



**Australian Government**

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

# **PMBPROD252C Operate compounding equipment**

**Revision Number: 1**

## **PMBPROD252C Operate compounding equipment**

### **Modification History**

Not applicable.

### **Unit Descriptor**

#### **Unit descriptor**

This competency covers the operation of compounding equipment and the resolving of routine problems to procedures.

### **Application of the Unit**

#### **Application of this unit**

This unit applies to operators who are required to undertake the routine operation of compounding equipment. It is typically performed by operators working either independently or as part of a work team.

The operator will:

- check materials and measurements are correct
- check product for quality and conformity to specifications
- notices any problems and takes required action (eg reporting)
- deal with non-conforming products, waste and scrap
- complete logs and reports.

They may record key variables such as machine conditions and production rate and reasons for interruptions.

### **Licensing/Regulatory Information**

Not applicable.

## Pre-Requisites

### Prerequisites

This unit has **no** prerequisites.

## Employability Skills Information

### Employability Skills

This unit contains employability skills.

## Elements and Performance Criteria Pre-Content

ELEMENT	PERFORMANCE CRITERIA
Elements describe the essential outcomes of a unit of competency	Performance Criteria describe the required performance needed to demonstrate achievement of the Element. Assessment of performance is to be consistent with the Evidence Guide.

## Elements and Performance Criteria

<b>ELEMENT</b> <b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b> Performance Criteria describe the required performance needed to demonstrate achievement of the Element. Assessment of performance is to be consistent with the Evidence Guide.
1. Check work requirements.	1.1 Identify work requirements from production plan or request. 1.2 Check product, materials and equipment meet requirements for job(s). 1.3 Recognise requirements which may not be in accordance with usual practice. 1.4 Ask questions of appropriate person to confirm unusual practice. 1.5 Ensure housekeeping is to requirements. 1.6 Identify hazards associated with the job and take appropriate action. 1.7 Perform other pre-operational checks in accordance with procedures.
2. Start up compounding equipment to procedures.	2.1 Conduct pre-start checks on equipment. 2.2 Start up compounding equipment.
3. Operate equipment to procedures.	3.1 Check process is operating within required limits. 3.2 Check product is in specification and to required quality standard. 3.3 Ensure product is consistently ready for next operation. 3.4 Maintain supply of material(s) as required 3.5 Complete logs and records as required 3.6 Collect and segregate scrap, trim and other materials as required. 3.7 Keep equipment and work area clean. 3.8 Pause machine cycle and perform emergency stop as required.
4. Respond to routine problems in accordance with procedures.	4.1 Recognise known faults that occur during the operation. 4.2 Identify and take action on causes of routine faults. 4.3 Log problems as required. 4.4 Identify non-routine process and quality problems and take appropriate action.



## Required Skills and Knowledge

This describes the essential skills and knowledge and their level required for this unit.

Application of an operational knowledge of the materials, equipment and process sufficient to recognise out of specification products, process problems and materials faults.

Knowledge and ability to implement organisation procedures and relevant regulatory requirements, within appropriate time constraints and work standards.

Application of the knowledge of managing risks using the hierarchy of controls applied to the compounding process. Application of approved hazard control and safety procedures and the use of PPE in relation to handling materials, equipment operation and cleanup.

Knowledge of and skills in the operation of compounding process and equipment sufficient for consistent production of quality products including:

- production workflow sequences and materials demand
- correct selection and use of equipment, materials, processes and procedures
- accurately monitoring equipment operation and product quality
- processing behaviour of polymers and the role of additives
- purpose of developing elasticity and controlling temperatures
- role of friction in the compounding of product
- potential effects of variations in raw materials and equipment operation in relation to quality of the product
- effect of unauthorised or emergency shutdown in relation to safety and production requirements
- factors which may affect product quality or production output and appropriate remedies
- waste management and knowing the importance of reusing non-conforming products wherever possible.

Competence also includes the ability to:

- plan own work, including predicting consequences and identifying improvements
- identify when the operator is able to rectify faults, when assistance is required and who is the appropriate source for assistance
- identify and describe own role and the roles of others involved in the compounding process.

### Language, literacy and numeracy requirements

This unit requires the ability to read and interpret typical product specifications, job sheets, procedures, basic machine control panels, material labels and safety information as provided to operators.

Writing is required to the level of completing workplace forms.

Basic numeracy is required, eg to determine that two 25 kg bags are needed to make up a requirement for 50 kg.

## Evidence Guide

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, required skills and knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

**Overview of assessment**

A holistic approach should be taken to the assessment.

Assessors must be satisfied that the person can consistently perform the unit as a whole, as defined by the Elements, Performance Criteria and skills and knowledge.

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

It is essential that competence is demonstrated in the knowledge and skills defined in this unit. These may include the ability to:

- apply the required skills and knowledge to operate compounding equipment
- apply approved procedures.

Consistent performance should be demonstrated. For example, look to see that:

- compounding standards are met consistently
- all safety procedures are adhered to.

**Assessment method and context**

Assessment will occur on industrial compounding equipment and will be undertaken in a work-like environment.

Competence in this unit may be assessed:

- by using an appropriate compounding machine requiring demonstration of operation and emergency stop procedures
- in a situation allowing for the generation of evidence of the ability to respond to problems
- by using a suitable simulation and/or a range of case studies/scenarios
- through a combination of these techniques.

In all cases it is expected that practical assessment will be combined with targeted questioning to assess the underpinning knowledge and theoretical assessment will be combined with appropriate practical/simulation or similar assessment. Assessors need to be aware of any cultural issues that may affect responses to questions.

Assessment processes and techniques must be culturally appropriate and appropriate to the oracy, language and literacy capacity of the assessee and the work being performed.

**Specific resources for assessment**

This section should be read in conjunction with the Range Statement for this unit of competency. Resources required include suitable access to an operating plant or equipment that allows for appropriate and realistic simulation. A bank of case studies/scenarios and questions will also be required to the extent that they form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunchroom. No other special resources are required.

Access must be provided to appropriate learning and/or assessment support when required. Where applicable, physical resources should include equipment modified for people with disabilities.

**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. Add any 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. Where reference is made to industry codes of practice, and/or Australian/international standards, the latest version must be used.

**Context**

This competency applies to all compounding operations within the plastics, and rubber industry. It includes the operation of all relevant additional equipment where that equipment is integral to the compounding process.

It does NOT include the use of internal or open mill blenders. (see *PMBPROD253B Operate an internal mill blender* or *PMBPROD254B Operate an open mill blender*)

**Procedures**

All operations are performed in accordance with procedures.

Procedures include all relevant workplace procedures, work instructions, temporary instructions and relevant industry and government codes and standards. These may include:

- movement of materials
- opening of packages in boxes
- stacking and storing of materials
- basic checking of materials and equipment
- basic machine operations.

**Tools and equipment**

This unit of competency includes use of equipment and tools such as:

- compounding equipment (such as single or twin screw extruders)
- components of compounding machines (such as barrels and screw assemblies)
- material loading equipment used for loading of raw materials
- basic hand tools (such as knives and other bag opening tool)
- hoists/lifting equipment not requiring any special permits or licences
- bung spanners and similar
- relevant personal protective equipment.

**Hazards**

Typical hazards include:

- spills
- dusts/vapours
- hazardous materials
- manual handling hazards
- knife hazards.

**Problems**

Respond to routine problems means 'apply known solutions to a limited range of predictable problems'. Typical process and product problems may include:

- equipment failures
- uneven mixing
- variations in materials
- contamination of materials
- inappropriate formula selected

- quantity errors.
- overheating.

Appropriate action for non-routine problems may be reporting to designated person or other action specified in the procedure.

## **Unit Sector(s)**

Not applicable.