Australian Government

MEM05052 Apply safe welding practices

Release: 1

MEM05052 Apply safe welding practices

Modification History

Release 1. Supersedes and is equivalent to MEM05052A Apply safe welding practices

Application

This unit of competency defines the skills and knowledge required to identify risks associated with welding operations that would typically conform to AS 1554 General Purpose and American Bureau of Shipping (ABS) or equivalent on all commonly used metals and the implementation of techniques used to reduce or eliminate welding hazards.

This unit can only be selected in conjunction with one or more of the following units:

- MEM05015 Weld using manual metal arc welding process
- MEM05017 Weld using gas metal arc welding process
- MEM05019 Weld using gas tungsten arc welding process
- MEM05023 Weld using submerged arc welding process
- MEM05047 Weld using flux core arc welding process
- MEM05055 Weld using oxy fuel gas welding process

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

Fabrication

Elements and Performance Criteria

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

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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, job sheets or work instructions
2	**Identify risks associated with welding**	2.1	Obtain and interpret work-related safety information
		2.2	Identify pollutants formed by welding processes
		2.3	Identify occupational diseases and injuries that are associated with welding
		2.4	Identify factors associated with increased risk
		2.5	Identify exposure levels for pollutants
		2.6	Identify risks and potential health effects associated with specific metals and gases in welding
		2.7	Identify other hazards of welding
3	**Reduce risks associated with welding**	3.1	Use manual handling techniques
		3.2	Implement procedures to control hazards and workplace safety procedures
		3.3	Report workplace safety non-compliances in accordance with workplace procedures

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.

WHS information includes one (1) or more of the following:

- Safe Work Australia guidelines
- organisational WHS practices and procedures manuals
- Australian/New Zealand and ISO standards
- company risk management policy
- codes of practice
- Australian dangerous goods legislation
- trade practices
- WHS reporting requirements
- weld procedures

Work-related safety information includes one (1) or more of the following:

- SOPs
- safety data sheets (SDSs)
- job sheets
- emergency procedures
- safety standards and procedures

Pollutants include one (1) or more of the following:

- nitrogen oxides
- ozone
- metal fumes
- lead oxide
- silicon oxide
- calcium fluoride
- calcium oxide
- magnesium oxide
- sodium oxide
- potassium oxides
- carbon dioxide
- organics
- iron
- manganese
- calcium carbonate
- zirconium oxide

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- titanium oxide
- hexavalent chromium

Occupational diseases and injuries include one (1) or more of the following:

- eye injuries
- skin damage
- respiratory irritations
- chronic effects
- allergies

Factors include one (1) or more of the following:

- gas leakage from cylinders
- type of consumable and metals used
- type of welding processes
- type of electrodes
- welding current
- voltage and amperage
- ventilation
- contamination
- interaction of chemicals
- exposure levels
- flammability

Exposure levels include one (1) or more of the following:

- time weighted average
- short term exposure limit (STEL)
- maximum allowable concentration (MAC) or threshold limit value - ceiling (TLV-C)
- skin notation

Specific metals include one (1) or more of the following:

- aluminium
- antimony
- arsenic
- beryllium
- boron
- cadmium
- chromium
- copper

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- cobalt
- iron
- lead
- lithium
- magnesium
- manganese
- mercury
- molybdenum
- nickel
- platinum
- selenium
- silver
- thorium
- tin
- titanium
- tungsten
- vanadium
- zinc
- zirconium

Gases include one (1) or more of the following:

- acetylene
- argon
- carbon dioxide
- carbon monoxide
- helium
- nitrogen oxides
- ozone
- phosgene
- phosphine
- stibine

Other hazards include one (1) or more of the following:

- fluxes
- electro-magnetic radiation
- electric shock
- sparks
- spatter

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- contaminated and coated metals
- gas cylinder and electrical hazards
- confined spaces
- noise
- chemical exposure
- solvents
- musculoskeletal, back and overuse injuries
- vibration
- dusts
- heat stress
- ultraviolet radiation
- airborne pollutants
- flammable gases
- infrared radiation
- thermal damage

Manual handling techniques include one (1) or more of the following:

- housekeeping practices
- lifting weight limits
- appropriate storage
- use of lifting devices
- appropriate training
- hazardous materials storage standards and procedures

PPE includes one (1) or more of the following:

- respirators
- ear muffs
- protective clothing
- gloves
- boots
- helmets
- eye protection
- face shields

Procedures to control hazards include one (1) or more of the following:

- substituting hazardous materials with safer materials
- changing workplace design to eliminate hazards
- modifying work practices to reduce exposure
- using PPE

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.

- using adequate and appropriate ventilation

Workplace safety measures include one (1) or more of the following:

- shielding requirements
- ventilation
- general and diluted
- local exhaustion
- use of PPE
- checking equipment condition
- equipment maintenance
- correct operation of equipment
- correct voltage and electrical connections
- good posture
- fire safety, plant and equipment isolation
- communications with appropriate personnel

Unit Mapping Information

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Links

Companion Volume implementation guides are found in VETNet - https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2