



Australian Government

Assessment Requirements for MEM23138

Evaluate suitability of materials for engineering-related applications

Release: 1

Assessment Requirements for MEM23138 Evaluate suitability of materials for engineering-related applications

Modification History

Release 1. Supersedes and is equivalent to MEM23138A Evaluate suitability of materials for engineering-related applications.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include:

- determining suitability of materials for manufacturing and engineering applications and processes on at least two occasions
- investigating sustainability implications for materials and related applications
- determining and reviewing material properties related to applications on at least two occasions
- identifying materials processing principles and techniques, including facilities, services, plant and tooling, and analysis techniques and software, including supervisory control and data acquisition (SCADA)
- evaluating work health and safety (WHS), regulatory and risk management compliance
- reporting and documenting results of evaluation.

Note: Where a volume and/or frequency is not specified, demonstration must be provided at least once.

Knowledge Evidence

Evidence required to demonstrate the required knowledge for this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include knowledge of:

- sources of technical and professional assistance
- sustainability implications of materials and related manufacturing and engineering-related products and processes
- WHS and regulatory compliance requirements and risk management practices related to materials, including use of safety data sheets (SDS)
- software options for materials and process analysis
- common materials, properties and structures in manufacturing and engineering including:
 - mechanical, electrical, thermal, optical, chemical and magnetic properties
 - ferrous and nonferrous metals and alloys
 - polymers
 - ceramics
 - composites
 - glass

- cold working of metals
- metal heat treatment
- processes for working, shaping and joining of materials including:
 - metal machining
 - metal cutting
 - casting and moulding of metals
 - fabricating and welding of ferrous metals, nonferrous metals and plastics
 - injection, compression and blow moulding of plastics
 - extrusion of plastics and metals
 - electroplating
 - powder coating
 - composite lay-up and moulding
 - sintering of plastic and metal powders
 - additive and rapid processes
 - casting of metals
 - stamping, drawing and roll forming of sheet metals
 - forging of metals
 - hot and cold rolling of billets, structural sections and coiled sheet
- systems thinking, continuous improvement, problem-solving and decision-making, and constraint and contingency management principles and techniques
- reporting and documentation requirements.
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Assessment Conditions

- Assessors must:
 - have vocational competency in evaluating suitability of materials for engineering-related applications at least to the level being assessed with relevant industry knowledge and experience
 - satisfy the assessor requirements in the *Standards for Registered Training Organisations 2015 or its replacement* and comply with the *National Vocational Education and Training Regulator Act 2011*, its replacement or equivalent legislation covering VET regulation in a non-referring state/territory as the case requires.
- Where possible assessment must occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions that cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required including relevant workplace procedures, product and manufacturing specifications.

- 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
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Links

Companion Volume Implementation Guides are available on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>