



Australian Government

MSL975049 Apply routine electrometric techniques

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 MSL975021 Apply routine electrometric techniques. Conditional/optional prerequisite removed – code retained. Changes to elements and performance criteria. Foundation skills information added. Range of conditions removed. Assessment requirements amended.

Application

This unit of competency describes the skills and knowledge to analyse samples using routine electrometric 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 and analysts 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 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.

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|---|---|-----|--|
| 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 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 using workplace procedures |
| | | 3.3 | Optimise instrumental parameters to suit sample and test requirements |
| | | 3.4 | Check calibration status of instrument and perform calibration using specified standards and procedures, as required |
| | | 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 |

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
		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	Use controls and reference standards to confirm the integrity of biomolecular sample preparation and procedures
		5.2	Troubleshoot basic procedure, reagent 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.

- Numeracy skills to:
 - identify and calculate potential sources of uncertainty
 - calculate results using appropriate equations, units, uncertainties and precision.

Other foundation skills essential to performance are explicit in the performance criteria of this unit.

Unit Mapping Information

Equivalent to MSL975021 Apply routine electrometric techniques, Release 1.

Links

Training Package Companion Volumes -

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

Assessment Requirements for MSL975049 Apply routine electrometric techniques

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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:

- applied routine electrometric techniques to at least 3 different samples to obtain valid and reliable data
- effectively prepared samples using at least 3 different processes.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- redox and electrical principles and concepts related to electrometric instrumentation operation and testing
- use of various electrometric techniques for qualitative and quantitative analysis
- handling of unstable or hazardous chemicals and samples, including the fragile and labile nature of biological materials
- routine electrometric techniques
- typical tests
- typical sample preparation
- calculation steps to give results in appropriate accuracy, precision, uncertainty and units
- workplace and legal traceability requirements
- basic equipment maintenance procedures
- principles and purpose of test methods implemented (why they are used and what they demonstrate)
- 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
 - routine electrometric equipment, laboratory reagents and equipment, standard operating procedures (SOPs) and test methods.

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

Links

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