



Australian Government

Assessment Requirements for MSL974019

Perform chemical tests and procedures

Release: 1

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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 MSL974003 Perform chemical tests and procedures. Changes to performance criteria. Range of conditions removed. Assessment requirements amended.

Performance Evidence

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

- safely performed at least 3 different chemical tests involving several measurement steps including at least 1 of the following:
 - colorimetric techniques
 - infrared and ultraviolet-visible (UV-VIS) spectrophotometry
 - other spectrometric techniques
 - chromatographic techniques
 - electrochemical techniques
 - electrophoretic techniques
 - soil testing techniques
 - gravimetric analysis
 - titrimetric analysis
 - filtration, separation and solvent extraction techniques
 - corrosion testing, cement content and accelerated weathering.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- why chemical tests are performed
- relevant chemical principles and concepts, including:
 - elements, compounds, ions, atoms, molecules, bonding and links to chemical properties
 - periodic table and symbols of elements

- atomic mass and molecular weight
- moles and molarity
- chemical formulae and balancing equations
- chemical reactions
- energy levels and absorption/emission spectra
- purpose of the tests and/or procedures conducted
- international system of units (SI)
- principles and concepts related to equipment and instrument operation, tests and/or procedures
- requirements for cleaning up spills and reporting faulty or unsafe equipment, hazards and incidents.
- concepts of metrology, including:
 - all measurements are estimates
 - precision, accuracy and significant figures
 - sources of error, uncertainty and repeatability
 - traceability
- function of key components of the equipment and instrument and reagents and effects of modifying equipment and instrument variables
- common causes of analytical errors
- calibration requirements and basic equipment and method troubleshooting procedures
- sample preparation procedures for the tests and/or procedures conducted
- traceability requirements
- 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 sample preparation and test equipment, instruments, standards and reagents
 - workplace procedures and standard methods
 - records, including test and calibration results; equipment use, maintenance and servicing history, and faulty or unsafe equipment.

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

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>