lock-out and tag-out procedures as required
- procedures and responsibility for reporting problems
- shutdown sequence as required
- environmental issues and controls
- procedures and responsibility for reporting problems
- cleaning and sanitising requirements of equipment and work area
- recording requirements and procedures.

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: • start up, set up and shut down equipment • check calibration status of equipment and calibrate if required • prepare and test samples using procedures appropriate to the nature of sample • optimise and use equipment and spectrometers to enterprise standards • prepare calibration graphs and calculate results in appropriate units • apply basic theoretical knowledge to interpret data and make relevant conclusions • identify atypical results as out of normal range of an artefact • trace and source the cause of an artefact • communicate problems to either supervisor or outside service technician • record and communicates results according to enterprise procedures • maintain security, integrity, traceability and identity of samples, sub-samples and documentation • follow OHS procedures.
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 • standard laboratory equipped with appropriate spectrometers

EVIDENCE GUIDE	
	• laboratory reagents and equipment • standard operating procedures and testing methods • documentation and recording requirements and procedures.

EVIDENCE GUIDE	
Method of assessment	This unit should be assessed together with core units and 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	
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
Tests	Tests will vary but may involve: • testing new materials or products • investigating complaints • improving laboratory efficiency • adjusting methods to conform to regulatory requirements (e.g. food safety and Hazard Analysis

RANGE STATEMENT	
	Critical Control Points (HACCP)) • meeting client expectations • controlling starting materials • in-process materials and finished products • basic troubleshooting of enterprise processes • environmental monitoring • discrete pathology tests Tests may be: • titrimetric and qualitative tests • spectrometric, for example: • ultraviolet/visible (UV/Vis), fluorimetric, infrared (IR), flame atomic absorption spectrometry (AA) • chromatographic, for example: • column and thin layer analytical and preparative chromatography • paper, gas, liquid chromatography and high performance (pressure) liquid chromatography (HPLC) • gel filtration chromatography (purification of proteins) • affinity chromatography (purification of immunoglobulins) • electrochemical, for example: • pH, ion-selective electrodes and polarography • electrophoretic, for example: • DNA patterns and determination of protein purity • physical and destructive tests • microbiological methods, such as isolating and maintaining culture collections, yeast and bacteria propagation and maintenance, and rapid yeast detection (epi-fluorescence) The tint and depth of colour in wines can be measured in terms of the amount of light in the visible range that is absorbed by a wine sample using a UV/Vis spectrophotometer. Accuracy of wine colour analysis is important as an incorrect result may result in over-fining of wines or the preparation of blends that do not meet winemaking specifications.

RANGE STATEMENT	
Equipment	Equipment may vary and should include that listed in test procedure or directions for conducting analyses
Materials	Materials may vary and should include those listed in test procedure or directions for conducting analyses
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 operation and/or calibration of measuring instrumentation
Potential problems	Potential problems may occur if the technician fails to: • set the wavelength correctly • use the correct size/type of cuvette • place the cuvettes correctly in the spectrophotometer • rezero the spectrophotometer when changing from one wavelength to another, or when changing to different cell sizes

Unit Sector(s)

Unit sector	Wine operations