



Australian Government

MSL925006 Analyse data and report results

Release: 1

MSL925006 Analyse data and report results

Modification History

Release 1. Supersedes and equivalent to MSL925004 Analyse data and report results. Minor changes to Performance Criteria and Knowledge Evidence. Performance Evidence significantly reworked for clarity with some duplicating information removed.

Application

This unit of competency describes the skills and knowledge to perform scientific calculations, analyse trends and uncertainty in data and report results within the required timeframe.

This unit of competency applies to technical officers and laboratory technicians working in all industry sectors.

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

MSL924005 Process and interpret data

Competency Field

Data

Elements and Performance Criteria

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Perform scientific calculations	1.1 Ensure raw data are consistent with expectations and reasonable ranges 1.2 Calculate scientific quantities involving algebraic, power, exponential and/or logarithmic functions 1.3 Ensure calculated quantities are consistent with estimations 1.4 Present results using the appropriate units, uncertainties and number of significant figures
2. Analyse trends and relationships in data	2.1 Determine linear and non-linear relationships between sets of data 2.2 Prepare and analyse control charts to determine if a process is in

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	control 2.3 Identify possible causes for out-of-control condition 2.4 Follow workplace procedures to return process to in-control operation
3. Determine variation and/or uncertainty in data distributions	3.1 Organise raw data into appropriate frequency distributions 3.2 Calculate statistical parameters of grouped and/or ungrouped data 3.3 Interpret frequency distributions to determine the characteristics of the sample or population 3.4 Calculate standard deviations and confidence limits for means and replicates 3.5 Determine data acceptability using statistical tests and workplace procedures
4. Check for aberrant results	4.1 Identify results that cannot be reconciled with sample, sample documentation, testing procedures and/or expected outcomes 4.2 Determine appropriate actions in consultation with supervisor
5. Report results	5.1 Use charts, tables and graphs to present results in the required format 5.2 Verify that entry of data and results are correct 5.3 Prepare reports and records in a format and style consistent with their intended use and workplace guidelines 5.4 Communicate results within the specified time and in accordance with workplace confidentiality and security guidelines

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.

Unit Mapping Information

Supersedes and is equivalent to MSL925004 Analyse data and report results.

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 MSL925006 Analyse data and report results

Modification History

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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:

- calculated scientific quantities of laboratory data, including at least 4 of the following (note that the items in each bullet point count as one):
 - absolute and relative error or uncertainties in measurements and test results
 - pH, [H⁺], [OH⁻] and buffer calculations
 - K_a, pK_a, K_b, pK_b and K_w
 - solubility constants K_s and pK_s
 - radioactivity (half-life, dose, activity and exposure)
 - optical properties, including absorbance/transmittance, path length, extinction coefficient, concentration (Beers law) and detection limits
 - electrical properties, including conductivity, resistivity and dielectric constants
 - mechanical properties, including stress, strain, elastic moduli, yield strength and hardness
 - thermal properties, including heat capacity, thermal expansion, thermal conductivity and thermal resistance
 - food content (%) of water, ash, dietary and crude fibre, carbohydrate, protein, fat and specific vitamin
 - quality-related data
 - industry-specific quantities
- used and interpreted graphical and statistical analysis, and significance tests of laboratory data sets, including 4 of the following:
 - mean, median, mode, range, variance and standard deviation
 - measures of central tendency and dispersion
 - histograms, frequency plots, stem and leaf plots, boxplots and scatter plots
 - probability and normal probability plots
 - Pareto diagrams, Shewhart control charts and CuSum control charts
 - regression methods for calibration, linearity checks
 - data acceptability tests.
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Knowledge Evidence

There must be evidence the candidate has knowledge of:

- meaning of scientific and technical terminology, including variables, dispersion, central tendency, process control, process stability, normal distribution, confidence level and replication
- characteristics of a valid measurement
- relevance/importance of the national measurement legislation and guidelines to laboratory measurement
- sources and estimates of uncertainty in measurements
- workplace procedures for:
 - metrological traceability
 - verifying data and rectifying mistakes
 - maintaining and filing records, and maintaining security of data
- potential issues and requirements related to bias and impartiality.
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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:
 - data sets and records
 - calculator
 - computer and relevant software, including spreadsheets, databases and statistical packages or laboratory information management system
 - workplace procedures.

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

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