



Australian Government

PMBPROD241 Lay up rubber lining or lag pulleys

Release: 1

PMBPROD241 Lay up rubber lining or lag pulleys

Modification History

Release 1. Supersedes and is equivalent to PMBPROD241C Lay up rubber lining or lag pulleys

Application

This unit of competency covers the skills and knowledge required to lay up rubber or similar materials to line vessels or components or to lag pulleys. Vessels and tanks are typically lined in order to retard abrasion, impact or corrosion. The re-lagging of pulleys for conveyors provides a positive drive.

This unit of competency applies to operators who are required to prepare materials and surfaces, plan and sequence the work, position, join and cure the lining/lagging and recognise routine and non-routine problems and take appropriate action.

The key factors are the preparation of the surfaces to be lined/lagged and the successful application of the rubber to the surfaces without contaminating the materials. This unit of competency is typically performed by operators working either independently or as part of a work team.

This unit of competency applies to lining/lagging that is carried out in a workshop or other off-site facility.

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

Pre-requisite Unit

Nil

Competency Field

Production

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 | Plan rubber | 1.1 | Review specifications and work order documentation |
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| lining or lagging work | 1.2 | Identify hazards and risk controls, including emergency evacuation and adequate ventilation, including breathing apparatus, where required |
| | 1.3 | Plan work, including materials, sequences, times and process stages |
| | 1.4 | Plan to minimise downtime, economically use materials and meet repair quality specifications |
| | 1.5 | Assemble equipment, tools and materials required, checking them for condition, quality and compliance tags |
| 2 Prepare surfaces for rubber lining or lagging | 2.1 | Lay out materials in an appropriate contamination free area |
| | 2.2 | Ensure materials are clean and free of debris and damage |
| | 2.3 | Identify non-conforming materials and report, as required |
| | 2.4 | Examine component, vessel or pulley and ensure the surfaces to be lined or lagged are free of defects and contaminants |
| | 2.5 | Plan the sequence for application of the adhesives and materials |
| | 2.6 | Prepare lining or lagging surfaces |
| | 2.7 | Monitor surface coatings for setting time and manage the staggered supply of adhesives and materials, where appropriate |
| 3 Lay up rubber lining or lagging | 3.1 | Ensure adequate ventilation is provided and monitored during the laying up process |
| | 3.2 | Monitor any confined space activity and conform to regulations and procedures |
| | 3.3 | Position lining/lagging segments according to the lay-up plan |
| | 3.4 | Exclude entrapped air and ensure complete contact |

- between the lining/lagging and surface is obtained
- 3.5 Ensure joins are sealed and adhered properly with no gaps or overlaps
 - 3.6 Check for slips, sagging or other separation of the lining/lagging from the surface
 - 3.7 Ensure lining/lagging material is finished off as required at the extremities
 - 3.8 Cure rubber lining/lagging where appropriate
- 4 **Clean work area**
- 4.1 Clean, inspect and store tools and equipment used
 - 4.2 Tag unserviceable tools and equipment, identify faults and inform relevant personnel
 - 4.3 Clean work area and return to approved condition
 - 4.4 Dispose of waste or recycle according to procedures
 - 4.5 Complete appropriate workplace documentation
- 5 **Respond to routine problems to procedures**
- 5.1 Recognise known faults that occur during the operation
 - 5.2 Identify and take action on causes of routine faults
 - 5.3 Log problems as required
 - 5.4 Identify non-routine process and quality problems and take appropriate action

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 are written, verbal, visual, computer-based or in some other form, and include one or any combination of:

- emergency procedures
- work instructions
- standard operating procedures (SOPs)
- safe work method statements (SWMS)
- formulae/recipes
- batch sheets
- temporary instructions
- any similar instructions provided for the smooth running of the plant.

Tools and equipment Tools and equipment include one or more of:

- hand tools (e.g. spanners, wrenches and hammers)
- knives and other trimming devices
- hoists/lifting equipment not requiring any special permits or licences
- rollers and other surface compression tools
- ventilation equipment (e.g. fans)

- relevant personal protective equipment (PPE).

Hazards

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

- confined spaces
- working at heights
- blades and cutting equipment
- weight, shape, volume of materials to be handled
- hazardous products and materials
- sharp edges, protrusions or obstructions
- slippery surfaces, spills or leaks
- rotational equipment or vibration
- smoke, dust, vapours or other atmospheric hazards
- electricity
- gas
- gases and liquids under pressure
- structural hazards
- equipment failures
- machinery, equipment and product mass
- other hazards that might arise.

Routine problems

Routine problems must be resolved by applying known solutions.

Routine problems are predictable and include one or more of:

- variations in materials
- incorrectly cut material shapes
- contamination of materials
- contamination of the surfaces to be lined or lagged
- physical size and complexity of some components
- entrapped air
- gaps between lining segments
- inappropriate laps or joins.

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.

Unit Mapping Information

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Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=932aacef-7947-4c80-acc6-593719fe4090>

Assessment Requirements for PMBPROD241 Lay up rubber lining or lag pulleys

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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 procedures, job specifications, material labels and safety data sheets (SDS)
- select and use tools, equipment and materials to meet job specifications
- prepare surfaces, adhesives and materials
- lay up, join and cure lining or lagging to meet specifications
- monitor equipment operation
- monitor key variables, including:
 - compatibility of materials, adhesives, solvents and cleaning agents
 - cleanliness and condition of lining/lagging materials
 - effect of surface condition of the component on the quality of the lining/lagging
- identify hazards and apply relevant hazard controls
- apply safety procedures
- apply housekeeping procedures
- apply waste management procedures
- recognise routine and non-routine problems
- identify when the operator is able to rectify faults, when assistance is required and who is the appropriate source for assistance
- take action to resolve faults or report faults to appropriate personnel
- distinguish between possible causes of routine faults, including:
 - wrong raw materials/additives/catalyst
 - incorrect quantity of materials/additives/catalyst
 - contaminated materials/additives/catalyst
 - procedural errors
 - equipment malfunction/failures
- communicate effectively with team/work group and supervisors
- complete workplace records
- do basic arithmetical manipulations, including additions, subtractions, divisions and multiplications
- make and interpret measurements and shapes.

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:

- types of adhesives, additives and catalysts commonly used in lining or lagging and their suitability for different materials and applications
- the potential effects of variations in raw materials and equipment operation in relation to quality of product
- factors which may affect product quality or production output and appropriate remedies
- routine problems, their probable causes and relevant corrective actions
- 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.
- In all plants it may be appropriate to assess this unit concurrently with units such as:
 - teamwork
 - communication.
- The collection of performance evidence:
 - should occur over a range of situations which include typical disruptions to normal, smooth operations and provide for demonstration of responding to problems
 - will typically include a supervisor/third-party report or other evidence, 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 industry appropriate materials, tools, equipment, data and documentation
 - may use industry-based simulation for all or part 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 demonstration of skills and 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 or through an independent process, such as workbooks, written assessments or interviews.
- 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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