



Australian Government

PMC562071 Operate bulk materials handling equipment

Release: 1

PMC562071 Operate bulk materials handling equipment

Modification History

Release 1. Supersedes and is equivalent to PMC562071C Operate bulk materials handling equipment

Application

This unit of competency covers the skills and knowledge required to operate equipment used to store and convey bulk, particulate materials. It applies to particulates, such as:

- cement
- sand
- aggregate
- frit
- cullet
- asphalt (not strictly a particulate solid but included in this unit)
- other similar materials.

This unit of competency applies to operators who are required to start up and shut down conveyors; transfer and store materials; monitor quality, quantity and location of bulk materials; perform minor maintenance on equipment; and identify and take action on problems.

This unit of competency applies to an individual working alone or as part of a team or group and working in liaison with other shift team members, team leader and supervisor, as appropriate.

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

Pre-requisite Unit

Nil

Competency Field

Support

Unit Sector

Not applicable

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

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|---|--------------------------------------|-----|--|
| 1 | Operate conveyors | 1.1 | Recognise the type and number of conveyors |
| | | 1.2 | Identify hazards and implement hazard controls according to procedures |
| | | 1.3 | Start up and shut down the conveyor in a manner appropriate to the conveyor type and duty |
| | | 1.4 | Complete routine checks, logs and paperwork, taking action on unexpected observations, readings and trends |
| | | 1.5 | Convey correct material from and to the correct location as required |
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| 2 | Manage bulk material storages | 2.1 | Recognise type of storage facility |
| | | 2.2 | Monitor quality, quantity and location of bulk materials stored |
| | | 2.3 | Transfer stock into, out of and between storage, as required |
| | | 2.4 | Supply internal and external customers with correct quality and quantity in a timely manner |
| | | 2.5 | Make effective use of storage capacity available taking account of safety issues |
| | | | |
| 3 | Rectify problems | 3.1 | Identify the range of faults that can occur during the operation |
| | | 3.2 | Determine and rectify fault causes in accordance with established enterprise procedures |
| | | 3.3 | Identify and rectify equipment failure causes in accordance with established enterprise procedures |
| | | 3.4 | Make sure appropriate records and log books of equipment operations are maintained to meet enterprise requirements |

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|---|---|-----|---|
| | | 3.5 | Identify non-routine problems and report according to procedure |
| 4 | Carry out maintenance procedures | 4.1 | Recognise a maintenance need according to procedure |
| | | 4.2 | Isolate materials handling equipment and prepare for maintenance/vessel entry as required |
| | | 4.3 | Complete minor maintenance according to procedures |
| | | 4.4 | Receive plant back from maintenance and check for safe operation |
| | | 4.5 | Prepare plant for the introduction of materials and for operation |
| 5 | Control hazards | 5.1 | Identify hazards in the material handling work area |
| | | 5.2 | Assess the risks arising from those hazards |
| | | 5.3 | Implement measures to control those risks in line with procedures |
| | | 5.4 | Shut down in an emergency as required |

Foundation Skills

This section describes those required skills (language, literacy and numeracy) that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Regulatory framework The latest version of all legislation, regulations, industry codes of practice and Australian/international standards, or the version specified by the local regulatory authority, must be used.

Applicable legislation, regulations, standards and codes of practice include:

- health, safety and environmental (HSE) legislation, regulations and codes of practice relevant to the workplace, equipment and production processes and hazardous materials
- Australian/international standards relevant to the materials being used and products being made
- any relevant licence and certification requirements.

All operations to which this unit applies are subject to stringent HSE requirements, which may be imposed through state/territory or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and such requirements the legislative requirements take precedence.

Procedures All operations must be performed in accordance with relevant procedures.

Procedures may be written, verbal, visual, computer-based or in some other form. They include one or any combination of:

- manufacturer's technical information
- job cards
- drawings
- emergency procedures
- work instructions
- standard operating procedures (SOPs)
- safe work method statements (SWMS)
- formulas/recipes
- batch sheets
- temporary instructions
- any similar instructions provided for the smooth running of the plant.

Problems Routine problems must be resolved by applying known solutions.

Routine problems are predictable and include one or more of:

- contamination of stored stock
- rat holing and bridging in silos/bins/hoppers
- routing issues
- equipment problems.

Known solutions are drawn from one or more of:

- procedures
- training
- remembered experience.

Non-routine problems must be reported according to according to relevant procedures.

Tools and equipment

Tools and equipment include:

- conveyor/feeders used for handling particulates, including one or more of:
 - mechanical conveyors/feeders (e.g. travelling stackers, belt, vibrating, screw and flight)
 - pneumatic conveyors (e.g. dense phase, disperse phase, pressure and vacuum)
- bulk storage:
 - piles
 - bunkers
 - silos
 - bins/hoppers
 - weigh bins/loss in weight bins
- personal protective equipment (PPE).

Hazards

Hazards must be identified and controlled. Identifying hazards requires consideration of:

- heat, smoke, dust, vapours or other atmospheric hazards
- weight, shape, volume of materials to be handled
- hazardous products and materials
- sharp edges, protrusions or obstructions
- slippery surfaces, spills or leaks
- electricity
- gas
- gases and liquids under pressure
- noise
- rotational equipment or vibration
- plant services (steam, condensate, cooling water, etc)
- structural hazards
- equipment failures

- machinery, equipment and product mass
- limited head spaces or overhangs
- working at heights
- working in restricted or confined spaces
- other hazards that might arise.

Records and reports Records include one or more of:

- log books/sheets
- electronic records
- job/work sheets
- other records used for the smooth running of the plant.

Reports include one or more of:

- paper or electronic-based logs and reports
- verbal/radio reports
- reporting items found which require action.

Unit Mapping Information

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Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=45a7f1d5-61a5-447a-9688-7abbd7e1a5c7>

Assessment Requirements for PMC562071 Operate bulk materials handling equipment

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and demonstrate the ability to:

- read and interpret job sheets, procedures, material labels and safety information
- identify and prepare equipment, materials and storage facility to meet requirements
- perform pre-start, start-up and shutdown procedures
- store and transfer materials to meet requirements
- identify maintenance needs and prepare equipment for maintenance
- perform minor maintenance to procedures
- recognise routine and non-routine problems
- identify when the operator is able to rectify problems, when assistance is required and who is the appropriate source for assistance
- take action to resolve problems or report them to appropriate personnel
- distinguish between possible causes of routine problems, including:
 - raw material variations/contamination
 - instrument faults/incorrect readings
 - equipment faults/abnormalities
 - process/procedure errors
 - maintenance issues
- identify hazards and apply relevant hazard controls
- apply safety procedures
- communicate effectively with team/work group and supervisors
- complete workplace records
- do basic arithmetical manipulations, including additions, subtractions, divisions, fractions and percentages.
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Knowledge Evidence

Must provide evidence that demonstrates knowledge relevant to their job sufficient to operate under routine only supervision and to solve routine problems, including knowledge of:

- principles of safe and efficient transfer and storage of bulk materials
- principles of operation of plant/equipment used in the job/work environment

- relationship of properties of particulates to transport/storage, including:
 - particle size and shape: reactivity, solubility and colour
 - angle of repose
 - angle of slide
 - dusts
- density and bulk density
- emergency procedures
- routine problems, their probable causes and relevant corrective actions
- work permit system
- organisation procedures relevant to the work environment/job role
- hierarchy of control
- hazards that may arise in the job/work environment and:
 - their possible causes
 - potential consequences
 - appropriate risk controls.

Assessment Conditions

- The unit should be assessed holistically and the judgement of competence shall be based on a holistic assessment of the evidence.
- The collection of performance evidence:
 - should occur over a range of situations which include typical disruptions to normal, smooth operations
 - will typically include a supervisor/third-party report focusing on consistent performance and problem recognition and solving. A supervisor/third-party report must be prepared by someone who has a direct, relevant, current relationship with the person being assessed and who is in a position to form a judgement on workplace performance relevant to the unit of competency
 - must include the use of appropriate tools, equipment and safety gear requiring demonstration of preparation, operation, completion and responding to problems
 - may use industry-based simulation for **part but not all** of the unit particularly where safety, lack of opportunity or significant cost is an issue.
- Assessment should occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions. This must cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- Assessment in a simulated environment should use evidence collected from one or more of:
 - walk-throughs
 - pilot plant operation
 - industry-based case studies/scenarios

- ‘what ifs’.
- Knowledge evidence may be collected concurrently with performance evidence (provided a record is kept) or through an independent process such as workbooks, written assessments or interviews (provided a record is kept).
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications associated with this unit.
- The regulatory framework will be reflected in workplace policies and procedures and is not required to be independently assessed.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- Assessors must satisfy the assessor competency requirements that are in place at the time of the assessment as set by the VET regulator.
- In addition the assessor or anyone acting in subject matter expert role in assessment shall demonstrate both technical competency and currency. If the assessor cannot demonstrate technical competency and currency they shall assess with a subject matter expert who does meet these requirements.
- Technical competence can be demonstrated through one or more of:
 - relevant VET or other qualification/Statement of Attainment
 - appropriate workplace experience undertaking the type of work being assessed under routine and non-routine conditions
 - appropriate workplace experience supervising/evaluating the type of work being assessed under routine and non-routine conditions
- Currency can be demonstrated through one or more of:
 - being currently employed undertaking the type of work being assessed
 - being employed by the organisation undertaking the type of work being assessed and having maintained currency in accordance with that organisation’s policies and procedures
 - having consulted/had contact with an organisation undertaking the type of work being assessed within the last twelve months, the consultation/contact being related to assessment
 - conducting on the job training/assessments of the type of work being assessed
 - being an active member of a relevant professional body and participating in activities relevant to the assessment of this type of work.

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