



Australian Government

Assessment Requirements for MSL974010

Perform mechanical tests

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MSL974010A Perform mechanical tests

Performance Evidence

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

- safely performing at least five (5) routine mechanical tests involving several measurement steps
- accurately interpreting mechanical test methods and procedures
- safely preparing samples by cutting, trimming, machining and/or etching
- maintaining and evaluating reagents
- conducting pre-use and calibration checks on equipment and quarantining out-of-calibration equipment and instruments
- safely operating test equipment and instruments to workplace standards and manufacturer specifications
- using instruments for qualitative and quantitative analysis
- processing data, interpreting gross features of data/results and making relevant conclusions
- preparing calibration graphs and calculating results using appropriate equations, units, uncertainties and precision
- identifying atypical results as out of normal range or an artefact
- tracing and sourcing obvious causes of artefacts, tracking obvious test malfunctions for standardised procedures, and troubleshooting basic equipment and methods
- communicating problems to a supervisor or outside service technician
- recording and communicating results in accordance with workplace procedures
- maintaining security, integrity and traceability of samples, sub-samples, test data, results and documentation
- following workplace safety procedures.

Knowledge Evidence

Must provide evidence that demonstrates knowledge of:

- mechanical principles and concepts underpinning the test or procedure, such as:
 - matter, interatomic and intermolecular forces and states of matter
 - mass, weight, forces, pressure and energy
 - cohesive/adhesive forces, friction and slip resistance
 - elasticity, hardness, ductility, malleability, strength of materials, elastic limit, elastic moduli and ultimate stress
 - electrical concepts, including electric field, voltage, current, resistance and AC/DC
 - elasticity, hardness, strength of materials, plasticity, permeability and dispersion
- purpose of tests and/or procedures conducted
- concepts of metrology, principles and concepts related to equipment and instrument operation, tests and/or procedures
- function of key components of the equipment and instrument and reagents and effects of modifying equipment and instrument variables
- calibration and basic equipment and method troubleshooting procedures
- sample preparation procedures
- workplace and legal traceability requirements
- 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:
 - MSL924001 Process and interpret data
- Holistic assessment methods include:
 - review of test data and results obtained by the candidate over a period of time to check accuracy, consistency and timeliness of results
 - review of test records and workplace documentation completed by the candidate
 - observation of candidate conducting a range of mechanical tests and sample preparation procedures
 - feedback from peers and supervisors
 - oral or written questioning of mechanical principles and concepts, test methods 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 mechanical testing equipment, instruments, standards and materials
 - workplace procedures and standard methods
 - records, including test and calibration results, equipment use, maintenance and servicing history, and faulty or unsafe equipment.
- 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/>