



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **CUVOPA402A Production cut and polish opal**

**Release: 1**

## CUVOPA402A Production cut and polish opal

### Modification History

Version	Comments
CUVOPA402A	This version first released with <i>CUV11 Visual Arts, Craft and Design Training Package version 1.0</i>

### Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to cut and polish opal to meet trade requirements so that the operation is completed in minimum time. Those applying the skills and knowledge covered by this unit cut and polish opals on a continuous basis producing pieces that comply with trade requirements. The cutting must be done in such a way that the cutting business is viable and the stone meets trade requirements.

### Application of the Unit

The skills and knowledge in this unit are applied in a workshop environment and include stock control and record keeping. A major application of this unit is in the manufacture of triplets.

### Licensing/Regulatory Information

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

### Pre-Requisites

Not applicable.

### Employability Skills Information

This unit contains employability skills.

## Elements and Performance Criteria Pre-Content

<b>Element</b>	<b>Performance Criteria</b>
<i>Elements describe the essential outcomes of a unit of competency.</i>	<i>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.</i>

## Elements and Performance Criteria

<p>1. Select the machinery and consumables for production cutting opal</p>	<p>1.1 Select the <i>machinery, consumables and adhesives</i></p> <p>1.2 Select the lighting equipment for UV-sensitive adhesives</p> <p>1.3 Obtain material safety data sheets (MSDS) for materials used</p>
<p>2. Identify and coordinate resources</p>	<p>2.1 Determine sources and cost of rough opal and obtain supplies</p> <p>2.2 Determine sources and cost of consumables, including <i>backing material</i> and triplet tops, and obtain supplies</p> <p>2.3 Record information about suppliers and costs</p> <p>2.4 Set up <i>stock management system</i></p>
<p>3. Review the layout of the workshop and set up machinery and equipment for production cutting</p>	<p>3.1 Review workshop layout in relation to production cutting and make adjustments to facilitate workflow where required</p> <p>3.2 Set up multi-blade saw, grinder, sander, polisher and lighting equipment to manufacturers' specifications</p> <p>3.3 Set up dopping rack and other racks and containers as needed</p>
<p>4. Cut and polish opal to industry requirements within the time constraints of the production process</p>	<p>4.1 Cut and polish opals to trade requirements within the predetermined time constraints</p> <p>4.2 Use appropriate <i>dopping techniques</i> for production work</p> <p>4.3 Ensure opals satisfy trade requirements for <i>standard millimetre sizes</i> for particular applications</p> <p>4.4 Follow OHS requirements for machinery, equipment and consumables</p>

## Required Skills and Knowledge

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

### Required skills

- communication skills to work with suppliers
- planning and organising skills to:
  - select appropriate tools, equipment and materials
  - set up a workshop environment
- problem-solving skills to correct OHS issues
- literacy skills to interpret technical documentation
- numeracy skills to:
  - cost materials
  - use numerical features of machinery
- technical skills to:
  - choose appropriate stone for cutting
  - cut, sand and polish opals using correct technique
  - correct faults and defects
  - source materials
  - follow the procedures for stock management
  - service and test equipment
- technology skills to set up and use production equipment.

### Required knowledge

- characteristics of opal gemstone structure
- suitability of opal pieces for carving
- opal carving process, including required equipment and consumables
- procedures and equipment used in production cutting
- where to locate and cost materials for production cutting
- stock management requirements
- safety issues associated with opal cutting and polishing machinery.

## 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.*

<b>Overview of assessment</b>	
<b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b>	<p>Evidence of the ability to:</p> <ul style="list-style-type: none"> <li>• cut opal in a production environment meeting industry and quality standards and working with commercial constraints</li> <li>• select machinery and consumables</li> <li>• organise the workshop for production cutting</li> <li>• handle OHS issues appropriately.</li> </ul>
<b>Context of and specific resources for assessment</b>	<p>Assessment must ensure access to:</p> <ul style="list-style-type: none"> <li>• production cutting and polishing equipment, tools and consumables.</li> </ul>
<b>Method of assessment</b>	<p>A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:</p> <ul style="list-style-type: none"> <li>• observation of processes and procedures</li> <li>• oral and/or written questioning on underpinning knowledge and skills</li> <li>• review of portfolios of evidence</li> <li>• review of third-party workplace reports of on-the-job performance by candidate.</li> </ul> <p>Assessment methods should closely reflect workplace demands (e.g. literacy) and the needs of particular groups (e.g. people with disabilities, and people who may have literacy or numeracy difficulties, such as speakers of languages other than English, remote communities and those with interrupted schooling).</p>
<b>Guidance information for assessment</b>	<p>Holistic assessment with other units relevant to the industry sector workplace and job role is recommended.</p>

## 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.*

<p><b><i>Machinery</i></b> may include:</p>	<ul style="list-style-type: none"> <li>• cabochon cutting machine</li> <li>• cabochon pre-former</li> <li>• diamond sintered wheel grinder</li> <li>• faceting unit pre-former</li> <li>• high speed sanding unit</li> <li>• multi-blade trim saw</li> <li>• pumice pre-polishing unit</li> <li>• soft diamond wheel sanding and polishing unit</li> <li>• spongy wheel sanding unit</li> <li>• triplet slicing machine</li> <li>• UV light box</li> <li>• vibro tumbler.</li> </ul>
<p><b><i>Consumables and adhesives</i></b> may include:</p>	<ul style="list-style-type: none"> <li>• #400 acid treated silicon carbide powder</li> <li>• backing material</li> <li>• blackening agent</li> <li>• dopping wax or adhesive</li> <li>• epoxy adhesive</li> <li>• grinding wheels</li> <li>• polishing powder (cerium oxide)</li> <li>• polishing wheels (diamond or felt)</li> <li>• red sealing wax</li> <li>• rough opal</li> <li>• sanding wheels (diamond or spongy)</li> <li>• trim saw blades</li> <li>• triplet slicing blades: 120, 140, 160 and 180</li> <li>• triplet tops</li> <li>• UV adhesive</li> <li>• water and electricity.</li> </ul>
<p><b><i>Backing materials</i></b> may include:</p>	<ul style="list-style-type: none"> <li>• black jade</li> <li>• black potch (best)</li> <li>• boulder iron stone</li> <li>• clear or transparent potch</li> <li>• dark grey potch</li> <li>• glass (triplet only)</li> </ul>

	<ul style="list-style-type: none"> <li>• obsidian (black)</li> <li>• vitrolite (triplet only).</li> </ul>
<i>Stock management system</i> may include:	<ul style="list-style-type: none"> <li>• avoiding cutting irregular sizes or shapes to minimise slow stock</li> <li>• maintaining rough opal and consumable supplies</li> <li>• regularly checking continuity of consumables with suppliers</li> <li>• stocking popular sizes to meet new markets.</li> </ul>
<i>Dopping techniques</i> may include:	<ul style="list-style-type: none"> <li>• 5-minute epoxy glue</li> <li>• aluminium or wooden dop sticks</li> <li>• collapsible rack for holding dop sticks</li> <li>• green or red sealing wax</li> <li>• vacuum dopping</li> <li>• wood glues.</li> </ul>
<i>Standard millimetre sizes</i> may require:	<ul style="list-style-type: none"> <li>• consistent accurate sizes</li> <li>• no grinding marks or sanding marks on surface.</li> </ul>

## Unit Sector(s)

Opal cutting and polishing.