



Australian Government

Assessment Requirements for MSL973002

Prepare working solutions

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MSL973002A Prepare working solutions

Performance Evidence

Evidence of competence in this unit must satisfy all of the requirements of the elements and performance criteria, and include demonstration of:

- safely preparing at least five (5) examples of correctly labelled working solutions, including calculation of the quantities involved and any dilutions required
- checking that existing stocks of working solutions and identifying those unfit for use, including:
 - noting turbidity to exclude absorption of moisture
 - noting deposits to exclude microbial contamination or chemical degradation
 - noting crystals to exclude evaporation
 - noting colour changes indicating a pH shift with solutions containing indicators
 - checking expiry dates on solution containers
- following workplace procedures for the safe use of hazardous chemicals, laboratory glassware and equipment
- accurately labelling and storing solutions in accordance with workplace procedures
- safely cleaning up spills and collecting/disposing of waste in accordance workplace procedures
- recording and presenting data accurately and legibly.

Knowledge Evidence

Must provide evidence that demonstrates knowledge of:

- concepts of metrology, including:
 - all measurements are estimates
 - measurements belong to a population of measurements of the measured parameters
 - precision, accuracy and significant figures
 - sources of error, uncertainty and repeatability
 - traceability
- 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 material safety data sheets (MSDS) and workplace procedures for preparing, handling and disposing of solutions and cleaning up spillages
- relevant hazards, work health safety (WHS) and environment requirements.

Assessment Conditions

- Judgement of competence must be based on holistic assessment of the evidence. Assessment methods must confirm consistency of performance over time, rather than a single assessment event.
- This unit of competency is to be assessed in the workplace or a simulated workplace environment. A simulated workplace environment must reflect realistic operational workplace conditions that cover all aspects of workplace performance, including the environment, task skills, task management skills, contingency management skills and job role environment skills.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
- Knowledge evidence may be collected concurrently with performance evidence or through an independent process, such as workbooks, written assessments or interviews (provided a record is kept in each case).
- This unit of competency may be assessed with:
 - MSL922001 Record and present data
 - MSL943002 Participate in laboratory or field workplace safety
- Holistic assessment methods include:
 - inspection of working solutions prepared, labelled and stored by the candidate
 - review of solution records and workplace documentation completed by the candidate
 - feedback from peers and supervisors
 - observation of the candidate preparing working solutions
 - review of calculations for concentration and dilutions completed by the candidate
 - oral or written questioning about solution preparation steps, calculations, common hazards and safety procedures.
- Access is required to instruments, equipment, materials, workplace documentation, procedures and specifications associated with this unit, including, but not limited to:
 - a standard laboratory equipped with appropriate reagents and equipment, such as pH meters; balances; magnetic stirrers, water baths and hot plates; measuring cylinders, beakers, conical flasks, volumetric flasks, pipettes and burettes; filter papers and funnels; and fume cupboards
 - standard methods and workplace procedures

- containers and storage facilities.
- Assessors must satisfy the assessor competency requirements that are in place at the time of the assessment as set by the VET regulator.
- The assessor must demonstrate both technical competence and currency.
- Technical competence can be demonstrated through:
 - relevant VET or other qualification/Statement of Attainment AND/OR
 - relevant workplace experience.
- Currency can be demonstrated through:
 - performing the competency being assessed as part of current employment OR
 - having consulted with a laboratory about performing the competency being assessed within the last twelve months.

Links

Companion Volume implementation guides are found in VETNet -

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