



Australian Government

MSL973026 Prepare working solutions

Release: 1

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Modification History

Release 1. Supersedes and equivalent to MSL973014 Prepare working solutions. Very minor changes to Performance Criteria. Clarification provided in Performance Evidence about what constitutes a different solution. Changes to Knowledge Evidence for clarity and to provide information about required scope and depth of knowledge required.

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.

Competency Field

Testing

Elements and Performance Criteria

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Make up working solutions	1.1 Identify the relevant standard methods for solution preparation 1.2 Assemble specified laboratory equipment 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 accordance with workplace procedures 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 in accordance with workplace procedures

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	2.2 Replace out-of-date or reject solutions in accordance with workplace procedures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 and 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

Supersedes and is equivalent to MSL9730014 Prepare working solutions

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 MSL973026 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 different correctly labelled working solutions, including calculation of the quantities involved and any dilutions required (note: the 5 different solutions may be different because of substance, concentration or method of preparation)
- checked existing stocks of working solutions and identified those unfit for use.
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Knowledge Evidence

There must be evidence the candidate has knowledge of:

- basic measurement concepts, including repeatability, precision, accuracy and significant figures
- working solutions prepared in the job role, including:
 - purpose
 - common names
 - chemical formulae
 - preparation procedures
- international system of units (SI)
- concentration terms, including % w/w, % w/v, % v/v, ppm (mg/L) and molarity
- basic features of acids, bases, salts, buffers and neutralisation
- what affects solubility
- difference between aqueous and organic solutions
- basic aspects of the periodic table, including:
 - what it is
 - what information it can provide and how that information can be used
 - symbol system
 - difference between elements and compounds
- 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
- environmental sustainability issues as they relate to the work task
- legal, ethical and work health and safety (WHS) requirements specific to the work task.
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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
 - containers and storage facilities
 - workplace procedures.

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

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