



Australian Government

MSL973014 Prepare working solutions

Release: 1

MSL973014 Prepare working solutions

Modification History

Release	Comments
Release 1	This version was released in <i>MSL Laboratory Operations Training Package Release 2.0</i>. Supersedes and equivalent to MSL973002 Prepare working solutions. Changes to elements and performance criteria. Range of conditions removed. Assessment requirements amended.

Application

This unit of competency describes the skills and knowledge to prepare working solutions and to check that existing stocks of solutions are suitable for use. Working solutions include those required to perform laboratory tests. Personnel are required to calculate quantities and make dilutions.

This unit of competency applies to laboratory assistants working in all industry sectors.

No licensing or certification requirements exist at the time of publication. However, regulations and/or external accreditation requirements for laboratory operations exist, so local requirements should be checked. Relevant legislation, industry standards and codes of practice within Australia must also be applied.

Pre-requisite Unit

Nil

Competency Field

Testing

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

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|---|----------------------------------|-----|---|
| 1 | Make up working solutions | 1.1 | Identify the relevant standard methods for solution preparation |
| | | 1.2 | Assemble specified laboratory equipment |

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
		1.3	Select and prepare materials and solvent of specified purity
		1.4	Measure appropriate quantities of reagents for solution preparation and record data
		1.5	Prepare labels and log solution details in laboratory register
		1.6	Transfer solutions to appropriately labelled containers
2	Check existing stock of solutions	2.1	Monitor shelf life of working solutions and identify those that are unfit for use according to laboratory procedures
		2.2	Replace out-of-date or reject solutions according to laboratory procedures
3	Maintain a safe work environment	3.1	Use appropriate safety procedures and personal protective equipment (PPE) to ensure personal safety and that of other laboratory personnel
		3.2	Store reagents and clean/store glassware and equipment in accordance with workplace procedures
		3.3	Minimise generation of waste and environmental impacts
		3.4	Clean up spills using appropriate techniques
		3.5	Ensure the safe collection of laboratory and hazardous waste for subsequent disposal

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Unit Mapping Information

Equivalent to MSL973002 Prepare working solutions, Release 1.

Links

MSL Laboratory Operations Companion Volume Implementation Guide is available from VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5c63a03b-4a6b-4ae5-9560-1e3c5f462baa>

Assessment Requirements for MSL973014 Prepare working solutions

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Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, and:

- safely prepared at least 5 examples of correctly labelled working solutions, including calculation of the quantities involved and any dilutions required
- checked existing stocks of working solutions and identified those unfit for use.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- concepts of metrology, including:
 - all measurements are estimates
 - precision, accuracy and significant figures
 - sources of error, uncertainty and repeatability
 - traceability
- working solutions
- international system of units (SI)
- concentration terms, such as % w/w, % w/v, % v/v, ppm (mg/L) and molarity
- basic theory of acids, bases, salts, buffers and neutralisation
- what affects solubility
- difference between aqueous and organic solutions
- periodic table, symbols of the elements, atomic weights, and difference between elements and compounds
- chemical formulae
- workplace procedures for preparing solutions
- calculations required to prepare specified amounts of solutions of specified concentration

- use of safety data sheets (SDS) and workplace procedures for preparing, handling and disposing of solutions and cleaning up spillages
- awareness of environmental sustainability issues as they relate to the work task
- legal, ethical and work health and safety (WHS) requirements specific to the work task.

Assessment Conditions

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies. The following conditions must be met for this unit:

- use of suitable facilities, equipment and resources, including:
 - a standard laboratory equipped with appropriate reagents and equipment
 - standard methods and workplace procedures
 - containers and storage facilities.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

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