



**Australian Government**

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

# **CUVOPA05B Complete pre-cutting processes for opal doublets and triplets**

**Release: 1**

## **CUVOPA05B Complete pre-cutting processes for opal doublets and triplets**

### **Modification History**

Not Applicable

### **Unit Descriptor**

#### **Unit descriptor**

This unit covers skills and knowledge to select and prepare opal and backing materials for cutting as doublets or triplets and complete all precutting processes. It includes documenting and recording all aspects of the procurement and cutting process.

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

### **Application of the Unit**

#### **Application of the unit**

This unit includes the identification of materials suitable for making into doublets and triplets and selection of backing materials and glues for making the doublets or triplets. It also covers the ability to carry out all the precutting planning, cleaning and preforming of the gemstone while working safely with materials and equipment.

### **Licensing/Regulatory Information**

Refer to Unit Descriptor

## Pre-Requisites

### Prerequisite units

This unit may be assessed on its own or it may be assessed with other units that cover related skills and knowledge. Evidence is most relevant when provided through an integrated activity which combines the Elements of competency for the unit, or a cluster of units of competency.

## Employability Skills Information

### Employability skills

This unit contains employability skills.

## Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

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.

## Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 <b>Select opal for cutting as an opal doublet or triplet.</b>	1.1 Select <i>suitable materials</i> for cutting as a doublet or a triplet based on market requirements and characteristics of the stone. 1.2 Determine best play of colour and mark that side. 1.3 Check for flaws with powerful light source and correct if necessary.
2 <b>Flatten opal and base.</b>	2.1 Flatten opal on marked side (this will be the best play of colour side) until surface is free of potch and impurities and completely down to the colour bar using <i>appropriate equipment</i> . 2.2 Select <i>backing materials</i> and flatten. 2.3 Lap opal and base until flat satin finish is obtained. 2.4 Clean and dry opal and base.
3 <b>Cement components together.</b>	3.1 Blacken flattened surface with appropriate <i>blacking agent</i> . 3.2 Mix <i>adhesive</i> to manufacturers' instructions. 3.3 Ensure stone is cemented with the best colour face down. 3.4 Cement flattened surfaces together eliminating excess adhesiveness and air bubbles. 3.5 Allow adhesive to harden following manufacturers' instructions.
4 <b>Preform opal doublet.</b>	4.1 Grind stone to expose join between opal and backing. 4.2 Grind stone to expose best colour. 4.3 Grind to rough shape.
5 <b>Convert doublet to triplet.</b>	5.1 When working with a very thin opal layer, manufacture a triplet. 5.2 Lap the colour surface of the opal until a thin layer of opal remains on the backing. 5.3 Clean and dry stone. 5.4 Cement manufactured <i>triplet top</i> or preferred alternative to the opal surface eliminating

**ELEMENT**

**PERFORMANCE CRITERIA**

excess adhesive and air bubbles.

5.5 After curing, grind the stone to expose both joins.

**ELEMENT****PERFORMANCE CRITERIA**

6 **Follow OHS principles when operating machinery.**

6.1 Follow all *general OHS principles and Safe Operating Procedures* when using machinery for opal cutting.

## Required Skills and Knowledge

### REQUIRED SKILLS AND KNOWLEDGE

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

#### Required skills:

- use of appropriate equipment and consumables
- ability to work safely with opal cutting equipment and materials.

#### Required knowledge:

- the materials that are most suitable for making doublets or triplets
- the equipment and consumables needed for making doublets and triplets.

## Evidence Guide

### 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.

#### **Critical aspects for assessment and evidence required to demonstrate competency in this unit**

To achieve competency in this unit, a person must be able to select appropriate materials for making into a doublet or triplet and complete all pre-forming processes using safe working practices. Assessment must confirm the ability to select the materials for making into a doublet and to make

## EVIDENCE GUIDE

decisions on how to cut the material and what the final product should be. It involves preparing the opal and the backing material, flattening the stone and backing and cementing the two together. It also involves using the same skills to make a triplet from a very thin opal layer with a transparent triplet top.

Competence in this unit must be assessed over a period of time in order to ensure consistency of performance over the range of variables and contexts applicable to the work environment.

### Context of and specific resources for assessment

This unit may be assessed in a work environment, in a simulated work environment or in a combination of these situations.

### Method of assessment

For valid and reliable assessment of this unit, evidence should be gathered through a range of methods to indicate consistent performance.

Assessment of this unit of competence will usually include observation of processes and procedures, oral and/or written questioning on underpinning knowledge and skills, evaluation of the final product and other methods as required.

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).

Assessment of this competency requires access to:

- an opal cutting workshop
- a qualified workplace assessor or assessment team.

## Range Statement

### 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.

***Suitable material*** may include:

- multiple bars of colour with potch between
- off-cuts from solid production
- opal from unsuitable boulder iron stone
- opal prone to crack (triplet only)
- opalised shell skins
- thin bar of colour in potch
- thin seam opal
- weak colour on a clear base (jelly opal).

***Appropriate equipment*** may include:

- diamond grinder
- diamond saw
- free-hand saw
- silicon carbide grinder
- slab saw
- trim saw.

***Backing materials*** may include:

- black jade
- black potch (best)
- boulder iron stone
- clear or transparent potch
- dark grey potch
- glass (triplet only)
- obsidian (black)
- vitrolite (triplet only).

***Blacking agents*** may include:

- black epoxy additives
- black permanent markers
- nigrosine.



**RANGE STATEMENT**

- Adhesives* may include:
- Loctite UV 358 or 363 (triplet top to opal)
  - UHU Plus 24hr (opal to backing)
  - other glues, such as UHU Quickset, MEGAPOXY 69, EPOXY 330, TENAX+ super glue, BOND 527, TITE ON.

- Triplet top materials* may include
- clear quartz
  - commercial standards size triplet tops
  - glass, plain or plate
  - lead crystal glass
  - synthetic spinel, corundum, topaz.

- General OHS principles and Safe Operating Procedures* sheet may include:
- complying with the safe operating procedures for each machine
  - good housekeeping
  - using personal protection equipment where required.

**Unit Sector(s)**

Not Applicable

**Competency field**

**Competency field**            Opal cutting and polishing