



Australian Government

MEM19026 Investigate quality and application of jewellery materials

Release: 1

MEM19026 Investigate quality and application of jewellery materials

Modification History

Release 1. Supersedes and is equivalent to MEM19026A Investigate quality and application of jewellery materials.

Application

This unit of competency defines the skills and knowledge required to investigate the quality and application of materials used in jewellery construction in order to inform design and production. It includes conducting research into materials and selecting materials according to construction and design requirements.

This unit applies to individuals involved in jewellery design or manufacture in a small or large-scale production context. They use and adapt technical knowledge to complete work.

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

Band: A

Unit Weight: 2

Pre-requisite Unit

MEM13015 Work safely and effectively in manufacturing and engineering

MEM16006 Organise and communicate information

Competency Field

Jewellery

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. Research jewellery materials	1.1 Follow standard operating procedures (SOPs) and comply with work health and safety (WHS) requirements at all times 1.2 Use personal protective equipment (PPE) in accordance with SOPs 1.3 Identify materials typically used in jewellery construction and

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	their uses 1.4 Identify and access credible sources of information about jewellery materials 1.5 Identify specialist expertise available to confirm uses and quality of materials
2. Select materials for jewellery construction	2.1 Select material options based on research 2.2 Use basic testing to assess quality and purity of materials 2.3 Determine costing implications of using different materials 2.4 Select final materials according to design, work and quality requirements
3. Apply safe work practices in handling materials	3.1 Conduct risk assessments for materials and processes to be used in construction 3.2 Identify characteristics of chemicals and hazardous materials used in construction and ensure workplace safety procedures are applied 3.3 Access, interpret and apply safety data sheets (SDS) and labelling information

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.

Materials include one or more of the following:	- gemstones (diamonds, rubies, sapphires and emeralds) - ornamental materials (lapis lazuli and malachite) - biological gem materials (amber, coral and ivory) and their synthetics and imitations
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	• rocks • non-crystalline materials (amorphous opal) • glass, plastic and composite stones • gold • silver • platinum • palladium • copper • alloys.
Qualities of materials include one or more of the following:	• malleability • ductility • conductivity • strength • reaction to treatments • construction processes.
Information sources and specialist expertise include one or more of the following:	• industry associations • Australian Standards documentation • gemmologists • trade publications • internet • suppliers.
Types of gemstones include one or more of the following:	• diamonds • beryl • quartz • agate • opal • jade.
Basic tests to assess purity of metal include one or more of the following:	• acid testing • touch stone • electronic testing.
Gem characteristics include one or more of the following:	• beauty • durability • rarity • cost • colouring • size • shape.
Facet cuts used on gems include one or more of the following:	• emerald • pear cut • round brilliant • asscher cut

	• cushion cut • oval cut • radiant cut • marquise cut • princess cut • heart cut.
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Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM19026A Investigate quality and application of jewellery materials.

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 MEM19026 Investigate quality and application of jewellery materials

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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 and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- analysing and applying industry standards and information on material quality and grades
- identifying on at least two occasions qualities, features, limitations and working characteristics of different metals, gemstones and materials used in jewellery object construction
- selecting materials to meet the needs of work outcomes on at least two occasions
- measuring and handling gemstones
- conducting tests to assess purity of metal
- conducting research and accessing information from information sources and specialist expertise.

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)
- information sources and specialist expertise available to confirm uses and quality of materials
- nomenclature used in describing and identifying jewellery materials
- source or origin of materials and processes involved in extraction or development, and known environmental impacts
- recovery and recycling opportunities for materials used in jewellery
- risk factors in using materials for various jewellery applications
- metals used in jewellery:
 - industry standards for purity of precious metals and the marking system used to identify grade of quality
 - qualities, features, limitations and working characteristics

- tests used to assess purity
- process of making metal alloys, melting points of various metals and alloys and impact of mix on final properties
- gemstones:
 - industry standards for quality
 - qualities, features, limitations and working characteristics
 - range of facet cuts used on gems and their applications
 - costing implications of using various gemstones
 - techniques used to enhance lower quality gemstones
 - requirements for handling and cleaning gemstones
- uses and characteristics of less common materials used in jewellery.
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Assessment Conditions

- Assessors must:
 - have vocational competency in investigating quality and application of jewellery materials 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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