



Australian Government

MEM48025 Select surface treatment methods for metallic components or products

Release: 1

MEM48025 Select surface treatment methods for metallic components or products

Modification History

Release 1. Supersedes and is equivalent to MSATCM514A Select surface treatment methods for metallic components or products.

Application

This unit of competency defines the skills and knowledge required to select common surface treatment processes for metals and alloys for specific applications and applies to metallurgical activities in manufacturing and engineering environments.

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

Pre-requisite Unit

Nil

Competency Field

Metallurgy

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Determine job requirements	1.1 Follow standard operating procedures (SOPs) 1.2 Comply with work health and safety (WHS) requirements at all times 1.3 Use appropriate personal protective equipment (PPE) in accordance with SOPs 1.4 Identify job requirements from specifications
2. Select surface treatment methods for specific applications	2.1 Determine the surface preparation and treatment requirement for the specific application based on treatment properties, process routes, advantages and disadvantages 2.2 Select the surface treatment method based on the requirement and consideration of principal properties

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	2.3 Confirm selection according to standard operating procedures
3. Verify selected surface treatment methods as fit for purpose	3.1 Identify appropriate tests for the required properties 3.2 Arrange testing of coatings with internal or external parties based on testing requirements 3.3 Analyse test results and confirm or modify material choices based on test outcomes

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

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.

Specifications include one or more of the following:	- drawings - job sheets - work instructions.
Surface preparation methods include one or more of the following:	- descaling - mechanical finishing - solvent cleaning - alkaline cleaning - measurement of surface cleanliness.
Surface treatment requirements include:	- engineering - corrosion resistance - conductivity - aesthetics - determination by a metallurgist on their own or in conjunction with other experts and clients.
Appropriate tests include	undertaken by a technician within the organisation

one or more of the following:	• undertaken by external organisations • simple tests.
-------------------------------	--

Unit Mapping Information

Release 1. Supersedes and is equivalent to MSATCM514A Select surface treatment methods for metallic components or products.

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 MEM48025 Select surface treatment methods for metallic components or products

Modification History

Release 1. Supersedes and is equivalent to MSATCM514A Select surface treatment methods for metallic components or products.

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
- identifying and interpreting specifications, charts, lists, drawings and other applicable reference documents in selecting surface treatment methods for metallic components or products
- researching the surface treatment methods by their principle properties
- selecting surface treatment process and materials to match application outcome on at least two occasions
- arranging tests appropriate to the metal or alloy and surface treatment material and analysing the results on at least two occasions.

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)
- surface preparation methods
- theory of electroplating
- surface treatment requirements as specified in the Range of Conditions, including:
- principal properties of different surface treatments for metals and alloys
- process route for different types of surface treatment
- advantages and disadvantages of using different methods
- effects of different types of bonding in materials
- effects of mechanical and thermal processes on the principal properties of materials.
-

Assessment Conditions

- Assessors must:

- have vocational competency in selecting surface treatment methods for metallic components or products 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>