



Australian Government

Assessment Requirements for MSL975020

Apply routine spectrometric techniques

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MSL975020A Apply routine spectrometric techniques

Performance Evidence

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

- accurately interpreting client requests, test methods/procedures
- applying routine spectrometric techniques on least three (3) occasions to obtain valid and reliable data
- establishing client needs for routine and non-routine samples
- preparing samples using at least three (3) different processes
- preparing standards
- safely setting up, operating and shutting down equipment
- checking calibration and qualification status of equipment
- choosing and optimising procedures and equipment settings to suit sample and test requirements, such as selection of wavelength maxima and position of burner
- making approved adjustments to procedures for non-routine samples
- interpreting data, recognising atypical test data and results and making relevant conclusions
- troubleshooting common analytical procedure and equipment problems
- preparing and using calibration charts and standards
- identifying and calculating potential sources of uncertainty
- calculating results using appropriate equations, units, uncertainties and precision
- recording and reporting data and results in accordance with workplace procedures
- maintaining security, integrity and traceability of samples and documentation
- following workplace safety procedures.

Knowledge Evidence

Must provide evidence that demonstrates knowledge of:

- relationship of chemical structure to electromagnetic radiation absorption, spectrometric principles and concepts related to instrumentation operation and testing
- use of different spectrometric methods for qualitative and quantitative analysis and preparation of specific samples relevant to job role
- handling of unstable or hazardous chemicals and samples and the fragile and labile nature of biological materials
- sample preparation procedures
- function of key components of the equipment and effects on spectra of modifying and optimising instrumental variables, such as wavelength, slit width, burner position and lamp voltage
- basic procedure and equipment troubleshooting techniques
- common analytical procedure and equipment problems, such as:
 - dirty or contaminated sample cells
 - inappropriate selection of wavelength
 - problems with interfering or complexing substances
 - incomplete atomisation of analyte
 - poor resolution of peaks
 - poor sensitivity
 - need to dilute samples
- calculation steps to give results in appropriate accuracy, precision, uncertainty and units
- workplace and legal traceability requirements
- basic equipment maintenance procedures
- relevant hazards, work health and safety (WHS) and environment requirements.

Assessment Conditions

- Judgment 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:
 - MSL925001 Analyse data and report results
- Holistic assessment methods include:
 - review of test data and results obtained by the candidate over time to ensure accuracy, consistency and timeliness of results
 - inspection of test records and workplace documentation completed by the candidate
 - feedback from peers and supervisors
 - observation of the candidate applying a range of routine spectrometric techniques
 - oral or written questioning of chemical principles and concepts, spectrometric techniques and workplace procedures.
- Access is required to instruments, equipment, materials, workplace documentation, procedures and specifications associated with this unit, including, but not limited to:
 - a standard laboratory equipped with appropriate spectrometers, laboratory reagents and equipment, standard operating procedures (SOPs) and test methods.
- 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 competence 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

MSA Training Package Implementation Guides - <http://mskills.org.au/training-packages/info/>