



Australian Government

Department of Education, Employment and Workplace Relations

PMBPROD253C Operate an internal mill blender

Revision Number: 1

PMBPROD253C Operate an internal mill blender

Modification History

Not applicable.

Unit Descriptor

Unit descriptor

This competency covers the gathering of materials and operation of internal mill blending equipment.

Application of the Unit

Application of this unit

This competency applies to operators who collect, blend and prepare rubber compounds for further production processes such as calendering, extrusion and ultimately tyre building, moulding, rubber lining, roller building and conveyor belt manufacture. The key factors are the blending and mixing of the right materials at the right time and ensuring there is no contamination of the materials. This competency is typically performed by operators working either independently or as part of a work team.

The operator will:

- check job sheets for compounds to be prepared
- collect materials (rubber, oils and chemicals) and assemble them close to the start of the process
- check materials to ensure no contamination
- weigh and add materials to the mill according to recipe
- notice any problems during the production process and take required action (eg reporting)
- deal with non-conforming products, waste and scrap
- complete logs and reports.

This unit does not include:

- Calendering, extrusion and tyre building, moulding, rubber lining, roller building and conveyor belt manufacture.
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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

ELEMENT ELEMENT	PERFORMANCE CRITERIA 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 (recipe card). 1.2 Check equipment and materials including base raw materials, additives and curatives and accelerators meet requirements for job(s). 1.3 Plan task sequences as per procedures, including noting times for checks of product quality. 1.4 Identify non-conformity in materials. 1.5 Recognise requirements which may not be in accordance with usual practice. 1.6 Ask questions of appropriate person to confirm unusual practice. 1.7 Identify hazards associated with the job and take appropriate action. 1.8 Perform other pre-operational checks in accordance with procedures.
2. Check process set-up.	2.1 Check safety gates and guards are in position and working. 2.2 Check materials are correct. 2.3 Check control panel to ensure all variable settings are within procedures guidelines. 2.4 Complete pre-start checks.
3. Weigh materials.	3.1 Check scales are zeroed correctly. 3.2 Minimise dust and rubbish in scales and feed mechanisms. 3.3 Accurately weigh powders, rubber, etc, according to computer display, digital readout or other means, according to recipe card. 3.4 Adjust rubber feed to ensure correct quantity delivered.
4. Operate equipment to procedures.	4.1 Start machine safely and correctly in accordance with procedures. 4.2 Check to ensure mixing is occurring appropriately according to equipment operating temperature, speed, amperages and pressures.

ELEMENT	PERFORMANCE CRITERIA
ELEMENT	Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.
	4.3 Monitor control panel in accordance with procedures. 4.4 Complete logs and records as required. 4.5 Notify Dump Mill Operators when the cycle is close to completion. 4.6 Pause machine cycle and perform emergency stop, as required.
5. Liaise with dump mill operator.	5.1 Advise dump mill operator that compound/batch is being made. 5.2 Ensure that batch is sampled and correctly labelled. 5.3 Communicate any non-routine process or product events to required personnel.
6. Respond to routine problems in accordance with procedures.	6.1 Recognise known faults that occur during the operation. 6.2 Identify and take action on causes of routine faults. 6.3 Log problems as required. 6.4 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 knowledge of the materials, equipment and process sufficient to recognise out of specification products, process problems and materials faults. For example

A knowledge of organization procedures, relevant regulatory requirements and the ability to implement them within appropriate time constraints and work standards. For example,

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

Show knowledge of and skills in the operation of an internal mill blender and its

main components sufficient for the consistent production of quality products including:

- production workflow sequences and materials demand
- the reason for checking process control panels and reporting readings which are outside normal range of process variability.
- accurately monitoring equipment operation and product quality
- the potential effects of variations in materials, quantities, temperature and equipment etc in relation to quality of product
- correct selection and use of equipment, materials, processes and procedures
- explain the effect of unauthorised or emergency shutdown in relation to safety and production requirements.
- identify factors which may affect product quality or production output and appropriate remedies. hazard policies and procedures
- issue resolution procedures
- guidelines relating to the safe use of machinery and equipment
- quality assurance procedures (where existing)
- security procedures
- waste, pollution and recycling management processes
- emergency procedures
- reporting of accidents and incidents within regulatory requirements and following workplace procedures.
- appropriate workplace language and communication technologies
- manufacturer specifications
- supplier and/or client instructions
- materials safety data sheets.

Competence also includes the ability to:

- plan own work including predicting consequences and identifying improvements.
- identify the role friction plays in the blending of product
- describe causes and effects of variations in blended batches
- identify and describe own role and the roles of others involved in the open mill blender process.

Language, literacy and numeracy requirements

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

Writing is required to the level of completing workplace forms.

Basic numeracy is also required for example to measure quantities of raw materials, additives, etc, to be blended calculate volumes from formulae measure and extract an exact quantity of compound from the mixed product for a sample to be tested.

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 required skills and knowledge to operate an internal mill blender
- apply approved procedures.

Consistent performance should be demonstrated. For example, look to see that production standards are met consistently.

Assessment method and context

Assessment will occur on an internal mill blender and will be undertaken in a work like environment.

Competence in this unit may be assessed:

- by using an appropriate, internal mill blending 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 the operation of 'Shaw Intermix', 'Banbury' and similar internal mill mixers in work environments specific to the rubber sector. It includes the operation of all relevant additional equipment where that equipment is integral to the blending process. It excludes shifting of materials and rubber compounds by forklift.

This competency would typically apply to the mixing of rubbers or plastics, but may be applied to other materials mixed in an internal 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.

Tools and equipment

This competency includes use of equipment and tools such as:

- hoppers and other material feeding equipment
- manual hoists/lifting equipment not requiring any special permits or licences
- bung spanners and similar
- bale hooks
- basic hand tools required for opening of material packaging
- relevant personal protective equipment.

Hazards

Typical hazards include:

- restricted spaces
- heat
- hazardous chemicals
- dust/fumes
- moving machinery hazards
- manual handling hazards
- knife hazards.

Problems

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

- contamination of materials and/or additives

- non adherence to recipe mix or sequence specifications
- incorrect machine set-up
- inadequate/excessive mixing time
- float pressure
- out of specification product
- incorrect quantity of materials and/or additives.

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

Unit Sector(s)

Not applicable.