



Australian Government

Department of Education, Employment and Workplace Relations

PMBPROD339A Produce reinforced conveyor belts

Revision Number: 1

PMBPROD339A Produce reinforced conveyor belts

Modification History

Not applicable.

Unit Descriptor

Unit descriptor

This competency covers the operation and adjustment of a conveyor belt press line and the solving of problems.

Application of the Unit

Application of this unit

This competency is typically performed by advanced operators applying knowledge of materials, product purpose and processes to the operation of conveyor production line to produce product conforming to requirements. It also requires using a range of well developed skills requiring some discretion and judgement to recognise and resolve a range of problems. The advanced operator will:

- start up the line
- check settings and adjustments of equipment
- monitor equipment operation
- make appropriate adjustments to correct materials, equipment or process variations
- solve equipment, material and process problems, seeking guidance where necessary or appropriate.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisites

This unit of competency has the prerequisite of *PMBPROD238A Perform creel rack operations* and *PMBPROD239A Build reinforced conveyor belts*.

Employability Skills Information

Employability Skills

The required outcomes described in this unit contain applicable Employability Skills. The Employability Skills Summary of the qualification(s) in which this unit is packaged will assist in identifying Employability Skill requirements.

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. Plan own work requirements.	1.1 Identify equipment to be used for production and upstream and downstream operations from production plan or request. 1.2 Identify and check materials required. 1.3 Implement measures to control identified hazards in line with procedures and duty of care. 1.4 Identify requirements for materials, quality, production and equipment checks.
2. Start up belt press line to procedures.	2.1 Identify process settings required for product. 2.2 Set process to required settings. 2.3 Check materials are correct. 2.4 Take appropriate action for non-conforming materials. 2.5 Set up date, batch and materials markings to specifications, as required. 2.6 Complete pre-start checks. 2.7 Start up process as required.
3. Operate and make adjustments to the belt press line to procedures.	3.1 Operate belt line, noting key variables. 3.2 Monitor control panel for production and process data. 3.3 Inspect product as required and identify product out of specification. 3.4 Monitor product/process quality. 3.5 Make adjustments to remedy faults and nonconformity as required. 3.6 Maintain continuity of process. 3.7 Prepare press line for next cycle. 3.8 Adjust process to minimise scrap and trim. 3.9 Clean, adjust and lubricate equipment as required.
4. Shut down machine to procedures.	4.1 Determine type of shut down. 4.2 Clean as required. 4.3 Leave machine in appropriate condition and with appropriate locks, tags or notices. 4.4 Complete relevant documentation. 4.5 Ensure area is clean and clear after the shutdown, in readiness for the next start up.
5. Anticipate and solve	5.1 Recognise a problem or a potential problem.

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.
problems	5.2 Determine problems needing priority action. 5.3 Refer problems outside area of responsibility to appropriate person, with possible causes. 5.4 Seek information and assistance as required to solve problems. 5.5 Solve problems within area of responsibility. 5.6 Follow through items initiated until final resolution has occurred.

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 material and equipment conditions which may lead to out of specification production. For example, scorched rubber or misaligned/misfed cables.

Knowledge of organization procedures, quality requirements at each production stage and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and work standards.

Skill to identify the range of possible causes of product faults.

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

Knowledge as a basis for solving processing and material problems including:

- characteristics of materials and behaviour in relation to heat, pressure, flow rate and time
- function and operating principles of conveyor belt press line equipment, machine components and ancillary equipment, including the mechanical, hydraulic, pneumatic, electrical and electronic principles which effect machine operation
- impact of machine speed, temperature, pressure, time during cycles on product quality and production output
- cure cycle and the importance of machine setup and warm-up for effective processing of materials
- phases of the belt production cycle and the effect of the key variables on product quality, in order to make appropriate adjustments to machine settings.
- processing behaviour of those polymers/compounds which are used in belt making at the workplace
- changes to materials at various stages of production
- waste management and importance of non-conforming materials
- impact of variations in raw materials and equipment operation in relation to final product
- polymer/compound properties and their interactions with process conditions
- relationships between polymer/compound properties and process conditions
- changes to polymer/compound properties to better suit process requirements
- product problems related to polymer/compound properties
- product problems related to process conditions
- adjustments to process conditions to meet polymer/compound and product requirements.

Competence also includes the ability to:

- plan own work, including predicting consequences and identifying improvements
- maintain output and product quality using appropriate instruments, controls, test information and readings
- identify and describe own role and role of others involved directly in the belt production process
- identify factors which may affect product quality or production output and appropriate remedies
- identify when the when assistance is required to solve problems.

Language, literacy and numeracy requirements

This unit requires the ability to read and interpret typical product specifications, job sheets and complex machine control panels.

Writing is required to the level of completing workplace forms, quality assurance records and production reports.

Numeracy is required. For example, to determine production rates, thicknesses and sizes. The reading and interpreting of panels and instruments is also required.

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.

Where the assessee does not currently possess evidence of competency in *PMBPROD238A Perform creel rack operations* and *PMBPROD239A Build reinforced conveyor belts* they may be co-assessed with this unit.

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:

- identify critical materials properties and process variables in relation to the process requirements and the end product
- make adjustments to the process as required
- identify and take appropriate action on problems and potential problems.

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

- the process runs consistently and smoothly, with the minimum need for human intervention
- all safety procedures are always followed.

Assessment method and context

Assessment will occur on an industrial belt press line and will be undertaken in a work-like environment.

Competence in this unit may be assessed:

- by use of an appropriate, industrial belt press line
- in a situation allowing the generation of evidence of the ability to recognise, anticipate and solve problems
- by use of a suitable simulation and/or a range of case studies/scenarios
- by 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 conveyor belt press line equipment used in the conveyor belt manufacturing industry. It includes the operation of all relevant additional equipment where that equipment is integral to the conveyor belt press line process such as creel racks, consolidator etc.

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

- the press line and all ancillary equipment
- components of the press line (eg feed mechanisms, rams and guides)
- belt cutters
- hand tools used in the process such as trimmers
- material loading/unloading equipment
- relevant personal protective equipment.

Hazards

Typical hazards include:

- fumes/vapours

- crushing hazards
- temperature (such as hot moulds and belts)
- hazardous materials
- manual handling hazards
- equipment operations
- the weight of belts being made.

Problems

'Anticipate and solve problems' means resolve a wide range of routine and non-routine problems, using product and process knowledge to develop solutions to problems which do not have a known solution/a solution recorded in the procedures.

Typical routine faults include:

- variations in materials (eg burnt or short scorch rubber)
- contamination of materials
- press/platen temperature/temperature profile
- dirty or damaged press platens/guides.

Non-routine faults, which may have multiple causes include:

- release problems
- distortion of product
- blisters/bubbles/belt separation
- intermittent faults.

Appropriate action for problems outside of area of responsibility may be reporting to an appropriate person.

Appropriate action for solving problems within area of responsibility includes asking questions and seeking assistance from appropriate persons/sources.

Variables

Key variables to be monitored include:

- differences between actual and set temperatures
- operating temperatures and pressures
- cycle time
- width and thickness
- surface finish/appearance
- production rate
- product integrity and general conformance to specification.
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Unit Sector(s)

Not applicable.