



Australian Government

MEM19067 Apply advanced pre-cutting processes to complex gemstones

Release: 1

MEM19067 Apply advanced pre-cutting processes to complex gemstones

Modification History

Release 1. New unit.

Application

This unit of competency defines the skills and knowledge required to perform the pre-cutting processes for complex gemstones. It is based on deleted unit CUVOPA407A Apply advanced pre-cutting processes to complex opals.

This unit applies to individuals processing gemstones in a small or large-scale production context. They use and adapt technical knowledge and skills to produce work that meets client requirements.

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

Band: B

Unit Weight: 4

Pre-requisite Unit

MEM13015 Work safely and effectively in manufacturing and engineering
MEM16006 Organise and communicate information
MEM19057 Research the gemstone market and complete pre-cutting processes

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. 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 Identify job requirements from specifications
2. Identify type of rough	2.1 Undertake preliminary investigations before deciding how to

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
gemstone	proceed with cutting or carving the gemstone 2.2 Review current market requirements and consult with client to determine preferences for how gemstone could be cut 2.3 Determine the location of the colour within the rough gemstone 2.4 Discuss possible strategies for cutting with colleagues and client based on findings 2.5 Determine jewellers' requirements for products being considered 2.6 Review the options for cutting and plan cut to achieve the best result
3. Decide on cutting process	3.1 Use equipment to inspect the colour without removing gem material 3.2 Select the correct grinding wheels and grits for a given piece 3.3 Review the stone, determine the directionality and decide on the final outcome to be achieved 3.4 Remove unwanted material and pre-form the gemstone material 3.5 Determine the way to cut the stone for the best artistic and commercial return

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:	• client requirements • job sheets • work instructions.
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Appropriate equipment includes one or more of the following:	• Asahi wheel • diamond grinder • diamond sawing • free-hand saw • nova wheel • silicon carbide grinder • slab saw • trim saw.
Unwanted material includes one or more of the following:	• cotton and gypsum • cracked material • crockery • iron stone • materials with inclusions or stains • matrix (in gemstone as an unwanted inclusion) • poor colour • potch • sandstone.
Advanced pre-cutting and pre-forming processes apply to one or more of the following:	• boulder • black • especially valuable gemstones • difficult gemstone.

Unit Mapping Information

No equivalent unit.

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 MEM19067 Apply advanced pre-cutting processes to complex gemstones

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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 standard operating procedures (SOPs) and complying with work health and safety (WHS) requirements at all times
- consulting with people to determine gemstone cutting preferences and possible strategies
- evaluating available information to make decisions about the outcome to be achieved
- completing all pre-cutting and pre-forming processes 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 is needed to satisfy the requirements of the elements and performance criteria, which are the following:

- how the geological formation and structure of gemstone fields informs the pre-cutting process
- process used to determine maximum yield and quality from stone
- current market trends and industry and jewellers' requirements relevant to the pre-cutting processes
- equipment required for pre-cutting processes
- safety and environmental issues associated with the use of gemstone pre-cutting:
 - materials
 - machinery
 - equipment
 - tools
 - consumables.
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Assessment Conditions

- Assessors must:
 - have vocational competency in applying advanced pre-cutting processes to complex gemstones 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.
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