



Australian Government

MEM26018 Organise composite trials

Release: 1

MEM26018 Organise composite trials

Modification History

Release 1. Supersedes and is equivalent to MEM26018A Organise composite trials

Application

This unit of competency defines the skills and knowledge required to trial new materials and processes and make prototypes.

The source of these trials can arise from internal improvements or new products/processes from external sources. Regardless, trials need to be conducted to ‘prove’ it in an industrial environment, to translate research and development into practical processes and to provide appropriate records and metrics.

This unit does not cover the selection of materials or processes but does cover the organising and analysing of trials to prove proposed new materials or processes in the production environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Band: A

Unit Weight: 4

Pre-requisite Unit

MEM13015	Work safely and effectively in manufacturing and engineering
MEM16006	Organise and communicate information

Competency Field

Composites

Elements and Performance Criteria

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
1	Determine job requirements	1.1	Follow standard operating procedures (SOPs)
		1.2	Comply with work health and safety (WHS) requirements at all times

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
		1.3	Select and use appropriate personal protective equipment (PPE) in accordance with SOPs
		1.4	Identify risks to be controlled
		1.5	Identify novel parts of process/materials/properties
		1.6	Compare data from past work/trials
		1.7	Obtain data for novel part of process/material
		1.8	Develop procedures which should produce the required result
		1.9	Determine required process properties
		1.10	Determine required business and sustainability measures
2	Compare proposed process with existing and predict problem areas	2.1	Compare proposed process with existing similar processes
		2.2	Identify points of difference
		2.3	Identify weaknesses with existing process
		2.4	Predict possible problems with trial process/materials
3	Organise appropriate trials	3.1	Determine scale of trial
		3.2	Ensure availability of adequate resources, including equipment, tools, materials, personnel and time
		3.3	Organise for the preparation of equipment/materials
		3.4	Conduct and monitor trial and record key observations and metrics
4	Select appropriate manufacturing	4.1	Compare outcome with requirements
		4.2	Modify procedure and repeat trial, as appropriate

Elements describe the essential outcomes.

procedure

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 4.3 Identify areas for improvement and take appropriate actions
- 4.4 Determine procedure which will yield desired results
- 4.5 Record procedure in appropriate form
- 4.6 Complete all required reporting and recording according to SOPs

Foundation Skills

This section describes those required skills (reading, writing, oral communication and numeracy) that are essential to workplace performance in this unit of competency.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Novel part includes one (1) or more of the following:

- new resin system on standard reinforcing
- new reinforcing with standard resin system
- new process using standard materials
- standard process and materials producing product with different properties

Process properties include the following:

- gel time
- viscosity
- temperature (e.g. mould, resin and ambient)
- infusion time
- peak exotherm (e.g. using a laser thermometer)

Business measures include the following:

- costs
- time analysis
- quality reliability

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Scale of trial includes one (1) or more of the following:

- full scale prototype
- scaled down prototype
- laminate samples only
- portion of laminate

Modifying procedure includes one (1) or more of the following:

- changing resin inlets
- changing resin chemistry
- changing other materials
- modifications to process
- modifications to tooling

Areas for improvement include one (1) or more of the following:

- trial procedures not workable
- trial product does not meet specification
- trial procedures do not meet sustainability requirements

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM26018A Organise composite trials

Links

Companion Volume implementation guides are found in VETNet -

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

Assessment Requirements for MEM26018 Organise composite trials

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria on at least two (2) occasions and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- identifying and interpreting specifications, formulas/recipes, batch sheets, design brief and data for organising composite trials
- identifying business and sustainability measures
- identifying novel parts of the process
- determining appropriate metrics before commencement of trial
- determining scale of trial and conducting trial ensuring trial procedure has a sound basis
- modifying procedure and repeating trial, as appropriate
- analysing trial results and identifying areas for improvement and taking appropriate action
- completing all documentation and reports, including items requiring further action, in accordance with SOPs.

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)
- intended outcome of product
- resource requirement calculations
- design of documents for the floor
- design of trials
- design test requirements for trial
- novel parts
- appropriate metrics before commencement of trial
- trial procedure modifications
- trial procedures
- trial analysis techniques
- product improvement opportunities
- report procedures.

Assessment Conditions

- Assessors must:
 - have vocational competency in organising composite trials 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. This must 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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