



Australian Government

Assessment Requirements for MSL925001

Analyse data and report results

Release: 1

Assessment Requirements for MSL925001 Analyse data and report results

Modification History

Release 1. Supersedes and is equivalent to MSL925001A Analyse data and report results

Performance Evidence

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

- performing laboratory computations involving:
 - evaluation of formulae containing algebraic, logarithmic, exponential and power functions
 - calculation of uncertainties
- calculating scientific quantities, including at least five (5) of the following:
 - percentage and absolute uncertainties in measurements and test results
 - pH, $[H^+]$, $[OH^-]$, 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 (absorbance/transmittance, path length, extinction coefficient, concentration (Beers law) and detection limits)
 - electrical properties (conductivity, resistivity and dielectric constants)
 - mechanical properties (stress, strain, elastic moduli, yield strength and hardness)
 - thermal properties (heat capacity, thermal expansion, thermal conductivity and thermal resistance)
 - food content (%) of water, ash, dietary and crude fibre, carbohydrate, protein, fat and specific vitamin
 - quantities associated with quality control monitoring, assessment and reporting
- using and interpreting statistical analysis and significance tests including at least five (5) 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, Stewhart control charts and CuSum control charts
 - regression methods for calibration, linearity checks and comparing analytical methods
 - data acceptability tests, such as Q, T and Youden
 - t-test, f-test, analysis of variance (ANOVA)
- using and interpreting graphical analysis including at least three (3) of the following:

- preparation and interpretation of linear, semi-log and log-log graphs
- determination of linear, logarithmic, exponential and power relationships
- regression lines and interpretation of correlation coefficients
- preparation of frequency distributions for given data
- preparation of complex control charts
- analysing trends and uncertainty in data
- analysing data to determine relationships between variables
- reporting accurate results in the required formats and expected timeframe
- storing, retrieving and manipulating data following document traceability procedures
- maintaining the security and confidentiality of data in accordance with workplace and regulatory requirements

Knowledge Evidence

- Must provide evidence that demonstrates knowledge of:
- scientific and technical terminology, such as variables, dispersion, central tendency, process control, process stability, normal distribution, confidence level and replication
- the characteristics of a valid measurement
- relevance/importance of the national measurement legislation and guidelines to laboratory measurement
- sources and estimates of uncertainty in measurements
- procedures for data traceability
- 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 MSL974000 series units of competency
 - relevant MSL975000 series units of competency
- Holistic assessment methods include:
 - review of data worksheets, calculations, computer files (such as spreadsheets and databases), statistical analysis, graphs and/or tables prepared by the candidate
 - questions to assess understanding of relevant procedures, trends in data and sources of uncertainty
 - review of reports and records prepared by the candidate
 - feedback from supervisors and peers regarding the candidate's ability to analyse and report data in accordance with workplace procedures.
- 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
 - calculator
 - computer and relevant software, including spreadsheets, databases and statistical packages 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

Companion Volume implementation guides are found in VETNet -

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