



Australian Government

MSL975039 Apply electrophoretic 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 MSL975008 Apply electrophoretic techniques. Conditional/optional prerequisite removed – code retained. 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 electrophoretic 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 of competency applies to laboratory technical officers working in all industry sectors. 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 their 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	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 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 MSL975008 Apply electrophoretic techniques, Release 1.

Links

Training Package Companion Volumes -

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

Assessment Requirements for MSL975039 Apply electrophoretic 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:

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

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- electrophoretic principles and concepts related to instrumentation operation, material preparation and testing
- details of electrophoresis techniques used to analyse samples relevant to job role
- handling of unstable or hazardous chemicals or samples and/or the fragile/labile nature of biological material
- function of key components of the equipment and effects on results of modifying instrumental variables, such as field strength, constant current and constant power
- procedures for optimising separation through changing operation parameters, such as buffers, pH and detection methods
- common analytical procedure and equipment problems, including:
 - interfering substances
 - inappropriate support material or operating procedures
 - toxic or hazardous materials, including impurities in samples
 - lack of suitable or high purity reference standards
 - changes in operating variables, such as field strength, constant current, constant power, buffers and pH

- obtaining adequate sample volume
- principles and purpose of test methods implemented (why they are used and what they demonstrate)
- technological advances that include automation
- basic procedure and equipment troubleshooting techniques
- calculation steps to give results in appropriate accuracy, precision, uncertainty and units
- electrophoretic methods, for both analytical and preparative procedures:
- typical test methods
- typical sample preparation
- basic equipment maintenance procedures
- 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 equipped with routine electrophoresis equipment, laboratory reagents and equipment
 - standard operating procedures (SOPs) and testing methods.

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

Links

Training Package Companion Volumes -

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