Australian Government

MSL975047 Apply complex instrumental techniques

Release: 1

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Modification History

Release	Comments
Release 1	This version was released in *MSL Laboratory Operations Training Package Release 2.0*. Supersedes and equivalent to MSL975019 Apply complex instrumental techniques. Conditional/optional prerequisite removed. Changes to elements and performance criteria. Range of conditions removed. Assessment requirements amended.

Application

This unit of competency describes the skills and knowledge to analyse samples using specialised analytical instruments that require highly developed technical skills to operate effectively. Competency includes the ability to establish 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 technical officer will follow standard operating procedures (SOPs) 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

MSL974019 Perform chemical tests and procedures

Competency Field

Testing

Elements and Performance Criteria

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
1	**Establish client needs and schedule analysis**	1.1	Liaise with client or sample provider to determine client needs and sample history
		1.2	Record sample description, compare with specification and record and report discrepancies
		1.3	Identify non-routine samples and the possible need to vary workplace procedures
		1.4	Seek advice from supervisor about any proposed variations and document all approved changes.
		1.5	Schedule analysis using workplace procedures
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 and/or calibration standards for analytical portions
		2.4	Use specialised procedures for ultra-trace samples and standard preparation as required
3	**Set up and optimise instrument and sub-systems**	3.1	Perform pre-use and safety checks using workplace procedures
		3.2	Assemble appropriate instrument sub-systems to construct the required analytical path
		3.3	Start up and condition the instrument using workplace procedures
		3.4	Check and optimise each instrument sub-system
		3.5	Optimise instrumental parameters to suit sample and test requirements
		3.6	Check calibration status of instrument and perform calibration using specified standards and procedures, as

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			required
		3.7	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 as required
5	**Process and analyse data**	5.1	Confirm data is the result of valid measurements
		5.2	Perform required calculations and ensure results are consistent with standards or estimations and expectations
		5.3	Record results with the appropriate accuracy, precision, uncertainty and units
		5.4	Analyse trends in data and/or results and report out-of-specification or atypical results promptly to appropriate personnel
		5.5	Troubleshoot analytical procedure or equipment problems which have led to atypical data or results
6	**Maintain laboratory records**	6.1	Record entries on report forms or into a laboratory information management system accurately calculating, recording or transcribing data as required
		6.2	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

Equivalent to MSL975019 Apply complex instrumental techniques, Release 1.

Links

Training Package Companion Volumes - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5c63a03b-4a6b-4ae5-9560-1e3c5f462baa