



Australian Government

MSL924001 Process and interpret data

Release: 2

MSL924001 Process and interpret data

Modification History

Release 1. Supersedes and is equivalent to MSL924001A Process and interpret data

Application

This unit of competency covers the ability to retrieve data, evaluate formulae and perform scientific calculations, present and interpret information in tables and graphs and keep accurate records. The unit requires personnel to solve problems of limited complexity where the information may be less obvious, but not contradictory, and can be determined by direct reasoning.

This unit of competency is applicable to laboratory assistants, field/laboratory technicians and instrument operators in all industry sectors.

While no specific licensing or certification requirements apply to this unit at the time of publication, laboratory operations are governed by relevant legislation, regulations and/or external accreditation requirements. Local requirements should be checked.

Pre-requisite Unit

Nil

Competency Field

Data

Unit Sector

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1	Retrieve and check data	1.1	Store and retrieve data using appropriate files and/or application software
		1.2	Verify the quality of data using workplace procedures
		1.3	Rectify errors in data using workplace procedures
2	Calculate	2.1	Calculate statistical values for given data

	scientific quantities	2.2	Calculate scientific quantities using given formulae and data and estimate uncertainties
		2.3	Ensure calculated quantities are consistent with estimations and expectations
		2.4	Report all calculated quantities using the appropriate units and correct number of significant figures
3	Present data	3.1	Present data in clearly labelled tables, charts and graphs
		3.2	Graph data using appropriate scales to span the range of data or display trends
		3.3	Report all data using the appropriate units and number of significant figures
4	Interpret data	4.1	Interpret significant features of tables, charts and graphs, including gradients, intercepts, maximum and minimum values, and limit lines
		4.2	Recognise and report trends in data
5	Keep accurate records and maintain confidentiality	5.1	Transcribe information accurately
		5.2	Verify the accuracy of records following workplace procedures
		5.3	File and store workplace records in accordance with workplace procedures
		5.4	File all reference documents logically and keep them up-to-date and secured
		5.5	Observe workplace confidentiality standards

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.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Standards, codes, procedures and/or workplace requirements

Standards, codes, procedures and/or enterprise requirements include the latest version of one or more of:

- Australian and international standards, guides and the National Association of Testing Authorities (NATA) Technical Notes that cover the application of international system of units (SI), accuracy of measurement methods and results, and quantifying uncertainty in measurement
- national measurement regulations and guidelines
- validated sampling and test procedures and spreadsheets developed in-house for assay and process calculations where applicable
- workplace procedures, manuals and/or plans covering quality assurance, customer service, material safety data sheets (MSDS), equipment, supplier catalogues and handbooks

Data

Data includes:

- worksheets, spreadsheets and/or databases linked to information management systems
- results of observations, tests and measurements, analyses, surveys and/or quality assurance and control assessments
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Calculations

Calculations are performed with or without a calculator and using computer software, spreadsheets, databases and statistical packages

Records

Records include information associated with one or more of:

- purchase of equipment and materials, service records
- safety procedures
- history of calibration and test results

Work health and safety (WHS) and

WHS and environmental management requirements include:

- complying with WHS and environmental management

**environmental
management
requirements**

requirements at all times, which may be imposed through state/territory or federal legislation. These requirements must not be compromised at any time

- applying standard precautions relating to the potentially hazardous nature of samples
- accessing and applying current industry understanding of infection control issued by the National Health and Medical Research Council (NHMRC) and State and Territory Departments of Health, where relevant

Unit Mapping Information

Release 1. Supersedes and is equivalent to MSL924001A Process and interpret data

Links

Companion Volumes, including Implementation Guides, are available at VETNet: -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b75f4b23-54c9-4cc9-a5db-d3502d154103>

Assessment Requirements for MSL924001 Process and interpret data

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Performance Evidence

Evidence of competence in this unit must satisfy all of the requirements of the elements and performance criteria, and include demonstration of:

- retrieving coding, recording and checking data
- calculating scientific and statistical quantities with or without a calculator or computer software, including the following items:
 - converting units involving multiples and submultiples
 - scientific notation, significant figures, round off, estimate and approximate
 - transposing and evaluating formulae
 - fractions, decimals, proportions and percentages
 - mean
 - median
 - mode
 - standard deviation
- performing at least five (5) of the following calculations:
 - perimeters and angles
 - percentage and absolute uncertainties in measurements and test results
 - areas (m^2) and volumes (mL , L , m^3) of regular shapes, such as packaging
 - dose (mg), average mass, mass percentage, density, specific gravity, moisture, relative and absolute humidity, viscosity and permeability
 - ratios, such as mass to mass, mass to volume and volume to volume percentages
 - concentration, such as molarity, $\text{g}/100\text{mL}$, mg/L , mg/L , ppm , ppb , dilution mL/L
 - average count, colonies per swab surface and cell counts, such as live and dead/total
 - process variables, such as pressure, gauge pressure, velocity and flow rates
 - biological oxygen demand (BOD), chemical oxygen demand (COD) and total organic carbons (TOC)
 - food properties, such as % concentration (dry), friability, bitterness, brix, free amino nitrogen, diastatic power, calorific content and yeast viability, % content of moisture, ash, fat, protein, alcohol, sulphur dioxide and trace metals, such as calcium or zinc
 - mechanical properties, such as stress, strain, moduli and force
 - presenting accurate results in the required format (significant figures, uncertainty units)
- preparing and presenting data in the following formats:

- tables
- graphs
- line graphs
- histograms
- pie charts, bar charts and control charts
- semi-quantitative observations expressed on a scale (e.g. 1 to 4 or + to +++)
- recognising and interpreting significant points, anomalies and trends in data
- maintaining the confidentiality of data in accordance with workplace and regulatory requirements
- keeping accurate records that are up-to-date and secure.

Knowledge Evidence

Must provide evidence that demonstrates knowledge of:

- concepts of metrology, including:
 - that all measurements are estimates
 - measurements belong to a population of measurements of the measured parameters
 - repeatability, precision, accuracy and significant figures
 - sources of error, and uncertainty associated with measurement steps
 - traceability
- the international system of units (SI)
- scientific and technical terminology relevant to job role
- procedures for coding, entering, storing, retrieving and communicating data
- procedures for verifying data and rectifying mistakes
- procedures for maintaining and filing records, and maintaining security of data
- work health and safety (WHS) and environment requirements.

Assessment Conditions

- Judgement of competence must be based on holistic assessment of the evidence. Assessment methods must confirm consistency of performance over time, rather than a single assessment event.
- This unit of competency is to be assessed in the workplace or a simulated workplace environment. A simulated workplace environment must reflect realistic operational workplace conditions that cover all aspects of workplace performance, including the environment, task skills, task management skills, contingency management skills and job role environment skills.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

- Knowledge evidence may be collected concurrently with performance evidence or through an independent process, such as workbooks, written assessments or interviews (provided a record is kept in each case).
- This unit of competency may be assessed with:
 - MSL924002 Use laboratory application software
 - technical units, such as:
 - relevant MSL973000 series units of competency
 - relevant MSL974000 series units of competency.
- Holistic assessment methods include:
 - review of data worksheets, calculations, computer files (such as spreadsheets, databases and statistical analysis), graphs, tables and/or charts prepared by the candidate
 - review of records transcribed, maintained or stored by the candidate
 - feedback from supervisors and peers
 - questions to assess understanding of calculations, relevant procedures and trends in data
 - observation of the candidate as they process data, file and store records.
- Access is required to instruments, equipment, materials, workplace documentation, procedures and specifications associated with this unit, including, but not limited to:
 - data sets and records
 - a calculator
 - spreadsheets, computer software, databases and statistical packages
 - computer and relevant software or laboratory information system
 - relevant workplace procedures.
- Assessors must satisfy the assessor competency requirements that are in place at the time of the assessment as set by the VET regulator.
- The assessor must demonstrate both technical competency and currency.
- Technical competence can be demonstrated through:
 - relevant VET or other qualification/Statement of Attainment AND/OR
 - relevant workplace experience
- Currency can be demonstrated through:
 - performing the competency being assessed as part of current employment OR
 - having consulted with a laboratory about performing the competency being assessed within the last twelve months.

Links

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