



Australian Government

Department of Education, Employment and Workplace Relations

MSAPMOPS301A Treat corrosion

Revision Number: 1

MSAPMOPS301A Treat corrosion

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit of competency covers the skills and knowledge required to examine substrates and design of the object to be treated (e.g. plant, equipment and structures), determine by inspection the preparation and protection which might need to be applied and confirm that the specification received is appropriate.
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Application of the Unit

Application of the unit	The unit applies to technicians who are responsible for preparing and protecting an object to a provided specification. They will be able to inspect the object and confirm that the specification is appropriate for this application. This unit is not intended to provide sufficient knowledge and skills to develop a specification. Generally the technician would operate independently or as part of a team and should be capable of performing all parts of this unit. At all times they would be liaising and cooperating with other members of the team.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.
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Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Identify nature of corrosion	1.1. Inspect object 1.2. Observe service environment and note likely causes of, and vulnerability to, corrosion 1.3. Identify the type of corrosion present or likely to occur
2. Interpret surface preparation and coating specification	2.1. Identify surface preparation method specified 2.2. Identify prepared surface specification 2.3. Identify protection method specified 2.4. Identify finished specification of protected surface
3. Confirm appropriateness of specification	3.1. Compare specification with existing or likely corrosion 3.2. Confirm that the specification is appropriate for the situation 3.3. Clarify any discrepancies between specification and expected treatment and take appropriate action
4. Monitor treatment process	4.1. Identify hazards arising from the preparation and protection treatments 4.2. Implement appropriate hazard controls 4.3. Monitor the progress of the treatment 4.4. Recognise situations which might require a change to hazard controls or specifications 4.5. Take the required actions to resolve the identified situations

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- observing and inspecting work environment
- identifying and analysing hazards
- comparing specifications
- communicating with relevant personnel
- identifying and solving problems

Required knowledge

- the galvanic series
- electrochemical corrosion
- erosion and other non-electrochemical decay of materials as relevant
- corrosion of different types of metals
- forms of corrosion/causes of anode formation
- sacrificial protection and coating
- factors controlling the rate of corrosion
- types of corrosion protection used and how they work
- hazards (health, safety, environmental) associated with preparation and protection and relevant hazard controls
- costs and hazards of corrosion
- physics and chemistry relevant to the processes and the materials involved
- process parameters and limits, e.g. blast media type/size/shape, temperature, pressure, flow and pH
- coating/lining types as relevant
- coating/lining application methods as relevant
- duty of care obligations
- hierarchy of hazard control
- routine problems, faults and their resolution
- corrective action appropriate to the problem cause
- function and troubleshooting of major preparation and protection methods and their problems
- types and causes of problems within operator's scope of skill level and responsibility

Evidence Guide

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment

Assessment of this unit should include demonstrated competence on actual plant, equipment, structures or similar in a work environment. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations, which will include disruptions to normal, smooth operation.

This unit of competency requires an application of the knowledge contained in the use of the corrosion control systems and their integral equipment, to the level needed to maintain control and recognise and resolve problems.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action. The emphasis should be on the ability to stay out of trouble rather than on recovery from a disaster.

Consistent performance should be demonstrated. In particular look to see that:

- early warning signs of potential problems are recognised
- the range of possible causes can be identified and analysed and the most likely cause determined
- appropriate action is taken to ensure a timely resolution to meet requirements.

Context of and specific resources for assessment

Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations.

Assessment will occur over a range of situations which will include disruptions to normal, smooth operation.

Simulation or case studies/scenarios may be required to allow for timely assessment of parts of this unit of competency. Simulation should be based on the actual plant and will include 'walk-throughs' of the relevant competency components. A bank of scenarios/case

EVIDENCE GUIDE	
	studies/what ifs and questions will be required to probe the reasoning behind observable actions.
Method of assessment	• Assessment must satisfy the endorsed assessment guidelines of the Manufacturing Training Package. • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of underpinning knowledge. • Assessment methods must be by direct observation of tasks and include questioning on underpinning knowledge to ensure its correct interpretation and application. • Assessment may be applied under project related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Assessment may be in conjunction with assessment of other units of competency where required.
Guidance information for assessment	Assessment processes and techniques must be culturally appropriate and appropriate to the language and literacy capacity of the candidate and the work being performed.

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Codes of practice/standards	Where reference is made to industry codes of practice, and/or Australian/international standards, the latest version must be used
Service environment	Service environment refers to: the environment in which the systems or units (object) the technician is responsible for operate and may be a plant/factory area, a well head, major infrastructure or pipeline covering thousands of kilometers
Corrosion	Corrosion typically refers to: any electrochemical process leading to the decay of metal. It may also be applied to decay processes in non-metals if appropriate
Appropriate action	Appropriate action may include: - determining problems needing action - determining possible fault causes - rectifying problem using appropriate solution within area of responsibility - following through items initiated until final resolution has occurred - reporting problems outside area of responsibility to designated person
Procedures	Procedures may be written, verbal, computer-based or in some other form. They include: - all work instructions - standard operating procedures - formulas/recipes - batch sheets - temporary instructions - any similar instructions provided for the

RANGE STATEMENT	
	smooth running of the plant For the purposes of this Training Package, 'procedures' also includes good operating practice as may be defined by industry codes of practice (e.g. Responsible Care) and government regulations
Health, safety and environment (HSE)	All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through state/territory or Federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence
Hazards	Hazards may include: dust, mists, fumes and waste disposal issues

Unit Sector(s)

Unit sector	
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Competency field

Competency field	
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Co-requisite units

Co-requisite units		