Australian Government

MEM48020 Recommend ferrous and nonferrous metals or alloys for an application

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MSATCM509A Recommend ferrous and non ferrous metals or alloys for an application.

Application

This unit of competency defines the knowledge and skills required to recommend ferrous and nonferrous metal or alloys for an application based upon knowledge of their metallurgical properties.

It requires application and knowledge of metallurgical properties as a member of a design and development team or similar in support of the design and development of manufacturing applications where the final product or components are made from pure metal or alloys.

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

Pre-requisite Unit

MEM48004 Interpret basic binary phase diagrams

Competency Field

Metallurgy

Elements and Performance Criteria

Elements	**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 1.3 Use appropriate personal protective equipment (PPE) in accordance with SOPs 1.4 Identify the design requirements for the material from specifications or in consultation with others
2. Select metal or alloy for the application	2.1 Select the material based upon the requirement and consideration of principal properties and further processing

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Elements	Performance Criteria
Elements describe the essential *outcomes.*	*Performance criteria describe the performance needed to demonstrate achievement of the element.*
	2.2 Consider economic and technical implications of different metals 2.3 Compare possible alternative materials with or without further processing using formula and engineering calculations 2.4 Recommend most economical solution 2.5 Review final recommendation with relevant personnel

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.	
Further processing includes one or more of the following:	• addition of alloys and heat treatment • hardening • tempering • annealing.
Materials covers both elemental metals and alloys and includes:	• unalloyed steels • alloy steels • stainless steels • grey cast irons • white cast irons • malleable cast irons • nodular (ductile) cast irons • alloy cast irons • copper alloys • aluminium alloys • zinc • tin • nickel

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	• cobalt • magnesium • titanium.

Unit Mapping Information

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Links

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

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