



Australian Government

Department of Education, Employment and Workplace Relations

MSL935002A Assist in the maintenance of reference materials

Revision Number: 1

MSL935002A Assist in the maintenance of reference materials

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit of competency covers the ability to assist in the maintenance of reference materials that can be used in the identification of new specimens and allow for the quality control of laboratory procedures. The unit of competency does not cover the scientific identification of species or specimens.
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Application of the Unit

Application of the unit	This unit of competency is applicable to technical officers and laboratory technicians working in all industry sectors. Industry representatives have provided case studies to illustrate the practical application of this unit of competency and to show its relevance in a workplace setting. These can be found at the end of this unit of competency under the section 'This competency in practice'.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

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.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Acquire reference materials	1.1. Confirm that required transit conditions were maintained 1.2. Apply quarantine or isolation arrangements as necessary 1.3. Record data of accessioned reference material in the collection database 1.4. Label material to ensure that its identity is maintained during storage and issue
2. Maintain reference materials	2.1. Monitor storage conditions to ensure that they comply with suppliers' warranty specifications 2.2. Monitor storage conditions to ensure materials remain true to specification 2.3. Test material during storage, where relevant and appropriate, to report on reference characteristics and specificity 2.4. Report findings that suggest reference specimens may be deteriorating
3. Dispense reference materials to clients	3.1. Verify requests with supervisor before requests for reference materials are processed 3.2. Supply reference material without contamination of stock material 3.3. Keep records of materials issued in accordance with enterprise procedures
4. Maintain a safe work environment	4.1. Use established safe work practices and personal protective equipment to ensure personal safety and that of other laboratory personnel 4.2. Follow safety protocols when handling and processing reference materials 4.3. Minimise the generation of wastes and environmental impacts 4.4. Ensure the safe collection of redundant/outdated stocks for subsequent disposal

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

Required skills include:

- maintaining materials and specimens so that the reference characteristics and attributes are stable in storage and manifest in use after retrieval
- performing all manipulations safely
- testing stored material for reference characteristics before release or use
- communicating appropriately with all customers

Required knowledge

Required knowledge includes:

- certified reference materials - what they are, when and why they should be used
- the storage requirements of biological and non-biological materials
- quarantine or isolation procedures
- the labile nature of chemical and biological materials
- the rationale for testing reference characteristics before issuing reference materials
- reasons for testing before accession of reference materials
- relevant health, safety and environment requirements

Specific industry

Additional knowledge requirements may apply for different industry sectors. For example:

Process manufacturing and construction:

- drill (core) samples for mineral identification
- concrete samples for analysis of composition and/or strength and suitability for application

Biomedical and environmental:

- bacterial cultures related to colony and microscopic morphology, specificity and reliability of staining reaction, biochemical characteristics and immunological characteristics
- cell suspensions and cell and tissue preparations that can act as quantitative or qualitative controls in tests and procedures
- plasma and other body fluids with known attributes or quanta that can act as standards and controls in quantitative and qualitative tests and procedures

Food and beverage processing:

- quality assurance for viability of enzymes used in process
- bacterial or yeast cultures relating to colony and microscopic morphology for

REQUIRED SKILLS AND KNOWLEDGE

culturing purpose

- grain samples used in identification of cereal specimens (e.g. barley varieties, such as Proctor, Franklin and Stirling)

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

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

Assessors should ensure that candidates can:

- maintain material identity during storage
- perform all manipulations safely
- test stored material for reference characteristics before release
- communicate appropriately with all customers.

Context of and specific resources for assessment

This unit of competency is to be assessed in the workplace or simulated workplace environment.

This unit of competency may be assessed with any units that may involve using materials from a collection for example:

- *MSL916003A Supervise laboratory operations in work/functional area*
- *MSL975001A Perform microbiological tests*
- *MSL976003A Evaluate and select appropriate test methods and procedures.*

Resources may include:

- equipment and materials related to the occupational task for which the reference material is relevant
- reference materials
- standard operating procedures (SOPs).

Method of assessment

The following assessment methods are suggested:

- review of records for the supply of reference materials by the candidate
- observation of the candidate performing tests of stored reference material prior to release and review of results
- case studies, such as the:
 - accession and processing of a plasma sample that is intended for use as a control in a blood coagulation test
 - response to request for supply of a

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	Staphylococcus culture with coagulase activity oral/written questioning about receipt, testing during storage and release of reference materials. In all cases, practical assessment should be supported by questions to assess underpinning knowledge and those aspects of competency which are difficult to assess directly. Questioning techniques should suit the language and literacy Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability. Access must be provided to appropriate learning and/or assessment support when required. The language, literacy and numeracy demands of assessment should not be greater than those required to undertake the unit of competency in a work like environment.
This competency in practice	Industry representatives have provided the case studies below to illustrate the practical application of this unit of competency and to show their relevance in a workplace setting. Manufacturing A technical officer in a pharmaceutical laboratory assays each batch of paracetamol tablets before their release for sale using ultraviolet spectrometric analysis. Twenty tablets are ground and a known weight of sample is dissolved in a specified solvent. The ultraviolet absorption is measured and compared with the absorption of a reference standard, which has been similarly treated. The potency of the tablets is calculated and compared to the release limits before being released for sale. The concentration of the reference paracetamol must be accurately known if the assay is to be correct. The standard is packed and stored under conditions that will minimise its breakdown, and the storage conditions are monitored to ensure that the potency remains with acceptable limits. Biomedical A technical officer in a histology laboratory was asked to perform a batch of iron stains by the Prussian Blue technique. The officer went to the block repository and

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chose one of the liver blocks known to contain haemosiderin. The officer checked the block number against the data in the control materials log and then cut four sections to process in parallel for the day's batch and those anticipated over the next few days. Noting that there was only one iron-positive block left, the officer wrote a short memo to the laboratory supervisor suggesting that the pathologist allow for a stock of tissue to be collected the next time they identified a suitable specimen.

Food processing

While many attributes of food can be quantified and specified using chemical reference standards, some attributes are best assessed by comparison with a physical reference sample. For example, the number of poppy seeds on a loaf of bread would be impractical to count. However, comparison with retention samples made with various levels of poppy seeds will give an approximation of the number of seeds on the bread. Suitable reference samples need to be prepared and preserved so that the handling of samples does not result in seeds falling from the sample.

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.

Codes of practice

Where reference is made to industry codes of practice, and/or Australian/international standards, it is expected the latest version will be used

Standards, codes, procedures and/or enterprise requirements

Standards, codes, procedures and/or enterprise requirements may include:

- Australian and international standards such as:
- AS/NZS 2243 Set:2006 Safety in laboratories set
 - AS/NZS 4452:1997 The storage and handling of toxic substances
 - AS/NZS ISO 14000 Set:2005 Environmental management standards set
- animal welfare legislation and codes of practice
- Australian Dangerous Goods Code
- Australian Quarantine and Inspection Service (AQIS) Export Control (Orders) Regulations 1982
- Australian Quarantine and Inspection Service (AQIS) Import Guidelines
- Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) Codes of Practice
- cleaning, hygiene and personal hygiene requirements
- enterprise procedures, standard operating procedures (SOPs) and operating manuals
- gene technology regulations
- incident and accident/injury reports
- material safety data sheets (MSDS)
- National Code of Practice for the labelling of workplace substances (NOHSC:2012 (1994))
- national environment protection measures
- National Health and Medical Research

RANGE STATEMENT	
	Council (NHMRC) Guidelines • national measurement regulations and guidelines • occupational health and safety (OHS) national standards and codes of practice • sampling procedures (labelling, preparation, storage, transport and disposal) • schematics, work flows and laboratory layouts • test procedures (validated and authorised) • Therapeutic Goods Regulations 1009 • waste minimisation and disposal procedures
Reference materials	Reference materials may include: • specimens, such as cells, tissues and samples of aqueous or proteinaceous standards • aggregates, grains and powders • materials used for checking equipment calibrations
Dispensing and storing of reference materials	Dispensing and storing of reference materials may require: • reconstitution of completely lyophilised materials • preparing materials for freeze-drying
Equipment, materials and systems	Equipment, materials and systems may include: • centrifuges, water baths and incubators • lyophilisers and humidifiers • equipment and material for transport, such as dry ice or ice packs • equipment and material for storage, such as liquid nitrogen • storage boxes • storage and display cabinets • computer information systems, databases, record and filing systems • laboratory glassware and measuring equipment • materials suitable for the safe collection and disposal of biological and non-biological wastes
Communication	Communication may involve: • supervisors and managers (laboratory, quality

RANGE STATEMENT	
	and customer service) • other laboratory or clinical personnel • outside suppliers, internal and external customers
Hazards	Hazards may include: • chemicals, reagents • micro-organisms associated with soil, air, water, blood and blood products and human or animal tissue and fluids • sharps, such as broken glassware • disturbance or interruption of services • manual handling of heavy boxes
Safety procedures	Safety procedures may include: • use of personal protective equipment, such as hearing protection, gloves, safety glasses and coveralls • ensuring access to service shut-off points • handling and storing hazardous materials and equipment in accordance with labels, MSDS, manufacturer's instructions and enterprise procedures and regulations • regular cleaning of equipment and work areas
Occupational health and safety (OHS) and environmental management requirements	OHS and environmental management requirements: • all operations must comply with enterprise OHS and environmental management requirements, which may be imposed through state/territory or federal legislation - these requirements must not be compromised at any time • all operations assume the potentially hazardous nature of samples and require standard precautions to be applied • where relevant, users should access and apply current industry understanding of infection control issued by the National Health and Medical Research Council (NHMRC) and State and Territory Departments of Health

Unit Sector(s)

Unit sector	Maintenance
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Competency field

Competency field	
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Co-requisite units

Co-requisite units		