



Australian Government

MSL973019 Perform microscopic examination

Release: 1

MSL973019 Perform microscopic examination

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 MSL973007 Perform microscopic examination. Foundation skill information added. Range of conditions removed. Assessment requirements amended.

Application

This unit of competency describes the skills and knowledge to set up a light microscope for optimum resolution, to prepare routine samples and to observe, identify and report sample characteristics.

This unit of competency applies to laboratory or technical assistants in all industry sectors. The unit of competency covers limited interpretation and analysis of results. Troubleshooting of equipment and procedures is not required.

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

Nil

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 | Prepare samples for examination | 1.1 | Log and label samples according to workplace procedures to ensure traceability |
|---|--|-----|--|

		1.2	Follow documented standard operating procedures to prepare samples for microscopic examination
2	Set up and use a light microscope	2.1	Carry and use a microscope correctly preventing damage to the equipment and ensuring operator safety
		2.2	Perform pre-use and safety checks to ensure equipment is fit for purpose
		2.3	Check lenses to ensure they are clean
		2.4	Set up the microscope for optimum resolution and even illumination
		2.5	Select the appropriate objectives and filter for the sample being examined
		2.6	Place sample correctly on the stage
3	Observe and identify sample characteristics	3.1	Recognise and identify significant sample characteristics
		3.2	Perform required calculations accurately
4	Maintain a safe work environment	4.1	Ensure safety and minimise cross-contamination through the use of personal protective equipment (PPE)
		4.2	Handle all samples and equipment in accordance with workplace safety protocols
		4.4	Minimise generation of waste and environmental impacts
		4.5	Collect and dispose of all wastes safely

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

- Numeracy skills to:

- perform counts on samples using grids
- take basic measurements
- perform accurate calculations as required by the method, including:
 - dilutions
 - number of cells in original sample after dilution
 - calculation of cells/ml in a number of squares of a counting chamber
- interpret and record test results reliably
- log and track samples through all steps from sample receipt to completion of the examination and reporting.

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

Unit Mapping Information

Equivalent to MSL973007 Perform microscopic examination, Release 1.

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 MSL973019 Perform microscopic examination

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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:

- set up a microscope for köhler illumination on 10x, 40x and 100x magnification on at least 3 occasions
- safely prepared and focused on at least 3 different sample types for examination with a compound light microscope including 3 from the following list:
 - preparing and staining a smear or film with a monolayer of cells
 - preparing a wet mount
 - loading a sample into a counting chamber
 - preparing hand cut samples
- observed, identified and reported the microscopic characteristics of at least 2 different sample types including at least 1 from the following list:
 - intact living or non-living organism
 - fixed and stained cells
 - wet mount
- taken basic measurements
- performed a count using a grid
- performed accurate calculations as required by the method, including:
 - dilutions
 - number of cells in original sample after dilution
 - calculation of cells/volume based cell counts.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- nature of samples, sample preparation methods, methods of examination and associated hazards
- parts and functions of a light microscope and steps taken to optimise the resolution of images
- procedures and reporting requirements for spills, faulty or unsafe equipment, hazards and incidents
- types of samples relating to job role
- causes and basic troubleshooting of common artefacts or incorrect results in microscopy
- vernier measurement and micrometry techniques
- sample characteristics restricted to what can be viewed by light microscopy:
 - shape and size of particles
 - presence of contamination
 - colour
 - consistency and variability
 - number of cells (e.g. cells in blood or other particulate samples, such as a yeast suspension or pollen grains)
 - type of cells
 - colour/staining and morphology
- applications of different types of microscopes/setups including compound light, dark field, phase contrast, fluorescent, electron, polarising and stereomicroscope (dissecting)
- awareness of environmental sustainability issues as they relate to the work task
- traceability requirements
- 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 equipment, including light microscopes and samples
 - workplace procedures, standard methods and materials
 - a light microscope.

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

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