



Australian Government

MSL975069 Apply routine spectrometric techniques

Release: 1

MSL975069 Apply routine spectrometric techniques

Modification History

Release 1. Supersedes and equivalent to MSL975048 Apply routine spectrometric techniques. Content of Element 6 integrated into Element 5. Minor changes to Performance Criteria.

Application

This unit of competency describes the skills and knowledge to analyse samples using routine spectrometric techniques. The unit also includes establishing client needs for routine and non-routine samples, optimising workplace procedures and instruments for specific samples, obtaining valid and reliable data and reporting test results. Personnel are required to recognise atypical test data/results and troubleshoot common analytical procedure and equipment problems.

This unit applies to technical officers working in all industry sectors, government agencies and research laboratories. All operations and analytical methods must comply with relevant standards, appropriate procedures and/or workplace requirements. Although a supervisor may not always be present, the technician will follow workplace procedures that clearly describe the scope of permitted practice, including varying workplace/test procedures and communicating results to people outside the laboratory.

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

MSL974032 Perform chemical tests and procedures

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. Establish client needs	1.1 Match sample provided to accompanying documentation and report any discrepancies in accordance with workplace procedures 1.2 Identify non-routine samples and the possible need to vary workplace procedures

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	1.3 Seek advice from supervisor about any proposed variations and document all approved changes
2. Prepare samples and standards	2.1 Obtain a representative analytical portion of the laboratory sample 2.2 Prepare sample in accordance with testing requirements 2.3 Prepare validation checks for analytical portion
3. Set up and optimise instrument	3.1 Perform pre-use and safety checks in accordance with workplace procedures 3.2 Start up and condition the instrument in accordance with workplace procedures 3.3 Optimise instrumental parameters to suit sample and test requirements 3.4 Check calibration status of instrument and perform any required calibration using specified standards and procedures 3.5 Clean, care for and store equipment and consumables in accordance with workplace procedures
4. Perform analysis	4.1 Measure analyte response for standards, validation checks and samples 4.2 Conduct sufficient measurements to obtain reliable data 4.3 Return instruments to standby or shutdown condition in accordance with workplace procedures
5. Process, analyse and record data	5.1 Use controls and reference standards to confirm the integrity of sample preparation and procedures 5.2 Troubleshoot basic procedure, reagent or equipment problems which have led to atypical data or results 5.3 Record and/or check data in accordance with workplace procedures 5.4 Follow procedures to ensure traceability of sample from receipt to reporting of results

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 MSL975048 Apply routine spectrometric techniques.

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 MSL975069 Apply routine spectrometric techniques

Modification History

Release 1. Supersedes and equivalent to MSL975048 Apply routine spectrometric techniques. Content of Element 6 integrated into Element 5. Minor changes to Performance Criteria.

Performance Evidence

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

- prepared samples using at least 3 different processes
- analysed at least 3 different sample types using spectrometric techniques to obtain valid and reliable data.
-

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- relationship of chemical structure to electromagnetic radiation absorption, spectrometric principles and concepts related to instrumentation operation and testing
- use of different spectrometric methods for qualitative and quantitative analysis and preparation of specific samples relevant to job role
- principles and purpose of test methods implemented (why they are used and what they demonstrate)
- handling of unstable or hazardous chemicals and samples and the fragile and labile nature of materials used in job role
- calculation steps to give results in appropriate accuracy, precision, uncertainty and units
- function of key components of the equipment and effects on spectra of modifying and optimising instrumental variables
- determination of and, if appropriate, removal of any contaminants, impurities or interfering substances
- typical preparation of sample relevant to job role
- workplace procedures for:
 - equipment operation and troubleshooting
 - basic equipment maintenance
- common analytical procedure and equipment problems, including:
 - dirty or contaminated sample cells
 - inappropriate selection of wavelength
 - problems with interfering or complexing substances
 - incomplete atomisation of analyte
 - poor resolution of peaks

- poor sensitivity
- need to dilute samples
- technological advances that include automation
- 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 including traceability, confidentiality and security requirements of all client information, and laboratory data and records.
-

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
 - appropriate spectrometers, laboratory reagents and equipment,
 - workplace procedures and test methods.

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>