



Australian Government

Assessment Requirements for MEM48001 Test the mechanical properties of materials

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MSATCM301A Test the mechanical properties of materials.

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:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- selecting and setting up appropriate tests on at least two occasions
- performing the full range of tests and noting relevant data in accordance with the appropriate procedures and standards
- calculating and determining properties of materials in accordance with requirements
- interpreting results and drawing relevant conclusions on at least two occasions
- identifying and preparing reports to meet requirements
- circulating and filing completed report in accordance with procedures.

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:

- safe work practices and procedures and use of personal protective equipment (PPE)
- standards including:
 - needs for standards
 - standards organisations
 - structure and operations of Standards Australia (SA)
- role of National Association of Testing Authorities (NATA) including in relation to:
 - tensile testing
 - methods for tensile testing
 - determination of tensile properties
- types of materials
- mechanical properties of materials
- general impact testing including:
 - factors affecting impact properties of materials
 - impact testing (AS 1544) or equivalent international standard

- drop-weight tear test (AS 1330) or equivalent international standard
- hardness testing including:
 - Vickers hardness testing (AS 1817) Part 1 or equivalent international standard
 - Brinell hardness testing (AS 1816) Part 1 or equivalent international standard
 - Rockwell hardness testing (AS 1815) Part 1 or equivalent international standard
- fatigue and flex testing including:
 - factors affecting the fatigue and flex properties of materials
 - fatigue testing procedures
 - presentation of fatigue properties
- creep testing including:
 - factors affecting creep behaviour of materials
 - creep testing procedures
 - stress-rupture testing
 - presentation of creep properties.

Assessment Conditions

- Assessors must:
 - have vocational competency in testing the mechanical properties of materials 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.

Links

Companion Volume implementation guides are found in VETNet -

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