QUALIFICATIONS PACK - OCCUPATIONAL STANDARDS FOR RUBBER INDUSTRY

## Contents



## What are Occupational Standards(OS)?

- OS describe what individuals need to do, know and understand in order to carry out a particular job role or function
- OS are performance standards that individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding


Contact Us:
PHD House (4th Floor), Opp. Asian Games Village,
Siri Fort Institutional Area, New Delhi - 110016
PH: 011-41009347/48
E-mail: info@rsdcindia.in


# Introduction

## Qualifications Pack- Rubber Tube Extruder Operator

**SECTOR:** RUBBER INDUSTRY

**SUB-SECTOR:** 1.Tyre 2. Non- Tyre

**OCCUPATION:** Extrusion

**REFERENCE ID:** RSC/Q2602

**ALIGNED TO:** NCO-2015/NIL

**Brief Job Description:** The rubber tube extruder operator performing pre and post preparation activities is responsible for feeding the rubber compound to the extruder, performing the tube extrusion operation; applying valve patches undertaking cutting, apply valves on green tubes; splicing the ends of green tubes, shaping before curing and curing. In some cases, the operator does the tube splicing using the Mandrelling and demandrelling method.

**Personal Attributes:** This job requires the individual to be a quick decision maker and have a strong reasoning aptitude. He should be focused and keen on following technical upgradations with respect to the related work area. He should be able to work independently under the guidance of supervisor. He should be focused; attentive and careful while undertaking various tube preparation operations.

Job Details

| Qualifications Pack Code | RSC/Q2602 | | |
|---|---|---|---|
| Job Role | Rubber Tube Extruder Operator | | |
| Credits(NSQF) | TBD | Version number | 2.0 |
| Sector | Rubber | Drafted on | 04/06/2013 |
| Sub-sector | Tyre and non-tyre | Last reviewed on | 23/08/2017 |
| Occupation | Extrusion | Next review date | 23/08/2021 |
| NSQC Clearance on | | | |

| Job Role | Rubber Tube Extruder Operator |
|---|---|
| Role Description | The rubber tube extruder operator performing pre and post preparation activities is responsible for feeding the rubber compound to the extruder, performing the tube extrusion operation; applying valve patches undertaking cutting, splicing, and shaping |
| NSQF level | 4 |
| Minimum Educational Qualifications* | Class VIII$^{th}$ Pass |
| Maximum Educational Qualifications* | |
| Prerequisite License or Training | NA |
| Minimum Job Entry Age | 18 years |
| Experience | Worked as a semi-skilled helper for minimum 12 months in the same or similar process |
| Applicable National Occupational Standards (NOS) | **Compulsory:**<br>1. RSC/N2604 - Prepare for tube extrusion<br>2. RSC/N2605 - Perform tube extrusion operation<br>3. RSC/N2606 - Perform tube cutting operation_v2<br>4. RSC/N2607 - Perform tube mandrelling and demandrelling operation<br>5. RSC/N2608 - Perform tube valve application<br>6. RSC/N2609 - Perform tube splicing activity_v2<br>7. RSC/N2610 - Perform tube curing operation_v2<br>8. RSC/N2611 - Perform post tube curing activities_v2<br>9. RSC/N5001 - Carry out housekeeping in rubber product manufacturing<br>10. RSC/N5002 - Carry out reporting and documentation<br>11. RSC/N5003 - Carry out quality checks<br>12. RSC/N5004 - Carry out problem Identification and escalation<br>13. RSC/N5007 - Carry out health and safety |
| Performance Criteria | As described in the relevant OS units |

Definitions

| Keywords /Terms | Description |
|---|---|
| Sector | Sector is a conglomeration of different business operations having similar businesses and |

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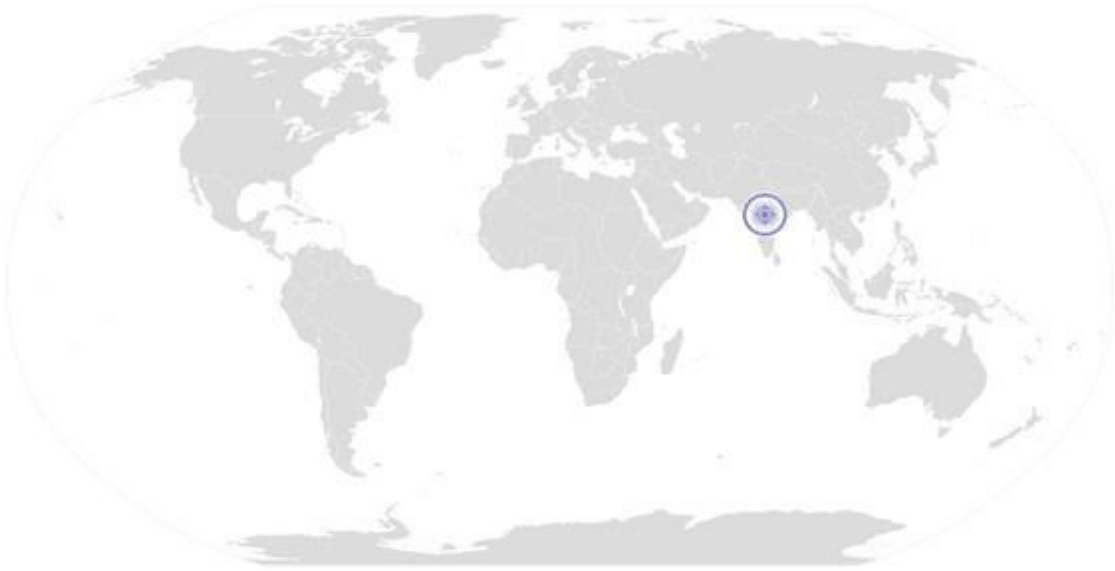
| | interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests. |
| Sub-sector | Sub-sector is derived from a further breakdown based on the characteristics and interests of its components. |
| Occupation | Occupation is a set of job roles, which perform similar/related set of functions in an industry. |
| Job Role | Job role defines a unique set of functions that together form a unique employment opportunity in an organization. |
| Occupational Standards (OS) | OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the knowledge and understanding they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts. |
| Performance Criteria | Performance Criteria are statements that together specify the standard of performance required when carrying out a task. |
| National Occupational Standards (NOS) | NOS are Occupational Standards which apply uniquely in the Indian context. |
| Qualifications Pack | Qualifications Pack comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A Qualifications Pack is assigned a unique qualification pack code. |
| Electives | Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives. |
| Options | Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options. |
| Unit Code | Unit Code is a unique identifier for an Occupational Standard, which is denoted by an 'N'. |
| Unit Title | Unit Title gives a clear overall statement about what the incumbent should be able to do. |
| Description | Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for. |
| Scope | Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required. |
| Knowledge and Understanding | Knowledge and Understanding are statements which together specify the technical, generic, professional and organizational specific knowledge that an individual needs in order to perform to the required standard. |
| Organizational Context | Organizational Context includes the way the organization is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility. |
| Technical Knowledge | Technical Knowledge is the specific knowledge needed to accomplish specific designated responsibilities. |
| Core Skills or Generic Skills | Core Skills or Generic Skills are a group of skills that are key to learning and working in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles. |

# National Occupational Standard



## Overview

**This unit is about preparing equipment for tube extrusion operation.**

National Occupational Standard

| Unit Code | RSC/N2604 |
|---|---|
| Unit Title (Task) | Prepare for tube extrusion |
| Description | This unit is about preparing equipment for tube extrusion operation. |
| Scope | This unit/task covers the following:<br>• Ensuring the readiness and functioning of tools, equipments and extruder<br>• Setting parameters on the Extruder, preparing other systems and material necessary for working on extruder<br>• Ensure housekeeping and safety in work area |

| Performance Criteria (PC) w.r.t. the Scope | |
|---|---|
| **Element** | **Performance Criteria** |
| Equipment readiness | To be competent, the user/individual on the job must be able to<br>PC1. Ensure that extruder is clean<br>PC2. Prepare breakdown, warm up and feed mills<br>PC3. Prepare strainer<br>PC4. Prepare the feed mill and overhead conveyor for feeding the strip to the extruder.<br>PC5. Ensure that the spray pipe for spraying talc powder inside the tube is warm and ready for continuous spraying while extrusion is on<br>PC6. Fit the correct die on the extruder head as applicable<br>PC7. Set parameters for the extruder (screw speed, temperature, conveyor speed) as per job card<br>PC8. Set the cooling line and water flow as per requirements<br>PC9. Set the online measurement system as per specifications and tolerances<br>PC10. Ensure that vacuum pump is on and reaches the set vacuum level, wherever applicable<br>PC11. Follow equipment preparation process as per company requirements<br>PC12. Ensure that no delays are caused as a result of improper preparation and failure to identify problems. |
| Raw material appropriateness | PC13. Ensure that rubber compound to be fed is approved by laboratory<br>PC14. Collect all rubber compound required for the batch<br>PC15. Match the batch code of each raw material with the batch code on the job schedule given by the planning department<br>PC16. Ensure availability of correct poly valve patches, stripe marker for identifying tube is either NR or Butyl based , paint for tube size marking<br>PC17. Ensure that each raw material is in the correct quantity<br>PC18. Ensure, by visual inspection, that raw material is of desired quality (free of contamination etc.)<br>PC19. Ensure that no delays are caused as a result of improper preparation and failure to identify problems<br>PC20. Ensure housekeeping in Tube Extrusion area |
| Housekeeping & Safety | PC21. Inject lubricating oil before staring the operations so as to avoid damage to the extrusion machine.<br>PC22. Perform the checks before starting the conveyor belt such as checking for people working on different part of the conveyor belt etc. |

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| | PC23. Ensure that there are no loose clothes around the conveyor belt.<br>PC24. Maintain the correct posture while undertaking physical activities such as lifting heavy objects (such as extrudate, if heavy)<br>PC25. Ensure that workman wears proper mask to avoid detrimental effects of inhaling rubber fumes.<br>PC26. Adhere to all safety norms (like wearing protective gloves, shoes, safety goggles, mask etc<br>PC27. Comply with health, safety, environment guidelines, regulations etc in accordance with company procedure |
| **Knowledge and Understanding (K)** | |
| **A. Organizational Context** (Knowledge of the company / organization and its processes) | The user/individual on the job needs to know and understand:<br><br>KA1. Different types of Extruders and their operation as well as control panel.<br>KA2. Implications of poorly prepared equipment, power failure etc<br>KA3. Importance of identifying non-conforming material and storage of the same<br>KA4. Risk and impact of not following defined procedures/work instructions<br>KA5. Escalation matrix for reporting identified problems<br>KA6. Types of documentation in organization and importance of the same<br>KA7. Records to be maintained and implications of non-maintenance of the same<br>KA8. Importance of housekeeping & good shop floor practices (e.g.3S/5S)<br>KA9. Health, Safety and Environment guidelines, legislation and regulations as applicable<br>KA10. Personal protection( Which protective equipment to be used and how)<br>KA11. Impact of poor practices on health, safety and environment<br>KA12. Potential hazards and actions to minimize the same<br>KA13. Escalation matrix and escalation procedure for reporting hazards |
| **B. Technical Knowledge** | The user/individual on the job needs to know and understand:<br>KB1. Knowledge of extrusion machine and operation (Equipment working, possible setting levels, typical process followed for different batches)<br>KB2. The emergency stops procedures for the extruding machine.<br>KB3. Cleanliness and safety requirements for commencing a extruding batch operation<br>KB4. The detrimental effect of inhalation of fumes / particulate containing Carbon Black (CB), Silica & rubber chemicals etc.<br>KB5. The detrimental effects of continuous direct exposure/contact of the extrudate to the skin, exposure of the eye to harmful fumes.<br>KB6. Implications of delays in preparation process<br>KB7. Type of defects leading to rejections.<br>KB8. Potential problems in preparation process<br>KB9. Indicators and reasons of potential problems<br>KB10. Appropriate solutions to the problems encountered<br>KB11. Units of measurement<br>KB12. Responding to emergencies e.g. Power failures ,fire and system failures<br>KB13. Usage of different types of fire extinguishers |
| **Skills (S)** | |
| **A. Core Skills/** | **Writing Skills** |

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| **Generic Skills** | The user/ individual on the job needs to know and understand how to:<br>SA1. Construct simple sentences and express ideas clearly through written communication<br>SA2. Fill up appropriate technical forms, process charts, activity logs in required format of the company<br>SA3. Write simple letters, mails, etc<br>SA4. Perform functional mathematical operations, including apply basic mathematical principles, such as numbers and space, and techniques such as estimation and approximation, for practical purposes |
| | **Reading Skills** |
| | SA5. Read and understand manuals, health and safety instructions, memos, reports, job cards etc<br>SA6. Read images, graphs, diagrams<br>SA7. Understand the various coding systems as per company norms |
| | **Oral Communication** |
| | SA8. Express statements, opinions or information clearly so that others can hear and understand<br>SA9. Respond appropriately to any queries<br>SA10. Communicate with supervisor<br>SA11. Communicate with upstream and downstream teams |
| | **Life Skills** |
| | **Integrity**<br>SA12. Practice honesty with respect to company property and time<br>SA13. Communicate with people in a form and manner and using language that is open and respectful<br>SA14. Resolve any difficulties in relationships with colleagues , or get help from an appropriate person, in a way that preserves goodwill and trust<br>**Motivation**<br>SA15. Take responsibility for completing one's own work assignment<br>SA16. Take initiative to enhance/learn skills in ones's area of work<br>SA17. The capacity to learn from experience in a range of settings and scenarios and the capacity to reflect on and analyse one's learning.<br>SA18. Is open to new ways of doing things<br>SA19. The capacity to envisage and articulate personal goals; to develop strategies and take action to achieve them.<br>**Reliability**<br>SA20. Avoid absenteeism<br>SA21. Act objectively , rather than impulsively or emotionally when faced with difficult/stressful or emotional situations<br>SA22. Work in disciplined factory environment<br>SA23. Be punctual |
| | **Decision Making** |

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| **B. Professional Skills** | The individual needs to know and understand how to:<br>SB1. Take a decision for any change/issue based on earlier successes(documented previous history)on similar issues<br>SB2. Work out changes in case a new improved machine/equipment is added in the process or any new material/chemical is developed replacing existing one.<br>SB3. Make changes in cycle time due to improved process.<br>SB4. Use the standard operating procedure or trouble shooting manuals for trouble shooting and other reference documents approved by plant management<br>SB5. Consult the peer group and superiors to arrive at a favourable decision.<br>SB6. Use of standard available problem solving techniques for decision making<br>SB7. Review and analyze the process steps to check on system non adherence and non conformity<br>SB8. Review the current SOP and other standards for continuous improvement to facilitate decision making<br>SB9. Take a calculated risk with minimum losses |
| | **Plan and Organize** |
| | SB10. Organize for repair of equipments before commencing extrusion operation<br>SB11. Plan production as per the schedule |
| | **Customer Centricity** |
| | SB12. Match customer needs/specification by adjusting the processing conditions (interact with customer in case any clarification required)<br>SB13. Ensure that performance of his action/operation/activity does not lead to any divergence from the specified quality of the final product as required by the customer.<br>SB14. Complete the assigned task in timely manner so that the final product is delivered in the timeline given by the customer.<br>SB15. Communicate effectively to the superior/customer for any delay in supplies to the clients.<br>SB16. Work towards fulfilling the customers requirement as per their demand.<br>SB17. In case of any complaint, ensure its timely resolution if the problem is emanating at his level<br>SB18. Communicate effectively to the superior/customer for any delay in resolving the problem faced by the customer.<br>SB19. Maintain good/cordial relation with customers.<br>SB20. Work on the feedback received from customer regarding the product. |
| | **Problem Solving** |
| | SB21. Interpret quality of compound<br>SB22. Suggest improvements(if any) in process/product/materials based on results and experience |
| | **Analytical Thinking** |
| | SB23. Carry out proper collection of waste material<br>SB24. Identify defects in the material and communicate it at the earliest and suggest improvements(if any) in process/material based on experience |

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| | **Critical Thinking** |
| | SB25. Seek clarification on problems from others<br>SB26. Apply problem-solving approaches in different situations |

# NOS Version Control

| NOS Code | RSC/N2604 | | |
|---|---|---|---|
| Credits(NSQF) | TBD | Version number | 2.0 |
| Industry | Rubber Manufacturing | Drafted on | 04/06/2013 |
| Industry Sub-sector | Tyre and non-tyre | Last reviewed on | 23/08/2017 |
| Occupation | Extrusion | Next review date | 23/08/2021 |

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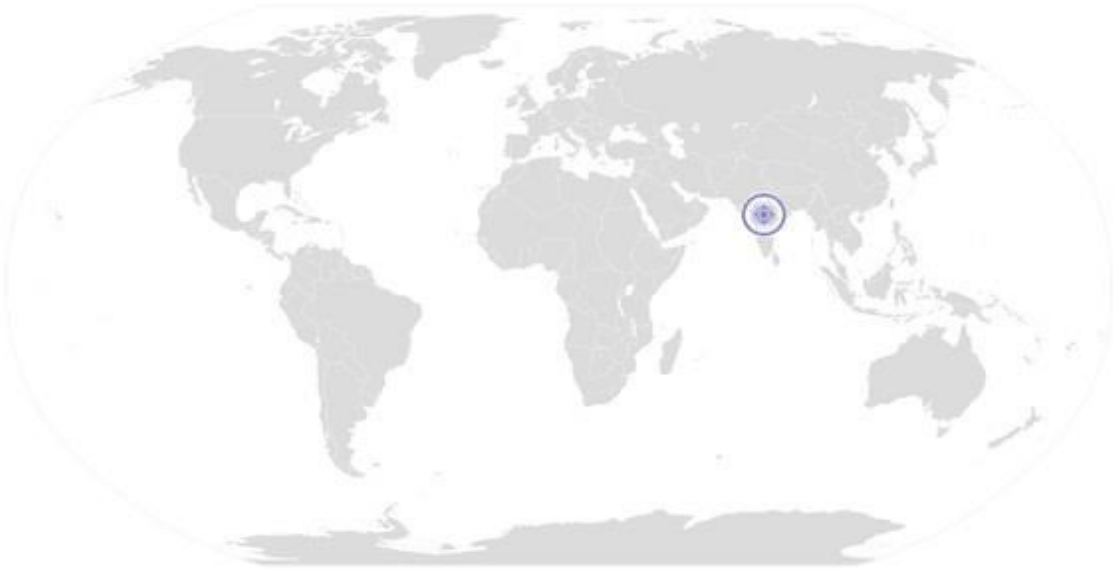
# National Occupational Standard



## Overview

**This unit is about feeding rubber compound to the extruder and performing the tube extrusion operation using the Extruder.**

National Occupational Standard

| Unit Code | RSC/N2605 |
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| **Unit Title (Task)** | **Perform tube extrusion operation** |
| **Description** | This unit is about feeding rubber compound to the extruder and performing the extrusion operation using the Extruder |
| **Scope** | This unit/task covers the following:<br>• Ensure the appropriateness of raw material<br>• Performing extrusion operation<br>• Collecting and Booking the extruded products<br>• Proper waste material disposal<br>• Send sample for testing<br>• Health and Safety |
| **Performance Criteria (PC) w.r.t. the Scope** | |
| **Element** | **Performance Criteria** |
| **Raw material appropriateness** | To be competent, the user/individual on the job must be able to<br>PC1. Ensure, by visual inspection, that raw material is of desired quality (free of contamination etc.)<br>PC2. Ensure that batch size of rubber mix is as per specified quantity |
| **Operations** | PC3. Plan batch sequence in shifts based on raw material availability/rejection to maximize output<br>PC4. Select the correct compound<br>PC5. Feed the extruder with strip of correct dimension<br>PC6. Produce product of correct width, thickness and texture (if template has been used)<br>PC7. Ensure inside powder application is continuous and uniform<br>PC8. Apply stripe marking, tube size stamping, ad valve patch before the tube enters the cooling section using water as coolant<br>PC9. Inspect visually the rubber strip to make sure it is free from defects and meets required specifications for further processing.<br>PC10. Ensure that the extruded product is free of contamination<br>PC11. Allow sufficient maturing time to handle shrinkage<br>PC12. Collect the extruded product correctly on the leaf truck/trolley<br>PC13. Ensure that material wastage is within tolerance limits<br>PC14. Ensure that no rework or rejection is generated.<br>PC15. Match the quality of output to company's product requirements<br>PC16. Use the right quantity and quality of material required for product<br>PC17. Meet production quantity targets set for the operation<br>PC18. Follow work instructions as laid down by the company<br>PC19. Handover the equipment to the next operator in clean and good condition<br>PC20. Send the remaining material to the designated storage area. |
| **Material disposal** | PC21. Dispose off the waste material as per waste disposal procedures laid down by the company<br>PC22. Carry out disposal of waste material safely |

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| **Batch Marking** | PC23. Ensure identification and traceability by batch marking/coding for the right product as per the instructions laid down by the company (in terms of batch number, weight, color and date stamp). |
| **Sampling** | PC24. Send samples in specified form for testing. |
| **Health & Safety** | PC25. Perform the checks before starting the conveyor belt such as checking for people working on different part of the conveyor belt etc.<br>PC26. Handle the moving parts like the conveyor belts, the feed inlet and discharge port, belts, gears and other rotating parts when the machine is running<br>PC27. Operate the conveyor belt within the speed limit at all times and always be aware of the upper limit<br>PC28. Ensure that there are no loose clothes around the conveyor belt.<br>PC29. Maintain protocol while the machine is in operation, like never reaching over the machine or machine guard to the point of operation<br>PC30. Handle the hot extrudate properly using hand gloves and other safety equipment<br>PC31. Maintain the correct posture while undertaking physical activities such as lifting heavy objects (such as extrudate, if heavy)<br>PC32. Ensure that he wears proper mask to avoid detrimental effects of inhaling rubber fumes.<br>PC33. Adhere to all safety norms (like wearing protective gloves, shoes etc.<br>PC34. Comply with health, safety, environment guidelines, regulations etc in accordance with company procedure |
| **Knowledge and Understanding (K)** | |
| **A. Organizational Context** (Knowledge of the company / organization and its processes) | The user/individual on the job needs to know and understand:<br><br>KA1. Different types of Extruders and their operation as well as control panel.<br>KA2. Implications of poorly prepared equipment, power failure etc<br>KA3. Material disposal procedure, importance of appropriate disposal of material and implications of not following the material disposal procedure<br>KA4. Quality and damage checks to be done and importance of the same<br>KA5. Importance of identifying non-conforming products and storage of the same<br>KA6. Significance of batch marking<br>KA7. Risk and impact of not following defined procedures/work instructions<br>KA8. Escalation matrix for reporting identified issues<br>KA9. Types of documentation in organization and importance of the same<br>KA10. Records to be maintained and implications of non-maintenance of the same<br>KA11. Importance of housekeeping & good shop floor practices (e.g.3S/5S)<br>KA12. Health, Safety and Environment guidelines, legislation and regulations as applicable<br>KA13. Personal protection( Which protective equipment to be used and how)<br>KA14. Impact of poor practices on health, safety and environment<br>KA15. Potential hazards and actions to minimize the same.<br>KA16. Escalation matrix and escalation procedure for reporting hazards. |
| **B. Technical Knowledge** | The user/individual on the job needs to know and understand:<br>KB1. Cleanliness and safety requirements for commencing an extrusion operation |

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| | KB2. Tolerance levels for various parameters (temperature, pressure, rpm, feed rate and weight)<br>KB3. Troubleshooting- Knowledge of abnormalities and what response to make in case of abnormalities in equipment performance<br>KB4. The emergency stops procedures for the extruding machine.<br>KB5. Measurement techniques using gauges and balance (for thickness, width and weight)<br>KB6. The detrimental effect of inhalation of fumes / particulate containing Carbon Black (CB), Silica & rubber chemicals etc.<br>KB7. The detrimental effects of continuous direct exposure/contact of the extrudate to the skin, exposure of the eye to harmful fumes.<br>KB8. Effect of improper extrusion and braiding on properties of product.<br>KB9. Implications of not adhering to sequence of activities and operations<br>KB10. Implications of delays in production process<br>KB11. The process and importance of quality check ,including visual inspection and dimensional checks<br>KB12. Types of defects leading to rejections.<br>KB13. Potential problems in the extrusion operation<br>KB14. Indicators and reasons of potential problems<br>KB15. Appropriate solutions to the problems encountered<br>KB16. Units of measurement<br>KB17. Responding to emergencies e.g. Power failures ,fire and system failures<br>KB18. Usage of different types of fire extinguishers<br>KB19. Batch marking techniques<br>KB20. Implications of incorrect batch marking<br>KB21. Implications of inappropriate waste disposal |
| **Skills (S)** | |
| **A. Core Skills/ Generic Skills** | **Writing Skills**<br>The user/ individual on the job needs to know and understand how to:<br>SA1. Construct simple sentences and express ideas clearly through written communication<br>SA2. Fill up appropriate technical forms, process charts, activity logs in required format of the company<br>SA3. Write simple letters, mails, etc<br>SA4. Perform functional mathematical operations, including apply basic mathematical principles, such as numbers and space, and techniques such as estimation and approximation, for practical purposes |
| | **Reading Skills**<br>SA5. Read and understand manuals, health and safety instructions, memos, reports, job cards etc<br>SA6. Read images, graphs, diagrams<br>SA7. Understand the various coding systems as per company norms |
| | **Oral Communication** |

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| | SA8. Express statements, opinions or information clearly so that others can hear And understand<br>SA9. Respond appropriately to any queries<br>SA10. Communicate with supervisor<br>SA11. Communicate with upstream and downstream teams |
| | **Life Skills** |
| | **Integrity**<br>SA12. Practice honesty with respect to company property and time<br>SA13. Communicate with people in a form and manner and using language that is open and respectful<br>SA14. Resolve any difficulties in relationships with colleagues , or get help from an appropriate person, in a way that preserves goodwill and trust<br>**Motivation**<br>SA15. Take responsibility for completing one's own work assignment<br>SA16. Take initiative to enhance/learn skills in ones's area of work<br>SA17. The capacity to learn from experience in a range of settings and scenarios and the capacity to reflect on and analyse one's learning.<br>SA18. Is open to new ways of doing things<br>SA19. The capacity to envisage and articulate personal goals; to develop strategies and take action to achieve them.<br>**Reliability**<br>SA20. Avoid absenteeism<br>SA21. Act objectively , rather than impulsively or emotionally when faced with difficult/stressful or emotional situations<br>SA22. Work in disciplined factory environment<br>SA23. Be punctual |
| **B. Professional Skills** | **Decision Making** |
| | The individual needs to know and understand how to:<br>SB1. Take a decision for any change/issue based on earlier successes(documented previous history)on similar issues<br>SB2. Work out changes in case a new improved machine/equipment is added in the process or any new material/chemical is developed replacing existing one.<br>SB3. Make changes in cycle time due to improved process.<br>SB4. Use the standard operating procedure or trouble shooting manuals for trouble shooting and other reference documents approved by plant management<br>SB5. Consult the peer group and superiors to arrive at a favourable decision.<br>SB6. Use of standard available problem solving techniques for decision making<br>SB7. Review and analyze the process steps to check on system non adherence and non conformity<br>SB8. Review the current SOP and other standards for continuous improvement to facilitate decision making<br>SB9. Take a calculated risk with minimum losses |

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| | **Plan and Organize** |
| | SB10. Organize the prepared product for next operation<br>SB11. Send the sample to lab for testing in timely manner |
| | **Customer Centricity** |
| | SB12. Match customer needs/specification by adjusting the processing conditions (interact with customer in case any clarification required)<br>SB13. Ensure that performance of his action/operation/activity does not lead to any divergence from the specified quality of the final product as required by the customer.<br>SB14. Complete the assigned task in timely manner so that the final product is delivered in the timeline given by the customer.<br>SB15. Communicate effectively to the superior/customer for any delay in supplies to the clients.<br>SB16. Work towards fulfilling the customers requirement as per their demand.<br>SB17. In case of any complaint, ensure its timely resolution if the problem is emanating at his level<br>SB18. Communicate effectively to the superior/customer for any delay in resolving the problem faced by the customer.<br>SB19. Maintain good/cordial relation with customers.<br>SB20. Work on the feedback received from customer regarding the product. |
| | **Problem Solving** |
| | SB21. Interpret quality of prepared product<br>SB22. Suggest improvements(if any) in process/product/materials based on results and experience |
| | **Analytical Thinking** |
| | SB23. Proper collection of waste material<br>SB24. Identify defects in the material and communicate it at the earliest and suggest improvements(if any) in process/material based on experience |
| | **Critical Thinking** |
| | SB25. Apply problem-solving approaches in different situations<br>SB26. Refer anomalies to the line manager |

## NOS Version Control

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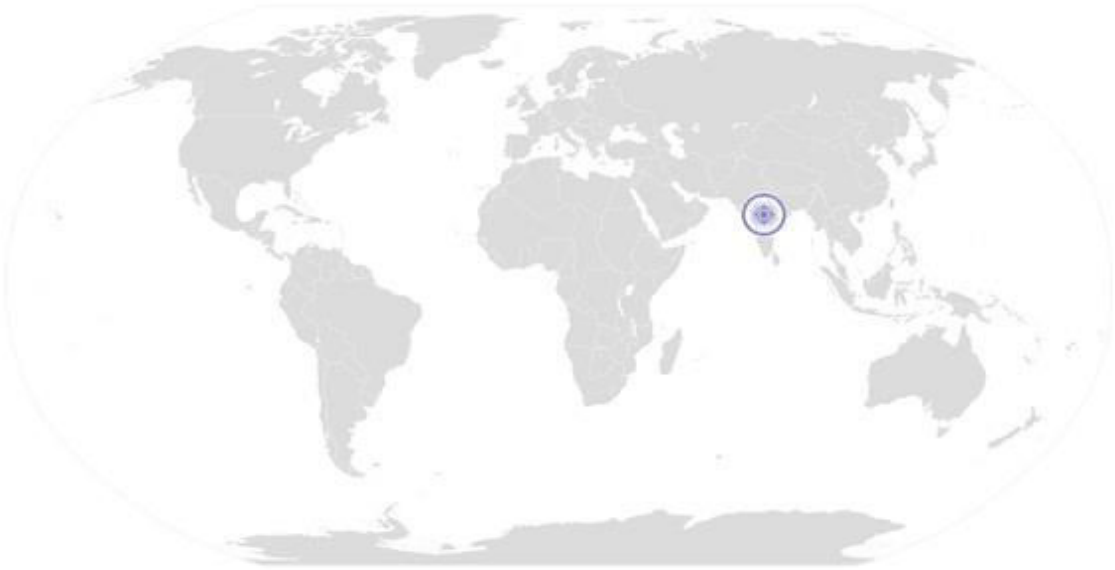
|---|---|---|---|
| **NOS Code** | **RSC/N2605** | | |
| **Credits(NSQF)** | **TBD** | **Version number** | **2.0** |
| **Industry** | **Rubber Manufacturing** | **Drafted on** | **04/06/2013** |
| **Industry Sub-sector** | **Tyre and non-tyre** | **Last reviewed on** | **23/08/2017** |
| **Occupation** | **Extrusion** | **Next review date** | **23/08/2021** |



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# National Occupational Standard

## Overview

**This unit about performing tube cutting operation using the tools and machine.**

National Occupational Standard

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|---|---|
| **Unit Code** | **RSC/N2606** |
| **Unit Title (Task)** | **Perform Tube Cutting Operation_v2** |
| **Description** | This unit is about performing tube cutting operation using the cutting tools and machine. |
| **Scope** | This unit/task covers the following:<br>• Prepare the equipments, cutting tools and machine<br>• Get the required material and tubes to carry out cutting operations<br>• Marking on scale for manual cutting /setting on length sensors for auto cutters for cutting the tubes and operate the cutting machine and the hand tools<br>• Proper disposal of waste material<br>• Ensure housekeeping and safety in cutting area |
| **Performance Criteria (PC) w.r.t. the Scope** | |
| **Element** | **Performance Criteria** |
| **Equipment readiness** | To be competent, the user/individual on the job must be able to<br>PC1. Ensure the functioning of the cutting machine (auto cutters or scissors).<br>PC2. Ensure that the tools are clean and well sharpened.<br>PC3. Set length of mechanical / electronic device of the auto cutting device to cut the tube at the desired length<br>PC4. Provide long scales with markings for specified lengths for manual cutting<br>PC5. Place the hand tools on a safe location.<br>PC6. Ensure that the tube has the required booking temperature ( adequate cooling on cooling water tanks ) to reduce cutting variation |
| **Raw material appropriateness** | PC7. Ensure availability of green tubes dependent on the extruder schedule if it is on line cutting. Off line cutting requires, ensuring availability<br>PC8. Ensure all the required cutting length specifications are available<br>PC9. Ensure that green tubes to be cut is approved that is QA/QC certified and usable<br>PC10. Check the availability of all tubes of different sizes with reference to the job schedule. ( In case of tube length resizing ) |
| **Cutting Operation** | PC11. Marking for cutting lengths of the tubes using a long scale for required specification in case of manual cutting device in use<br>PC12. Setting the length sensors /electronic device for specified length cutting<br>PC13. Undertake green tube cutting (through manual or automatic cutting device) at the extruder and then cut extruded tubes to length before they are booked in books / tray Trolleys as specified by the Technical<br>PC14. Understand the allowance needed for shrinkage while cutting the tubes at extruders<br>PC15. Understanding proper dwell time in cooling tank to ensure uniform shrinkage of cut tubes lengths<br>PC16. Ensure that the cutting length is close to the specified length<br>PC17. Ensure that the tubes are cut to specification to minimize the losses and reduce work away tube cut ends<br>PC18. Carry out fine tuning of cut tube lengths done after ageing just before splicing operation done at splicer area<br>PC19. Arrange to get all the pieces of scrap tube cut ends collected in a container for |

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| | rework/reuse at the extruders /mixers<br>PC20. Clean tools and keep the tools at designated place after the completion of cutting operation.<br>PC21. Report any problem/repair and maintenance requirement for cutting device to the supervisor |
| **Material disposal** | PC22. Dispose of waste material safely, as per organizational SOP. |
| **Housekeeping & Safety** | PC23. Handle the tubes using hand gloves and other safety equipment.<br>PC24. Ensure the use of certified/tested cutting hand tools and machine and check their functioning.<br>PC25. Adhere to all the safety norms (such as wearing protective gloves, masks and shoes).<br>PC26. Comply with health, safety, environment guidelines and regulations in accordance with international/national standards or the organizational standards. |
| **Knowledge and Understanding (K)** | |
| **A. Organizational Context** (Knowledge of the company/ organization and its processes) | The user/individual on the job needs to know and understand:<br>KA1. Cutting operation and its importance.<br>KA2. Implications of poorly prepared tools and machine.<br>KA3. The material disposal procedure, importance of appropriate disposal of material and implications of not following the material disposal procedure.<br>KA4. How to conduct quality and damage checks and their importance.<br>KA5. Implication of improper cooling on cut length variation<br>KA6. Importance of identifying non-conforming products and their storage.<br>KA7. Risk and impact of not following defined procedures/work instructions.<br>KA8. The escalation matrix for reporting identified issues.<br>KA9. Types of documentation in the organization and their importance.<br>KA10. Records to be maintained and the implications of their non-maintenance.<br>KA11. Importance of housekeeping & good shopfloor practices<br>KA12. Health, safety and environment guidelines, legislations and regulations, as applicable.<br>KA13. Personal protection (which protective equipment to be used and how).<br>KA14. Impact of poor practices on health, safety and environment.<br>KA15. Potential hazards and actions to minimize them.<br>KA16. The escalation matrix and procedures for reporting hazards.<br>KA17. Importance of FIFO<br>KA18. Impact of various practices on cost, quality, productivity, delivery and safety.<br>KA19. Handover/Takeover of the equipment/work area as per organizational SOP. |
| **B. Technical Knowledge** | The user/individual on the job needs to know and understand:<br>KB1. Knowledge of length measurements and use of measuring tape<br>KB2. Knowledge of handling auto tube length cutters at extruders<br>KB3. Knowledge of setting the electronic or mechanical sensors for auto tube length cutters<br>KB4. Impact of wrong length and its implication on shaping and tube dimensions<br>KB5. Importance of allowing for shrinkage<br>KB6. Fine tuning of tubes just before splicing<br>KB7. Implications of delays in the cutting process.<br>KB8. Response to injuries while handling cutting tools |

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| | KB9. Cleanliness and safety requirements for commencing cutting operation.<br>KB10. Effects of improper size cutting on the dimensions of final product and its performance during service<br>KB11. Implications of cutting the defective green tube<br>KB12. Implication of variable lengths of cut tubes<br>KB13. The process and importance of quality checks.<br>KB14. Types of defects leading to rejections and their indicators, reasons and possible solutions.<br>KB15. Potential problems in the cutting operation.<br>KB16. Units of measurement.<br>KB17. Knowledge of repeatability and reproducibility of cut lengths<br>KB18. Knowledge of first aid treatment to respond to injuries.<br>KB19. Appropriate method for keeping the cut tubes.<br>KB20. Stacking tubes as instructions /SOP and its implication on tube gauges<br>KB21. Knowledge of handling green tube scrap<br>KB22. Methods for removing remaining portions from the cutting area.<br>KB23. Implications of inappropriate waste disposal.<br>KB24. The usage of placing different types of identification tags |
| **Skills (S)** | |
| **A. Core Skills/ Generic Skills** | **Writing Skills**<br>The user/ individual on the job needs to know and understand how to:<br>SA1. Construct simple sentences and express ideas clearly through written communication<br>SA2. Write simple letters, email etc<br>SA3. Fill up appropriate forms and activity logs in required format of the company<br>SA4. Perform functional mathematical operations, including apply basic mathematical principles, such as numbers and space, and techniques such as estimation and approximation, for practical purposes<br>**Reading Skills**<br>SA5. Read and understand manuals, health and safety instructions, memos, reports, job cards etc<br>SA6. Read images, graphs, diagrams<br>SA7. Understand the various coding systems as per company norms<br>**Oral Communication**<br>SA8. Express statements, opinions or information clearly so that others can hear and understand<br>SA9. Respond appropriately to any queries<br>SA10. Communicate with supervisor<br>SA11. Communicate with upstream and downstream teams<br>**Integrity**<br>SA12. Practice honesty with respect to company property and time<br>SA13. Communicate with people in a form and manner and using language that is open and respectful<br>SA14. Resolve any difficulties in relationships with colleagues , or get help from an appropriate person, in a way that preserves goodwill and trust<br>**Motivation**<br>SA15. Take responsibility for completing one's own work assignment<br>SA16. Take initiative to enhance/learn skills in ones's area of work |

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| | SA17. The capacity to learn from experience in a range of settings and scenarios and the capacity to reflect on and analyse one's learning.<br>SA18. Is open to new ways of doing things<br>SA19. The capacity to envisage and articulate personal goals; to develop strategies and take action to achieve them.<br>**Reliability**<br>SA20. Avoid absenteeism<br>SA21. Act objectively , rather than impulsively or emotionally when faced with difficult/stressful or emotional situations<br>SA22. Work in disciplined factory environment<br>SA23. Be punctual |
| **B. Professional Skills** | **Decision Making** |
| | The individual needs to know and understand how to:<br>SB1. Take a decision for any change/issue based on earlier successes(documented previous history)on similar issues<br>SB2. Work out changes in case a new improved machine/equipment is added in the process or any new material/chemical is developed replacing existing one.<br>SB3. Make changes in cycle time due to improved process.<br>SB4. Use the standard operating procedure or trouble shooting manuals for trouble shooting and other reference documents approved by plant management<br>SB5. Consult the peer group and superiors to arrive at a favourable decision.<br>SB6. Use of standard available problem solving techniques for decision making<br>SB7. Review and analyze the process steps to check on system non adherence and non conformity<br>SB8. Review the current SOP and other standards for continuous improvement to facilitate decision making<br>SB9. Take a calculated risk with minimum losses |
| | **Plan and Organize** |
| | SB10. Plan and organize the factors of production to execute the business plan<br>SB11. Fix up tasks and allotment of the same<br>SB12. Assign tasks to suitable persons<br>SB13. Motivate them for better output and time bound completion of tasks |
| | **Customer Centricity** |
| | SB14. Match customer needs/specification by adjusting the processing conditions (interact with customer in case any clarification required)<br>SB15. Ensure that performance of his action/operation/activity does not lead to any divergence from the specified quality of the final product as required by the customer.<br>SB16. Complete the assigned task in timely manner so that the final product is delivered in the timeline given by the customer.<br>SB17. Communicate effectively to the superior/customer for any delay in supplies to the clients.<br>SB18. Work towards fulfilling the customers requirement as per their demand.<br>SB19. In case of any complaint, ensure its timely resolution if the problem is emanating at his level<br>SB20. Communicate effectively to the superior/customer for any delay in resolving the problem faced by the customer. |

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| | SB21. Maintain good/cordial relation with customers.<br>SB22. Work on the feedback received from customer regarding the product. |
| | **Problem Solving** |
| | SB23. Interpret quality for sheet<br>SB24. Suggest improvements(if any) in process/product/materials based on results and experience |
| | **Analytical Thinking** |
| | SB25. Identify the problems pertaining to the sharpening of tools based on visual inspection and work efficiency<br>SB26. Diagnose common problems in the machine based on visual inspection, sound, etc<br>SB27. Suggest improvements(if any) in process based on experience |
| | **Critical Thinking** |
| | SB28. Seek clarification on problems from others<br>SB29. Apply problem-solving approaches in different situations<br>SB30. Refer anomalies to the line manager |

## NOS Version Control

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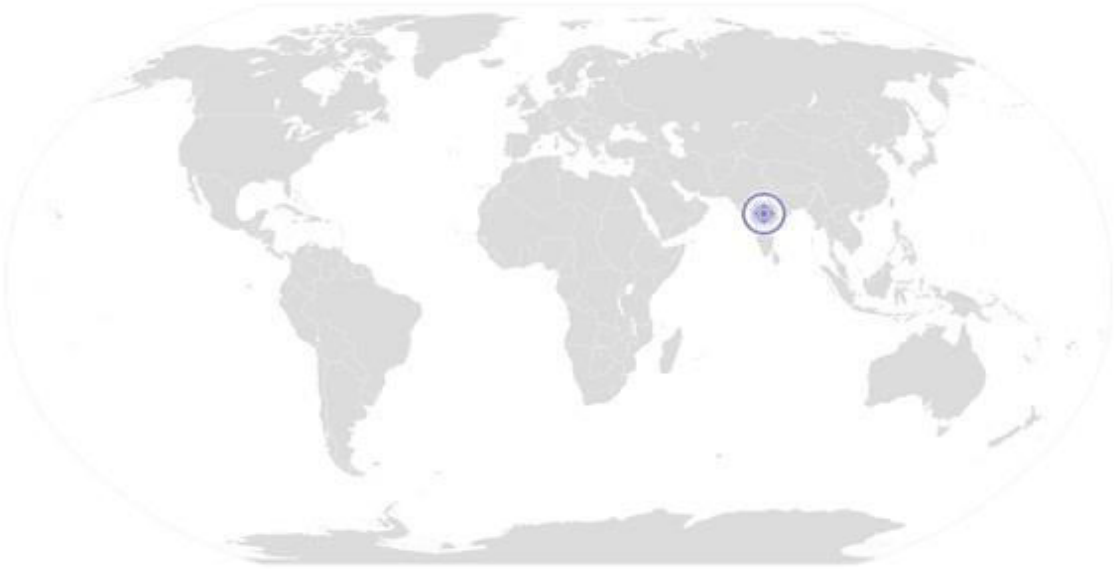
| **NOS Code** | **RSC/N2606** | | |
| **Credits(NSQF)** | **TBD** | **Version number** | **2.0** |
| **Industry** | **Rubber Manufacturing** | **Drafted on** | **04/06/2013** |
| **Industry Sub-sector** | **Tyre** | **Last reviewed on** | **23/08/2017** |
| **Occupation** | **Extrusion** | **Next review date** | **23/08/2021** |



# National Occupational Standard

## Overview

**This unit is about performing tube mandrelling and demandrelling.**

National Occupational Standard

| Unit Code | RSC /N2607 |
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| Unit Title (Task) | Perform tube mandrelling and demandrelling operation |
| Description | This unit is about performing tube mandrelling and demandrelling. |
| Scope | This unit/task covers the following:<br>• Prepare the tools and get the required Aluminum mandrels<br>• Get the required extruded tubes and patches as per the schedule<br>• Perform Tube Mandrelling<br>• Undertake tube demandrelling<br>• Ensure housekeeping and safety in work area. |
| **Performance Criteria (PC) w.r.t. the Scope** | |
| **Element** | **Performance Criteria** |
| Equipment readiness | To be competent, the user/individual on the job must be able to<br>PC1. Arrange all the tools required for tube mandrelling and demandrelling<br>PC2. Ensure the availability of Aluminum tubes<br>PC3. Ensure the availability of pot heater with required services like steam at the required pressure, the automatic timers<br>PC4. Check the stands for holding the tubes and mandrel assembly suitably for pot heater curing |
| Raw material appropriateness | PC5. Ensure the availability of tubes as per the schedule<br>PC6. Ensure availability of valve patches<br>PC7. Ensure availability of specified lab released adhesive cement<br>PC8. Ensure availability of valves , cores and the tightening nuts for valve assembly |
| Mandrelling Operation | PC9. Clean the aluminum tube surface<br>PC10. Insert the Aluminum tube on the extruded green tube, taking care of avoiding damaging the tube<br>PC11. Apply valve patch at 8 inches away from the open end<br>PC12. Arrange the green tubes with mandrels on the stand for curing in pot heater<br>PC13. Place the stands with the green tubes and mandrels in the pot heater<br>PC14. Close the pot heater and switch on steam for curing<br>PC15. Stop curing after specified curing time (follow SOP)<br>PC16. Remove the stand from pot heater after the specified time of curing<br>PC17. Send the wastage to the appropriate place for disposal<br>PC18. Report any problem related to tube and mandrel to the Supervisor |
| Demandrelling Operation | PC19. Remove the Aluminum mandrels by rolling the rubber tubes once the Pot heater curing is over and the tubes are cold<br>PC20. Ensure the rubber tube thus removed from the mandrel will be inside out and the valve patch will be on the inner side<br>PC21. Make the valve punch hole on the cured tube where the valve patch was applied<br>PC22. Ensure the punching is done only at the applied patch area and does not damage other side of the tube<br>PC23. Fix the brass valve with required rubber gum and tighten it with the nuts provided<br>PC24. Buff the 0.5 inch edges of the tube ends with the specified buffer<br>PC25. Apply cement and ensure the ends are joined ( overlapped ) and stitched |

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| | PC26. Join the ends properly<br>PC27. Press it evenly to ensure that the joint is free of any air trap<br>PC28. Send the wastage to the appropriate place for disposal |
| **Housekeeping & Safety** | PC29. Adhere to all safety norms (such as wearing protective gloves and masks, etc)<br>PC30. Ensure the use of certified/tested tools and check their functioning.<br>PC31. Comply with health, safety, environment guidelines and regulations in accordance with international/national standards or the organizational standards. |
| **Knowledge and Understanding (K)** | |
| **A. Organizational Context** (Knowledge of the company/ organization and its processes) | The user/individual on the job needs to know and understand:<br>KA1. Mandrelling and demandrelling operation and its importance.<br>KA2. Implications of poorly prepared tools.<br>KA3. The material disposal procedure, importance of appropriate disposal of material and implications of not following the material disposal procedure.<br>KA4. How to conduct quality and damage checks and their importance.<br>KA5. Importance of identifying non-conforming products and their storage.<br>KA6. Risk and impact of not following defined procedures/work instructions.<br>KA7. The escalation matrix for reporting identified issues.<br>KA8. Types of documentation in the organization and their importance.<br>KA9. Records to be maintained and the implications of their non-maintenance.<br>KA10. Importance of housekeeping & good shopfloor practices<br>KA11. Health, safety and environment guidelines, legislations and regulations, as applicable.<br>KA12. Personal protection (which protective equipment to be used and how).<br>KA13. Impact of poor practices on health, safety and environment.<br>KA14. Potential hazards and actions to minimize them.<br>KA15. The escalation matrix and procedures for reporting hazards.<br>KA16. Importance of FIFO<br>KA17. Impact of various practices on cost, quality, productivity, delivery and safety.<br>KA18. Handover/Takeover of the equipment/work area as per organizational SOP. |
| **B. Technical Knowledge** | The user/individual on the job needs to know and understand:<br>KB1. Proper handling of tubes<br>KB2. Proper handling of cement adhesive<br>KB3. The use of proper aluminum tubes<br>KB4. The use of proper valve patches<br>KB5. Various abnormalities and suitable response for abnormalities in equipment performance.<br>KB6. Implications of delays in the tool preparation.<br>KB7. Basic arithmetic and geometry<br>KB8. Response to injuries while handling mandrel<br>KB9. Cleanliness and safety requirements for mandrelling and demandrelling operation.<br>KB10. Working of pot heater<br>KB11. Effect of improper setting resulting in the loss of material and value loss<br>KB12. Maintenance of aluminum tube<br>KB13. Importance correct location of application of valve patches<br>KB14. Impact of contamination on surface of the tube<br>KB15. Proper identification |

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| | KB16. Potential problems in the mandrelling operation.<br>KB17. Proper handling of splicing operation and spot presses<br>KB18. Proper punching of valve holes<br>KB19. Proper handling and fixing of valves in the valve patch area<br>KB20. De-mandreling operation and how to achieve desired evenly overlapped splice<br>KB21. Effect of improper handling while taking out the tubes<br>KB22. Process of splicing and over splicing<br>KB23. Maintenance of aluminum tube<br>KB24. Proper cleaning of tubes.<br>KB25. Proper handling of the joint area of the tube<br>KB26. Importance of protecting the surface area from dust and talc<br>KB27. Use of hand stitcher<br>KB28. Types of defects leading to rejections and their reasons and possible solutions.<br>KB29. Knowledge of first aid treatment to address any cut/injury |
| **Skills (S)** | |
| **B. Core Skills/ Generic Skills** | **Writing Skills**<br>The user/ individual on the job needs to know and understand how to:<br>SA1. Construct simple sentences and express ideas clearly through written communication<br>SA2. Write simple letters, email etc<br>SA3. Fill up appropriate forms and activity logs in required format of the company<br>SA4. Perform basic mathematical operations<br>**Reading Skills**<br>SA5. Read and understand manuals, health and safety instructions, memos, reports, job cards etc<br>SA6. Read images, graphs, diagrams<br>SA7. Understand the various coding systems as per company norms<br>**Oral Communication**<br>SA8. Express statements, opinions or information clearly so that others can hear and understand<br>SA9. Respond appropriately to any queries<br>SA10. Communicate with supervisor<br>SA11. Communicate with upstream and downstream teams<br>**Integrity**<br>SA12. Practice honesty with respect to company property and time<br>SA13. Communicate with people in a form and manner and using language that is open and respectful<br>SA14. Resolve any difficulties in relationships with colleagues , or get help from an appropriate person, in a way that preserves goodwill and trust<br>**Motivation**<br>SA15. Take responsibility for completing one's own work assignment<br>SA16. Take initiative to enhance/learn skills in ones's area of work<br>SA17. The capacity to learn from experience in a range of settings and scenarios and the capacity to reflect on and analyse one's learning.<br>SA18. Is open to new ways of doing things<br>SA19. The capacity to envisage and articulate personal goals; to develop strategies and take action to achieve them. |

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| | **Reliability**<br>SA20. Avoid absenteeism<br>SA21. Act objectively , rather than impulsively or emotionally when faced with difficult/stressful or emotional situations<br>SA22. Work in disciplined factory environment<br>SA23. Be punctual |
| **B. Professional Skills** | **Decision Making** |
| | The individual needs to know and understand how to:<br>SB1. Take a decision for any change/issue based on earlier successes(documented previous history)on similar issues<br>SB2. Work out changes in case a new improved machine/equipment is added in the process or any new material/chemical is developed replacing existing one.<br>SB3. Make changes in cycle time due to improved process.<br>SB4. Use the standard operating procedure or trouble shooting manuals for trouble shooting and other reference documents approved by plant management<br>SB5. Consult the peer group and superiors to arrive at a favourable decision.<br>SB6. Use of standard available problem solving techniques for decision making<br>SB7. Review and analyze the process steps to check on system non adherence and non conformity<br>SB8. Review the current SOP and other standards for continuous improvement to facilitate decision making<br>SB9. Take a calculated risk with minimum losses |
| | **Plan and Organize** |
| | SB10. Plan and organize the factors of production to execute the business plan<br>SB11. Fix up tasks and allotment of the same<br>SB12. Assign tasks to suitable persons<br>SB13. Motivate them for better output and time bound completion of tasks |
| | **Customer Centricity** |
| | SB14. Match customer needs/specification by adjusting the processing conditions (interact with customer in case any clarification required)<br>SB15. Ensure that performance of his action/operation/activity does not lead to any divergence from the specified quality of the final product as required by the customer.<br>SB16. Complete the assigned task in timely manner so that the final product is delivered in the timeline given by the customer.<br>SB17. Communicate effectively to the superior/customer for any delay in supplies to the clients.<br>SB18. Work towards fulfilling the customers requirement as per their demand.<br>SB19. In case of any complaint, ensure its timely resolution if the problem is emanating at his level<br>SB20. Communicate effectively to the superior/customer for any delay in resolving the problem faced by the customer.<br>SB21. Maintain good/cordial relation with customers.<br>SB22. Work on the feedback received from customer regarding the product. |
| | **Problem Solving** |

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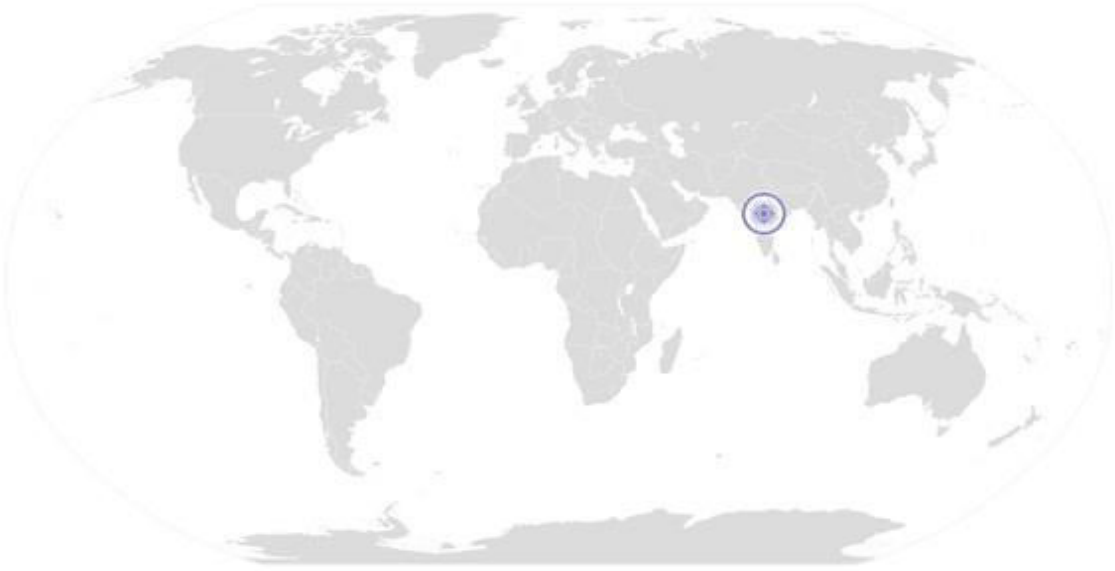
| | SB23. Interpret quality for sheet<br>SB24. Suggest improvements(if any) in process/product/materials based on results and experience |
| | **Analytical Thinking** |
| | SB25. Identify the problems pertaining to the sharpening of tools based on visual inspection and work efficiency<br>SB26. Diagnose common problems in the machine based on visual inspection, sound, etc<br>SB27. Suggest improvements(if any) in process based on experience |
| | **Critical Thinking** |
| | SB28. Seek clarification on problems from others<br>SB29. Apply problem-solving approaches in different situations<br>SB30. Refer anomalies to the line manager |



## NOS Version Control

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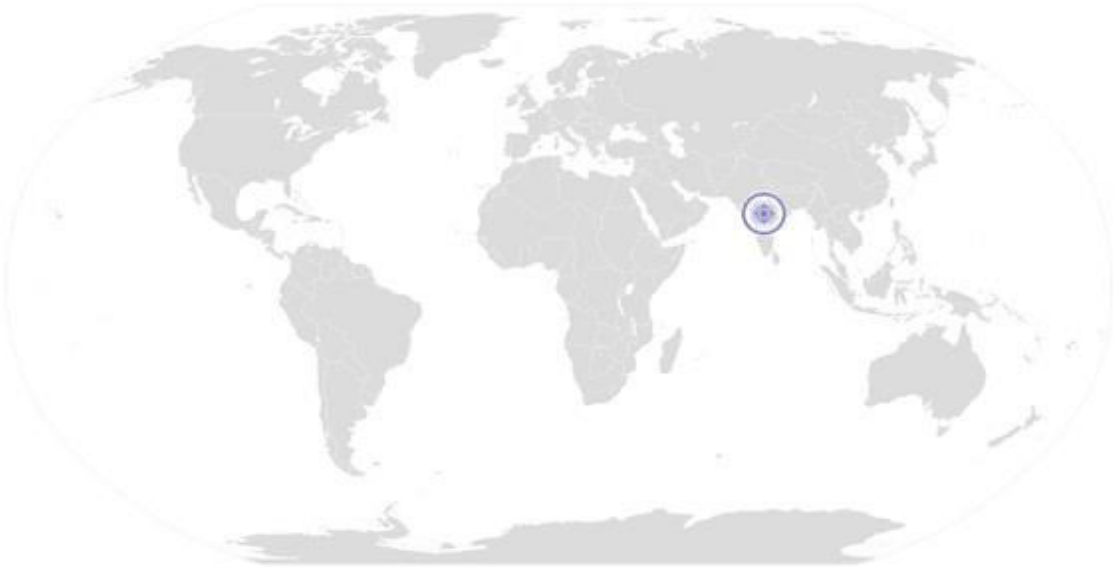
| **NOS Code** | **RSC/N2607** | | |
| **Credits(NSQF)** | **TBD** | **Version number** | **2.0** |
| **Industry** | **Rubber Manufacturing** | **Drafted on** | **04/06/2013** |
| **Industry Sub-sector** | **Tyre** | **Last reviewed on** | **23/08/2017** |
| **Occupation** | **Extrusion** | **Next review date** | **23/08/2021** |



# National Occupational Standard

## Overview

**This unit is about applying valves to the green tubes using appropriate tools and equipments.**

National Occupational Standard

| Unit Code | RSC/N2608 |
|---|---|
| Unit Title (Task) | Perform tube valve Application |
| Description | This unit is about applying valves to the green tubes using appropriate tools and equipments. |
| Scope | This unit/task covers the following:<br>• Prepare the tools and equipments<br>• Arrange raw material for the tubes on which the rubberized valves have to be applied, the required specified rubberized valves as per the size of tubes and valve cement adhesive to carry out valve application<br>• Operate and apply cement application on valves and operate on the tools and equipments to apply valve on green tubes.<br>• Health and safety |
| **Performance Criteria (PC) w.r.t. the Scope** | |
| **Element** | **Performance Criteria** |
| Equipment readiness | To be competent, the user/individual on the job must be able to<br>PC1. Ensure the availability of all required tools for valve application on green tubes<br>PC2. Ensure that the tools are clean and well maintained.<br>PC3. Ensure the proper functioning of mechanical punching device<br>PC4. Place the tools on a safe location. |
| Raw Material appropriateness | PC5. Ensure that the green tubes, valves and cement to be used are approved/released as OK to use by the lab.<br>PC6. Check the availability of green tubes, valves and cement with reference to the given job schedule<br>PC7. Check that the valves rubber base are duly painted with specified rubber adhesives and aged in oven for specified time<br>PC8. Check the cleanliness of the valve base before applying the cement and use solvent to freshen it<br>PC9. Ensure that the painted valve rubber base is free of any foreign material which may hamper adhesion of valve to tubes |
| Operation | PC10. Ensure valve rubber base is clean and apply the specified cement Keep cemented rubberized valves in pin trays with rubber surface in the up direction.<br>PC11. Keep the cemented valves for warming in an oven for specified time as directed by the technical<br>PC12. Insert a thick cardboard or wooden strip on the valve patch side and position is just below the valve patch<br>PC13. Make a hole with a mechanical punching device on the valve patch area which is identifiable by the polyethylene patch ( wooden strip protects the punch make a hole on the valve patch area only )<br>PC14. Remove the cardboard /wooden strip ,<br>PC15. Remove the polyethylene patch ensuring that the area from where patch is removed is free of talc or any foreign matter<br>PC16. Remove cemented valve pin tray<br>PC17. Place the valve rubber base on the valve patch area ensuring the valve base hole is centered and exactly on the punched hole in the valve patch area |

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| | PC18. Avoid contamination which could result in loss of adhesion by not allowing to touch the cemented valve base area<br>PC19. Apply pressure on the valve rubber face to get good green adhesion between green tube and valve base after the valve patch is set in position<br>PC20. Use mechanical device to make the cemented valve sticks to tube firmly<br>PC21. Clean tools and keep the tools at designated place after the completion of valve application.<br>PC22. Organize to send the Green tubes with valves in place for splicing<br>PC23. Get the polyethylene valve patches removed from tubes collected in the designated waste bins<br>PC24. Report any issue w.r.t the material and tools to the Supervisor<br>PC25. Get the left over cemented valves in the designated place for use at a later date<br>PC26. Dispose of waste material safely, as per organizational SOP. |
| **Health & Safety** | PC27. Ensure proper handling of heating ovens, cement cans and tools to avoid any injury/accident<br>PC28. Handle the material using hand gloves and other safety equipment.<br>PC29. Adhere to all safety norms (such as wearing protective gloves and shoes, safety mask etc)<br>PC30. Comply with health, safety, environment guidelines and regulations in accordance with international/national standards or the organizational standards. |
| **Knowledge and Understanding (K)** | |
| **A. Organizational Context** (Knowledge of the company/ organization and its processes) | The user/individual on the job needs to know and understand:<br>KA1. Valve application to green tubes and its importance.<br>KA2. Implications of wrong placement of valve base on the punched holes<br>KA3. Implications of poorly prepared tools.<br>KA4. The material disposal procedure, importance of appropriate disposal of material and implications of not following the material disposal procedure.<br>KA5. How to conduct quality and damage checks and their importance.<br>KA6. Importance of identifying non-conforming products and their storage.<br>KA7. Risk and impact of not following defined procedures/work instructions.<br>KA8. The escalation matrix for reporting identified issues.<br>KA9. Types of documentation in the organization and their importance.<br>KA10. Records to be maintained and the implications of their non-maintenance.<br>KA11. Importance of housekeeping & good shopfloor practices<br>KA12. Health, safety and environment guidelines, legislations and regulations, as applicable.<br>KA13. Personal protection (which protective equipment to be used and how).<br>KA14. Impact of poor practices on health, safety and environment.<br>KA15. Potential hazards and actions to minimize them.<br>KA16. The escalation matrix and procedures for reporting hazards.<br>KA17. Importance of FIFO<br>KA18. Impact of various practices on cost, quality, productivity, delivery and safety.<br>KA19. Handover/Takeover of the equipment/work area as per organizational SOP. |

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| **B. Technical Knowledge** | KB1. Proper handling of green tubes and rubberized valves<br>KB2. Proper handling of cement , valve base cement painting and ageing in oven<br>KB3. Proper method of cement application<br>KB4. Use of heating ovens and setting up of temperatures<br>KB5. Use of cardboard /wooden strips to ensure only valve patch area gets punched (No damage done to bottom side)<br>KB6. Proper handling of the freshly cemented valve rubber base for warming in the heating oven<br>KB7. Proper heating time of cemented rubberized valves<br>KB8. Use of valve tube soft pressure jammers<br>KB9. Importance of poly patch and the necessity to handle it with care.<br>KB10. Effect on adhesion due to non compliance of following set procedures<br>KB11. Implication of wrong placement of valve base on the punched holes<br>KB12. The effect of improper stitching of valve base on tube on green and cured adhesion<br>KB13. Green and cured tube defects due to poor application of valve<br>KB14. Proper handling of poly valve patches<br>KB15. Importance of performing tube valve application in timely manner<br>KB16. Proper usage of valve<br>KB17. Effect of under aged/ cold valve base cemented valves usage<br>KB18. Handling of uncemented valves<br>KB19. Proper handling of cemented valve base<br>KB20. Proper application of pressure for compacting the valve on tube – Open ends or FM visibility<br>KB21. Types of defects leading to rejections and their indicators, reasons and possible solutions.<br>KB22. Potential problems in the valve application operation.<br>KB23. Knowledge of first aid treatment to respond to injuries.<br>KB24. Optimal utilization of material and minimal wastage<br>KB25. Appropriate method for sending worked on green tubes for splicing<br>KB26. Knowledge of green and cured tube defects due to poor application of valve<br>KB27. Handling of poly valve patches<br>KB28. Importance of collecting all valves patches in designated<br>KB29. Process of removing poly patches from green scrap tubes<br>KB30. Defects on valve area after jamming<br>KB31. Process and importance of dimensional and appearance quality checks.<br>KB32. Implications of inappropriate waste disposal.<br>KB33. Knowledge of the handover of prepared product<br>KB34. The usage of placing different types of tags for not using defective tools |
| **Skills (S)** | |
| **A. Core Skills/ Generic Skills** | **Writing Skills**<br>The user/ individual on the job needs to know and understand how to:<br>SA1. Construct simple sentences and express ideas clearly through written communication<br>SA2. Write simple letters, email etc<br>SA3. Fill up appropriate forms and activity logs in required format of the company<br>SA4. Perform basic mathematical operations |
| | **Reading Skills** |

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| | SA5. Read and understand manuals, health and safety instructions, memos, reports, job cards etc<br>SA6. Read images, graphs, diagrams<br>SA7. Understand the various coding systems as per company norms |
| | **Oral Communication** |
| | SA8. Express statements, opinions or information clearly so that others can hear and understand<br>SA9. Respond appropriately to any queries<br>SA10. Communicate with supervisor<br>SA11. Communicate with upstream and downstream teams<br>**Integrity**<br>SA12. Practice honesty with respect to company property and time<br>SA13. Communicate with people in a form and manner and using language that is open and respectful<br>SA14. Resolve any difficulties in relationships with colleagues , or get help from an appropriate person, in a way that preserves goodwill and trust<br>**Motivation**<br>SA15. Take responsibility for completing one's own work assignment<br>SA16. Take initiative to enhance/learn skills in ones's area of work<br>SA17. The capacity to learn from experience in a range of settings and scenarios and the capacity to reflect on and analyse one's learning.<br>SA18. Is open to new ways of doing things<br>SA19. The capacity to envisage and articulate personal goals; to develop strategies and take action to achieve them.<br>**Reliability**<br>SA20. Avoid absenteeism<br>SA21. Act objectively , rather than impulsively or emotionally when faced with difficult/stressful or emotional situations<br>SA22. Work in disciplined factory environment<br>SA23. Be punctual |
| **B. Professional Skills** | **Decision Making** |
| | The individual needs to know and understand how to:<br>SB1. Take a decision for any change/issue based on earlier successes(documented previous history)on similar issues<br>SB2. Work out changes in case a new improved machine/equipment is added in the process or any new material/chemical is developed replacing existing one.<br>SB3. Make changes in cycle time due to improved process.<br>SB4. Use the standard operating procedure or trouble shooting manuals for trouble shooting and other reference documents approved by plant management<br>SB5. Consult the peer group and superiors to arrive at a favourable decision.<br>SB6. Use of standard available problem solving techniques for decision making<br>SB7. Review and analyze the process steps to check on system non adherence and non conformity<br>SB8. Review the current SOP and other standards for continuous improvement to facilitate decision making<br>SB9. Take a calculated risk with minimum losses |
| | **Plan and Organize** |

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| | SB10. Plan and organize the factors of production to execute the business plan<br>SB11. Fix up tasks and allotment of the same<br>SB12. Assign tasks to suitable persons<br>SB13. Motivate them for better output and time bound completion of tasks |
| | **Customer Centricity** |
| | SB14. Match customer needs/specification by adjusting the processing conditions (interact with customer in case any clarification required)<br>SB15. Ensure that performance of his action/operation/activity does not lead to any divergence from the specified quality of the final product as required by the customer.<br>SB16. Complete the assigned task in timely manner so that the final product is delivered in the timeline given by the customer.<br>SB17. Communicate effectively to the superior/customer for any delay in supplies to the clients.<br>SB18. Work towards fulfilling the customers requirement as per their demand.<br>SB19. In case of any complaint, ensure its timely resolution if the problem is emanating at his level<br>SB20. Communicate effectively to the superior/customer for any delay in resolving the problem faced by the customer.<br>SB21. Maintain good/cordial relation with customers.<br>SB22. Work on the feedback received from customer regarding the product. |
| | **Problem Solving** |
| | SB23. Interpret quality for sheet<br>SB24. Suggest improvements(if any) in process/product/materials based on results and experience |
| | **Analytical Thinking** |
| | SB25. Identify the problems pertaining to the sharpening of tools based on visual inspection and work efficiency<br>SB26. Diagnose common problems in the machine based on visual inspection, sound, etc<br>SB27. Suggest improvements(if any) in process based on experience |
| | **Critical Thinking** |
| | SB28. Seek clarification on problems from others<br>SB29. Apply problem-solving approaches in different situations<br>SB30. Refer anomalies to the line manager |

## NOS Version Control

| NOS Code | RSC/N2608 | | |
|---|---|---|---|
| Credits(NSQF) | TBD | Version number | 2.0 |
| Industry | Rubber Manufacturing | Drafted on | 04/06/2013 |
| Industry Sub-sector | Tyre | Last reviewed on | 23/08/2017 |
| Occupation | Extrusion | Next review date | 23/08/2021 |

# National Occupational Standard

## Overview

**This unit is about performing tube splicing operation using the tools and machine.**

National Occupational Standard

| Unit Code | RSC/N2609 |
|---|---|
| Unit Title (Task) | Perform tube splicing activity_v2 |
| Description | This unit is about performing tube splicing operation using the tools and machine. |
| Scope | This unit/task covers the following:<br>• Prepare the equipments, tools and machine<br>• Appropriateness raw material<br>• Get the required tubes to carry out splicing operations<br>• Ensure housekeeping and safety in splicing area |
| **Performance Criteria (PC) w.r.t. the Scope** | |
| **Element** | **Performance Criteria** |
| Equipment readiness | To be competent, the user/individual on the job must be able to<br>PC1. Ensure proper functioning of the splicer<br>PC2. Ensure that the tools are clean and well sharpened.<br>PC3. Ensure cleanliness and maintenance of splicer<br>PC4. Set the splicer as per the machine set up specifications<br>PC5. Check that the temperature and pressure setting are OK before commencing the splice operation<br>PC6. Check the temperature on knives on the splicer |
| Raw material appropriateness | PC7. Ensure that tubes to be spliced are QA/QC certified and usable.<br>PC8. Check the availability of tubes with reference to the job schedule.<br>PC9. Ensure availability of cement for application on tube splice joints |
| Operation | PC10. Check the width of tubes to be spliced against specification<br>PC11. Make a trial joint on tubes and check the splice for weak spots, open joints and dog ears<br>PC12. Recheck the machine set points, adjust if not OK, perform the clamps conduct checks again and commence continuous splicing once splice is of good quality .<br>PC13. Manage the rubberized clamps in order of tube sizes, If the splice is still not ok, call supervisor and engineering for support and adjustment of machine set points<br>PC14. Inform the supervisor about the poor/worn out or damaged rubberized clamps<br>PC15. Ensure that the splicer temperature and pressure settings are as per the settings provided by technical<br>PC16. Apply specified cement at the ends where dog ear usually appears<br>PC17. Inspect tube splice quality and find possible solutions in case of poor quality<br>PC18. Clean tools and keep the tools at designated place after the completion of splicing operation.<br>PC19. Arrange to get all the pieces of scrap tube and or cut ends collected in a container for rework /reuse<br>PC20. Report any problem/repair and maintenance requirement for splicer and other tools to the supervisor<br>PC21. Dispose off waste as per the organization SOP |

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| **Housekeeping & Safety** | PC22. Ensure the use of certified/tested hand tools<br>PC23. Ensure proper handling of splicer's hot cutting blades<br>PC24. Handle the tubes using hand gloves and other safety equipment.<br>PC25. Adhere to all safety norms (such as wearing protective gloves, masks and shoes, etc)<br>PC26. Comply with health, safety, environment guidelines and regulations in accordance with international/national standards or the organizational standards. |
| **Knowledge and Understanding (K)** | |
| **A. Organizational Context** (Knowledge of the company/ organization and its processes) | The user/individual on the job needs to know and understand:<br>KA1. Implications of poorly prepared tools and equipment.<br>KA2. Splicing operation and its importance.<br>KA3. Implications of poorly spliced tubes.<br>KA4. The material disposal procedure, importance of appropriate disposal of material and implications of not following the material disposal procedure.<br>KA5. How to conduct quality and damage checks and their importance.<br>KA6. Implication of improper cooling on cut length variation<br>KA7. Importance of identifying non-conforming products and their storage.<br>KA8. Risk and impact of not following defined procedures/work instructions.<br>KA9. The escalation matrix for reporting identified issues.<br>KA10. Types of documentation in the organization and their importance.<br>KA11. Records to be maintained and the implications of their non-maintenance.<br>KA12. Importance of housekeeping and good shop floor practices<br>KA13. Health, safety and environment guidelines, legislations and regulations, as applicable.<br>KA14. Personal protection (which protective equipment to be used and how).<br>KA15. Impact of poor practices on health, safety and environment.<br>KA16. Potential hazards and actions to minimize them.<br>KA17. The escalation matrix and procedures for reporting hazards.<br>KA18. Importance of FIFO<br>KA19. Impact of various practices on cost, quality, productivity, delivery and safety.<br>KA20. Handover/Takeover of the equipment/work area as per organizational SOP. |
| **B. Technical Knowledge** | The user/individual on the job needs to know and understand:<br>KB1. Splicer setting and its operation<br>KB2. Effect of rubberized clamps on the splice<br>KB3. Possible sources/reasons of poor splicing<br>KB4. Trouble shooting splicers<br>KB5. Proper handling of splicer's hot cutting blades<br>KB6. Proper handling of clamps<br>KB7. Effect of poor splicer settings on quality of tube<br>KB8. Effect of wrong rubber clamps on tube quality<br>KB9. Quality checks for - splices<br>KB10. Importance of proper splicing as per the specifications<br>KB11. Impact of variations in temperature and pressure settings from specification<br>KB12. Identification of Splice ends with dog ears<br>KB13. Ends with spot open condition<br>KB14. Cured tube scrap due to open splice<br>KB15. Poor splice due to cold cutting blade<br>KB16. Types of defects leading to rejections and their indicators, reasons and |

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| | possible solutions.<br>KB17. Potential problems in the splicing operation.<br>KB18. Knowledge of first aid treatment to respond to injuries.<br>KB19. Appropriate method for keeping the spliced tubes.<br>KB20. Method and importance for removing remaining of cut ends /scrap green tubes from the work area.<br>KB21. Process and importance of dimensional and quality checks.<br>KB22. Implications of inappropriate waste disposal.<br>KB23. Ensuring proper identification of tubes after splicing |
| **Skills (S)** | |
| **A. Core Skills/ Generic Skills** | **Writing Skills**<br>The user/ individual on the job needs to know and understand how to:<br>SA1. Construct simple sentences and express ideas clearly through written communication<br>SA2. Write simple letters, email etc<br>SA3. Fill up appropriate forms and activity logs in required format of the company<br>SA4. Perform basic mathematical operations |
| | **Reading Skills**<br>SA5. Read and understand manuals, health and safety instructions, memos, reports, job cards etc<br>SA6. Read images, graphs, diagrams<br>SA7. Understand the various coding systems as per company norms |
| | **Oral Communication**<br>SA8. Express statements, opinions or information clearly so that others can hear and understand<br>SA9. Respond appropriately to any queries<br>SA10. Communicate with supervisor<br>SA11. Communicate with upstream and downstream teams<br>**Integrity**<br>SA12. Practice honesty with respect to company property and time<br>SA13. Communicate with people in a form and manner and using language that is open and respectful<br>SA14. Resolve any difficulties in relationships with colleagues , or get help from an appropriate person, in a way that preserves goodwill and trust<br>**Motivation**<br>SA15. Take responsibility for completing one's own work assignment<br>SA16. Take initiative to enhance/learn skills in ones's area of work<br>SA17. The capacity to learn from experience in a range of settings and scenarios and the capacity to reflect on and analyse one's learning.<br>SA18. Is open to new ways of doing things<br>SA19. The capacity to envisage and articulate personal goals; to develop strategies and take action to achieve them.<br>**Reliability**<br>SA20. Avoid absenteeism<br>SA21. Act objectively , rather than impulsively or emotionally when faced with difficult/stressful or emotional situations<br>SA22. Work in disciplined factory environment<br>SA23. Be punctual |

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| **B. Professional Skills** | **Decision Making** |
| | The individual needs to know and understand how to:<br>SB1. Take a decision for any change/issue based on earlier successes(documented previous history)on similar issues<br>SB2. Work out changes in case a new improved machine/equipment is added in the process or any new material/chemical is developed replacing existing one.<br>SB3. Make changes in cycle time due to improved process.<br>SB4. Use the standard operating procedure or trouble shooting manuals for trouble shooting and other reference documents approved by plant management<br>SB5. Consult the peer group and superiors to arrive at a favourable decision.<br>SB6. Use of standard available problem solving techniques for decision making<br>SB7. Review and analyze the process steps to check on system non adherence and non conformity<br>SB8. Review the current SOP and other standards for continuous improvement to facilitate decision making<br>SB9. Take a calculated risk with minimum losses |
| | **Plan and Organize** |
| | SB10. Plan and organize the factors of production to execute the business plan<br>SB11. Fix up tasks and allotment of the same<br>SB12. Assign tasks to suitable persons<br>SB13. Motivate them for better output and time bound completion of tasks |
| | **Customer Centricity** |
| | SB14. Match customer needs/specification by adjusting the processing conditions (interact with customer in case any clarification required)<br>SB15. Ensure that performance of his action/operation/activity does not lead to any divergence from the specified quality of the final product as required by the customer.<br>SB16. Complete the assigned task in timely manner so that the final product is delivered in the timeline given by the customer.<br>SB17. Communicate effectively to the superior/customer for any delay in supplies to the clients.<br>SB18. Work towards fulfilling the customers requirement as per their demand.<br>SB19. In case of any complaint, ensure its timely resolution if the problem is emanating at his level<br>SB20. Communicate effectively to the superior/customer for any delay in resolving the problem faced by the customer.<br>SB21. Maintain good/cordial relation with customers.<br>SB22. Work on the feedback received from customer regarding the product. |
| | **Problem Solving** |
| | SB23. Interpret quality for sheet<br>SB24. Suggest improvements(if any) in process/product/materials based on results and experience |
| | **Analytical Thinking** |

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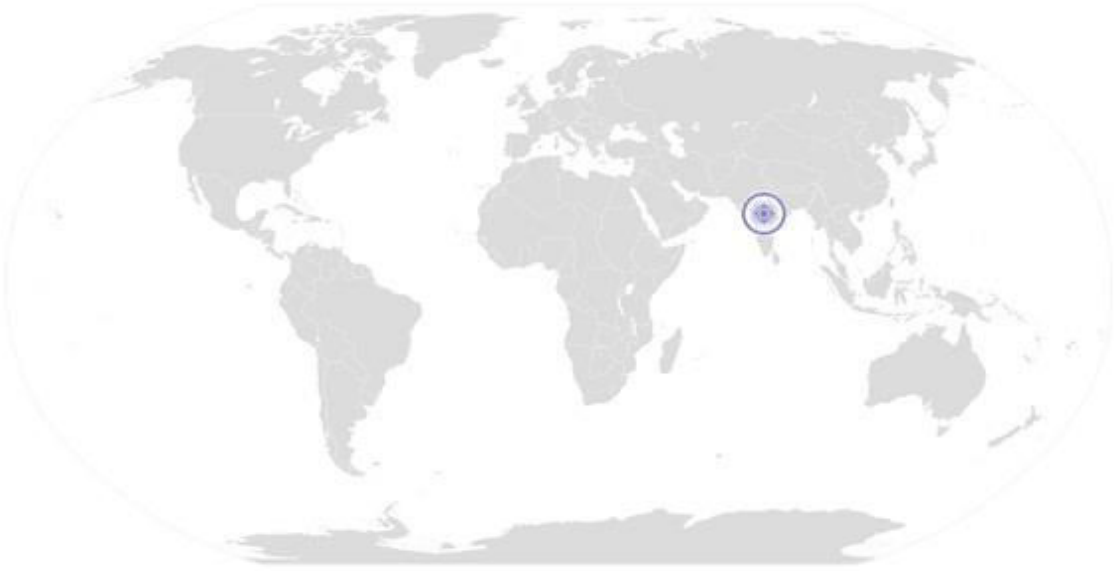
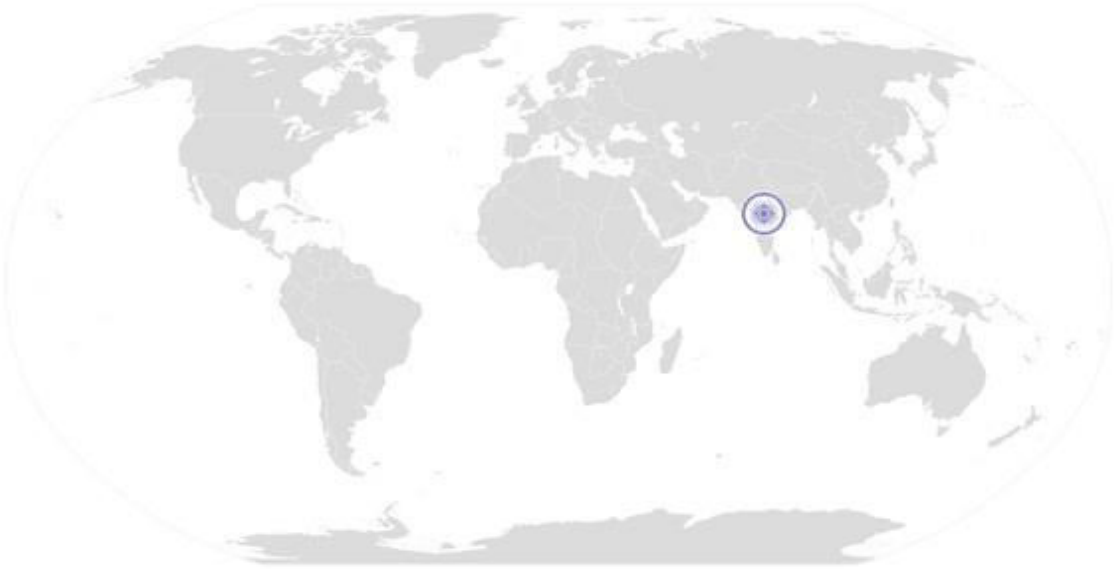
| | SB25. Identify the problems pertaining to the sharpening of tools based on visual inspection and work efficiency<br>SB26. Diagnose common problems in the machine based on visual inspection, sound, etc<br>SB27. Suggest improvements(if any) in process based on experience |
| | **Critical Thinking** |
| | SB28. Seek clarification on problems from others<br>SB29. Apply problem-solving approaches in different situations<br>SB30. Refer anomalies to the line manager |



## NOS Version Control

| NOS Code | RSC/N2609 | | |
|---|---|---|---|
| Credits(NSQF) | TBD | Version number | 2.0 |
| Industry | Rubber Manufacturing | Drafted on | 04/06/2013 |
| Industry Sub-sector | Tyre | Last reviewed on | 23/08/2017 |
| Occupation | Extrusion | Next review date | 23/08/2021 |



# National Occupational Standard

## Overview

**This unit is about undertaking curing operation for spliced tubes.**

National Occupational Standard

| Unit Code | RSC/N2610 |
|---|---|
| Unit Title (Task) | Perform Tube Curing Operation_v2 |
| Description | This unit is about undertaking curing operation for spliced tubes. |
| Scope | This unit/task covers the following:<br>• Preparing tools and equipments and setting the parameters on the curing system as per company's SOP<br>• Collect tubes to be cured<br>• Proper placement of tubes for curing and operate curing press<br>• Ensure housekeeping and safety in the curing area |
| **Performance Criteria (PC) w.r.t. the Scope** | |
| **Element** | **Performance Criteria** |
| Equipment readiness | To be competent, the user/individual on the job must be able to<br>PC1. Ensure that the curing press is clean and ready to use.<br>PC2. Ensure that the tools required for curing operation are ready.<br>PC3. Keep all the accessories (like cooling water, hydraulic system, temperature control unit (TCU), lubrication system) ready<br>PC4. Set parameters for the equipment (cycle time, temperature, energy and pressure) as per company's SOP<br>PC5. Check the operational status of press timer<br>PC6. Ensure that the press is ready for curing with temperature settings ( specified vs. actual are within the tolerance)<br>PC7. Ensure that the shaping rings are available near the curing presses<br>PC8. Check that the air pressure line for shaping is on |
| Raw material appropriateness | PC9. Ensure the availability of tubes for the required curing operation as per specification<br>PC10. Check that tube is properly spliced and ready for curing<br>PC11. Pre-shape the tube before curing |
| Operation | PC12. Ensure to follow the curing process is done as per the instructions /SOP<br>PC13. Ensure correct spliced tube is placed in curing press<br>PC14. Keep a close watch on timer setting and steam generation during curing process<br>PC15. Ensure that the dimension requirement are met while shaping<br>PC16. Note down the tube blemishes and take corrective action |
| Housekeeping & Safety | PC17. Ensure the use of certified equipments during curing operation<br>PC18. Ensure proper safety and maintenance of press<br>PC19. Ensure awareness of steam leakages in work area<br>PC20. Handle the material using hand gloves and other safety equipment as directed by organizations safety department<br>PC21. Adhere to all safety norms (such as wearing protective gloves, masks and shoes)<br>PC22. Carry out all activities safely and correctly, and in a manner that does not cause risk of injury to himself or others, or damage to components and equipment<br>PC23. Comply with health, safety, environment guidelines and regulations in accordance with international/national standards or the organizational |

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| | standards.<br>PC24. Follow the guidance of safety department to contain spillages which may affect the health and safety of self or the environment in the curing area |
| **Knowledge and Understanding (K)** | |
| **A. Organizational Context** (Knowledge of the company/ organization and its processes) | The user/individual on the job needs to know and understand:<br>KA1. Proper curing operation and its importance.<br>KA2. Implications of poorly prepared tools and material.<br>KA3. The material disposal procedure, importance of appropriate disposal of material and implications of not following the material disposal procedure.<br>KA4. How to conduct quality and damage checks and their importance.<br>KA5. Importance of identifying non-conforming products and their storage.<br>KA6. Risk and impact of not following defined procedures/work instructions.<br>KA7. The escalation matrix for reporting identified issues.<br>KA8. Types of documentation in the organization and their importance.<br>KA9. Records to be maintained and the implications of their non-maintenance.<br>KA10. Importance of housekeeping & good shopfloor practices (eg. 3S & 5S)<br>KA11. Health, safety and environment guidelines, legislations and regulations, as applicable.<br>KA12. Personal protection (which protective equipment to be used and how).<br>KA13. Impact of poor practices on health, safety and environment.<br>KA14. Potential hazards and actions to minimize them.<br>KA15. The escalation matrix and procedures for reporting hazards.<br>KA16. Importance of FIFO<br>KA17. Impact of various practices on cost, quality, productivity, delivery and safety.<br>KA18. Handover/Takeover of the equipment/work area as per organizational SOP. |
| **B. Technical Knowledge** | The user/individual on the job needs to know and understand:<br>KB1. Curing operations and equipments in use.<br>KB2. Parameter settings of curing press<br>KB3. Implications of improper curing time and pressure on cured tubes<br>KB4. Good understanding of shaping and use of shaping ring with shape indicator<br>KB5. Proper selection of shaping rings<br>KB6. Proper visual examination for spliced tubes<br>KB7. Knowledge of various heating mediums for curing chambers viz steam heating, Thermic fluid heating, Infra red heating, LNG heating and Electric heating<br>KB8. Heat calculations<br>KB9. Air trapping and humidity controls<br>KB10. Implications of heat expansion and contraction<br>KB11. Heat values of various heating mediums<br>KB12. Knowledge of improper curing time and pressure on cured tubes<br>KB13. Implications of improper cure set up on cured tubes defect and performance<br>KB14. Effect of improper shaping pressure and shaped tube sizes on cured tube defectives<br>KB15. Various types of cured defectives and its possible solutions<br>KB16. Importance of proper shaped spliced cured tubes without any defect<br>KB17. Proper air pressure settings<br>KB18. Implications of defective tubes due to curing operator performance<br>KB19. Proper handling of cured tubes<br>KB20. Handling of waste spliced tubes and cured scrap tubes<br>KB21. Proper inspection of cured tubes |

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| | KB22. Importance of minimal scrap generation<br>KB23. Visual examination for under cured as well over cured products<br>KB24. Cleanliness and safety requirements for curing operation.<br>KB25. Effect of not following the sequence during curing operation on product properties.<br>KB26. Types of defects leading to rejections and their indicators, reasons and possible solutions.<br>KB27. Potential problems in curing operation<br>KB28. Units of measurement.<br>KB29. Response to emergencies, for example, power failures, fire, system failures and manual intervention to avoid disasters. |
| **Skills (S)** | |
| **A. Core Skills/ Generic Skills** | **Writing Skills**<br>The user/ individual on the job needs to know and understand how to:<br>SA1. Construct simple sentences and express ideas clearly through written communication<br>SA2. Fill up appropriate technical forms , activity logs in required format of the company<br>SA3. Write simple letters, mails, etc<br>SA4. Perform basic mathematical operations<br>**Reading Skills**<br>SA5. Read and understand manuals, health and safety instructions, memos, reports, job cards etc<br>SA6. Read images, graphs, diagrams<br>SA7. Understand the various coding systems as per company norms<br>**Oral Communication**<br>SA8. Express statements, opinions or information clearly so that others can hear and understand<br>SA9. Respond appropriately to any queries<br>SA10. Communicate with supervisor<br>SA11. Communicate with upstream and downstream teams<br>**Integrity**<br>SA12. Practice honesty with respect to company property and time<br>SA13. Communicate with people in a form and manner and using language that is open and respectful<br>SA14. Resolve any difficulties in relationships with colleagues , or get help from an appropriate person, in a way that preserves goodwill and trust<br>**Motivation**<br>SA15. Take responsibility for completing one's own work assignment<br>SA16. Take initiative to enhance/learn skills in ones's area of work<br>SA17. The capacity to learn from experience in a range of settings and scenarios and the capacity to reflect on and analyse one's learning.<br>SA18. Is open to new ways of doing things<br>SA19. The capacity to envisage and articulate personal goals; to develop strategies and take action to achieve them.<br>**Reliability**<br>SA20. Avoid absenteeism<br>SA21. Act objectively , rather than impulsively or emotionally when faced with |

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| | difficult/stressful or emotional situations<br>SA22. Work in disciplined factory environment<br>SA23. Be punctual |
| **B. Professional Skills** | **Decision Making** |
| | The individual needs to know and understand how to:<br>SB1. Take a decision for any change/issue based on earlier successes(documented previous history)on similar issues<br>SB2. Work out changes in case a new improved machine/equipment is added in the process or any new material/chemical is developed replacing existing one.<br>SB3. Make changes in cycle time due to improved process.<br>SB4. Use the standard operating procedure or trouble shooting manuals for trouble shooting and other reference documents approved by plant management<br>SB5. Consult the peer group and superiors to arrive at a favourable decision.<br>SB6. Use of standard available problem solving techniques for decision making<br>SB7. Review and analyze the process steps to check on system non adherence and non conformity<br>SB8. Review the current SOP and other standards for continuous improvement to facilitate decision making<br>SB9. Take a calculated risk with minimum losses |
| | **Plan and Organize** |
| | SB10. Plan and organize the factors of production to execute the business plan<br>SB11. Fix up tasks and allotment of the same<br>SB12. Assign tasks to suitable persons<br>SB13. Motivate them for better output and time bound completion of tasks |
| | **Customer Centricity** |
| | SB14. Match customer needs/specification by adjusting the processing conditions (interact with customer in case any clarification required)<br>SB15. Ensure that performance of his action/operation/activity does not lead to any divergence from the specified quality of the final product as required by the customer.<br>SB16. Complete the assigned task in timely manner so that the final product is delivered in the timeline given by the customer.<br>SB17. Communicate effectively to the superior/customer for any delay in supplies to the clients.<br>SB18. Work towards fulfilling the customers requirement as per their demand.<br>SB19. In case of any complaint, ensure its timely resolution if the problem is emanating at his level<br>SB20. Communicate effectively to the superior/customer for any delay in resolving the problem faced by the customer.<br>SB21. Maintain good/cordial relation with customers.<br>SB22. Work on the feedback received from customer regarding the product. |
| | **Problem Solving** |
| | SB23. Interpret quality for sheet<br>SB24. Suggest improvements(if any) in process/product/materials based on results and experience |

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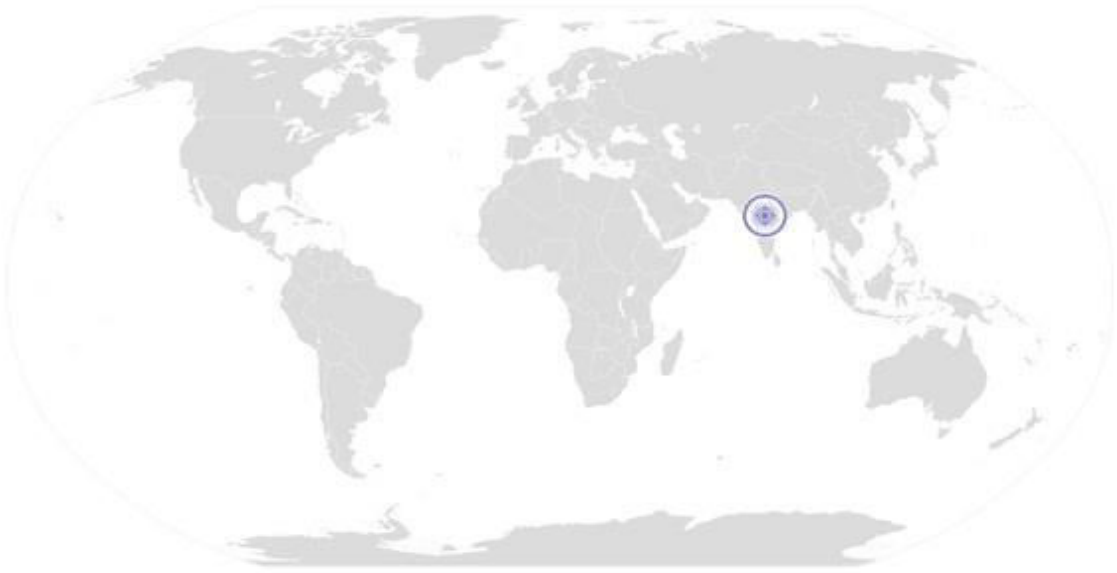
| | **Analytical Thinking** |
| | SB25. Identify the problems pertaining to the sharpening of tools based on visual inspection and work efficiency<br>SB26. Diagnose common problems in the machine based on visual inspection, sound, etc<br>SB27. Suggest improvements(if any) in process based on experience |
| | **Critical Thinking** |
| | SB28. Seek clarification on problems from others<br>SB29. Apply problem-solving approaches in different situations<br>SB30. Refer anomalies to the line manager |



## NOS Version Control

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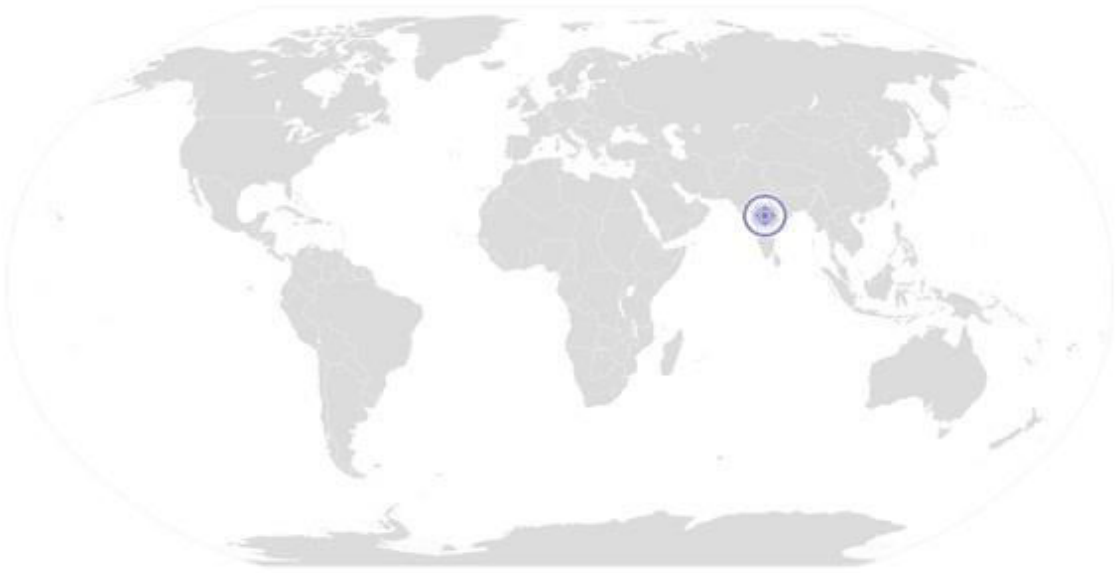
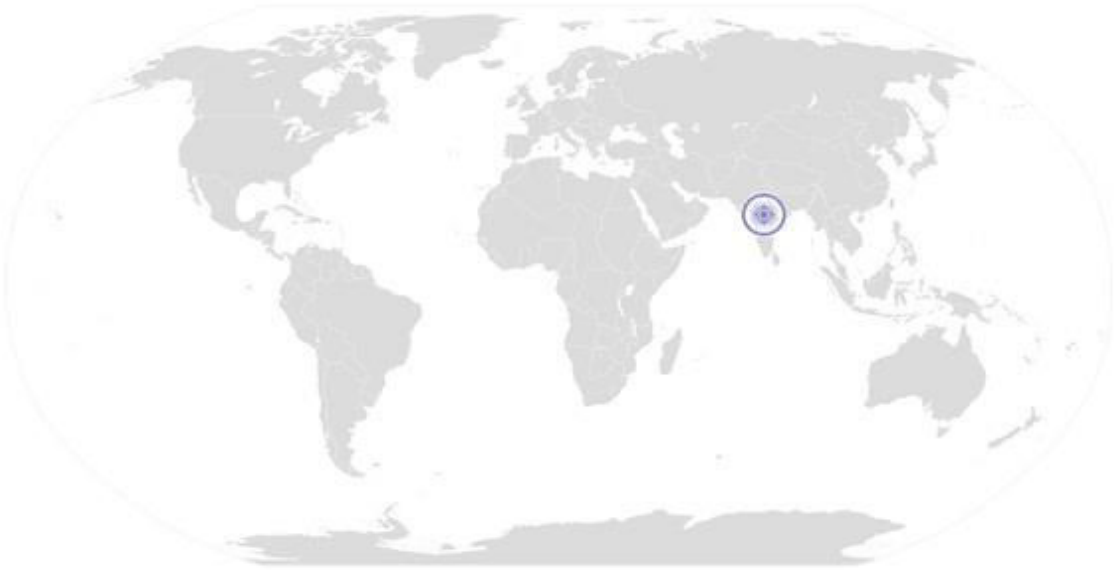
|---|---|---|---|
| **NOS Code** | **RSC/N2610** | | |
| **Credits(NSQF)** | **TBD** | **Version number** | **2.0** |
| **Industry** | **Rubber Manufacturing** | **Drafted on** | **04/06/2013** |
| **Industry Sub-sector** | **Tyre** | **Last reviewed on** | **23/08/2017** |
| **Occupation** | **Extrusion** | **Next review date** | **23/08/2021** |



# National Occupational Standard



## Overview

**This unit is about performing activities after the completion of tube curing operation.**

National Occupational Standard

| Unit Code | RSC/N2611 |
|---|---|
| Unit Title (Task) | Perform Post Tube Curing Activities_v2 |
| Description | This unit is about performing activities after the completion of curing operation for spliced tubes. |
| Scope | This unit/task covers the following:<br>• Arrange to send the operated tube for inspection and finishing<br>• Stack rejected tubes in designated area for technical team to review and dispose<br>• Marking for identification<br>• Send sample to lab for testing<br>• Ensuring housekeeping and safety in curing area |
| **Performance Criteria (PC) w.r.t. the Scope** | |
| **Element** | **Performance Criteria** |
| Operation | To be competent, the user/individual on the job must be able to<br>PC1. Draw sample for lab testing and release.<br>PC2. Arrange to send the OK tube for inspection and finishing<br>PC3. Stack rejected tubes in designated area for technical team to review and dispose<br>PC4. Report the repair and maintenance requirement to the Supervisor |
| Material disposal | PC5. Dispose of waste material safely, as per organizational SOP. |
| Batch Marking | PC6. Ensure identification and traceability by batch marking/coding for the product as per the instructions laid down by the company. |
| Sampling | PC7. Send sample of the prepared product in the specified sample size and method as directed by the company |
| Housekeeping & Safety | PC8. Handle the prepared product using hand gloves and other safety equipment.<br>PC9. Adhere to all safety norms (such as wearing protective gloves, shoes, safety masks etc).<br>PC10. Comply with health, safety, environment guidelines and regulations in accordance with international/national standards or the organizational standards. |
| **Knowledge and Understanding (K)** | |
| **A. Organizational Context** (Knowledge of the company / organization and its processes) | The user/individual on the job needs to know and understand:<br>KA1. Implications of poorly cured product.<br>KA2. Significance of batch marking.<br>KA3. Importance of identifying non-conforming products and their storage.<br>KA4. Risk and impact of not following defined procedures/work instructions.<br>KA5. The escalation matrix and procedures for reporting identified problems.<br>KA6. Types of documentation in the organization and their importance.<br>KA7. Records to be maintained and the implications of their non-maintenance.<br>KA8. Importance of housekeeping and good shopfloor practices.<br>KA9. Health, safety, and environment guidelines, legislations and regulations as |

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| | applicable.<br>KA10. Personal protection (which protective equipment to be used and how).<br>KA11. Potential hazards and actions to minimize them.<br>KA12. Impact of poor practices on health, safety and environment.<br>KA13. The escalation matrix and procedures for reporting hazards.<br>KA14. Handover/Takeover of the equipment/work area as per organizational SOP. |
| **B. Technical Knowledge** | The user/individual on the job needs to know and understand:<br>KB1. Methods for proper inspection of cured tubes.<br>KB2. Process and importance of quality checks.<br>KB3. Batch marking techniques.<br>KB4. Implications of incorrect batch marking.<br>KB5. Implications of inappropriate waste disposal.<br>KB6. Visual examination for under cured as well over cured products<br>KB7. Proper handling of waste spliced tubes<br>KB8. Handling of cured scrap tubes<br>KB9. Types of defects leading to rejections and their indicators, reasons and possible solutions.<br>KB10. Units of measurement.<br>KB11. Coding systems for identification and traceability.<br>KB12. Removal of scraps and downgraded products from each operational area to concerned places |
| **Skills (S)** | |
| **A. Core Skills/ Generic Skills** | **Writing Skills**<br>The user/ individual on the job needs to know and understand how to:<br>SA1. Construct simple sentences and express ideas clearly through written communication<br>SA2. Fill up appropriate technical forms, process charts, activity logs in required format of the company<br>SA3. Write simple letters, mails, etc<br>SA4. Perform basic mathematical operations |
| | **Reading Skills**<br>SA5. Read and understand manuals, health and safety instructions, memos, reports, job cards etc<br>SA6. Read images, graphs, diagrams<br>SA7. Understand the various coding systems as per company norms |
| | **Oral Communication**<br>SA8. Express statements, opinions or information clearly so that others can hear and understand<br>SA9. Respond appropriately to any queries<br>SA10. Communicate with supervisor<br>SA11. Communicate with upstream and downstream teams<br>**Integrity**<br>SA12. Practice honesty with respect to company property and time<br>SA13. Communicate with people in a form and manner and using language that is open and respectful |

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| | SA14. Resolve any difficulties in relationships with colleagues , or get help from an appropriate person, in a way that preserves goodwill and trust<br>**Motivation**<br>SA15. Take responsibility for completing one's own work assignment<br>SA16. Take initiative to enhance/learn skills in ones's area of work<br>SA17. The capacity to learn from experience in a range of settings and scenarios and the capacity to reflect on and analyse one's learning.<br>SA18. Is open to new ways of doing things<br>SA19. The capacity to envisage and articulate personal goals; to develop strategies and take action to achieve them.<br>**Reliability**<br>SA20. Avoid absenteeism<br>SA21. Act objectively , rather than impulsively or emotionally when faced with difficult/stressful or emotional situations<br>SA22. Work in disciplined factory environment<br>SA23. Be punctual |
| **B. Professional Skills** | **Decision Making** |
| | The individual needs to know and understand how to:<br>SB1. Take a decision for any change/issue based on earlier successes(documented previous history)on similar issues<br>SB2. Work out changes in case a new improved machine/equipment is added in the process or any new material/chemical is developed replacing existing one.<br>SB3. Make changes in cycle time due to improved process.<br>SB4. Use the standard operating procedure or trouble shooting manuals for trouble shooting and other reference documents approved by plant management<br>SB5. Consult the peer group and superiors to arrive at a favourable decision.<br>SB6. Use of standard available problem solving techniques for decision making<br>SB7. Review and analyze the process steps to check on system non adherence and non conformity<br>SB8. Review the current SOP and other standards for continuous improvement to facilitate decision making<br>SB9. Take a calculated risk with minimum losses |
| | **Plan and Organize** |
| | SB10. Plan and organize the factors of production to execute the business plan<br>SB11. Fix up tasks and allotment of the same<br>SB12. Assign tasks to suitable persons<br>SB13. Motivate them for better output and time bound completion of tasks |
| | **Customer Centricity** |

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| | SB14. Match customer needs/specification by adjusting the processing conditions (interact with customer in case any clarification required)<br>SB15. Ensure that performance of his action/operation/activity does not lead to any divergence from the specified quality of the final product as required by the customer.<br>SB16. Complete the assigned task in timely manner so that the final product is delivered in the timeline given by the customer.<br>SB17. Communicate effectively to the superior/customer for any delay in supplies to the clients.<br>SB18. Work towards fulfilling the customers requirement as per their demand.<br>SB19. In case of any complaint, ensure its timely resolution if the problem is emanating at his level<br>SB20. Communicate effectively to the superior/customer for any delay in resolving the problem faced by the customer.<br>SB21. Maintain good/cordial relation with customers.<br>SB22. Work on the feedback received from customer regarding the product. |
| | **Problem Solving** |
| | SB23. Interpret quality for sheet<br>SB24. Suggest improvements(if any) in process/product/materials based on results and experience |
| | **Analytical Thinking** |
| | SB25. Identify the problems pertaining to the sharpening of tools based on visual inspection and work efficiency<br>SB26. Diagnose common problems in the machine based on visual inspection, sound, etc<br>SB27. Suggest improvements(if any) in process based on experience |
| | **Critical Thinking** |
| | SB28. Seek clarification on problems from others<br>SB29. Apply problem-solving approaches in different situations<br>SB30. Refer anomalies to the line manager |

## NOS Version Control

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|---|---|---|---|
| **NOS Code** | **RSC/N2611** | | |
| **Credits(NSQF)** | **TBD** | **Version number** | **2.0** |
| **Industry** | **Rubber Manufacturing** | **Drafted on** | **04/06/2013** |
| **Industry Sub-sector** | **Tyre** | **Last reviewed on** | **23/08/2017** |
| **Occupation** | **Extrusion** | **Next review date** | **23/08/2021** |

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# National Occupational Standard

## Overview

**This unit is about carrying out housekeeping**

National Occupational Standard

| Unit Code | RSC/N5001 |
|---|---|
| **Unit Title (Task)** | **Carry out housekeeping in rubber product manufacturing** |
| **Description** | This unit is about carrying out housekeeping activities |
| **Scope** | This unit/task covers the following:<br>• Preparing for housekeeping activities<br>• Carry out housekeeping operation<br>• Post housekeeping activities<br>• General |
| **Performance Criteria (PC) w.r.t. the Scope** | |
| **Element** | **Performance Criteria** |
| **Pre housekeeping activities** | To be competent, the user/individual on the job must be able to:<br>PC1. Inspect the area while taking into account various surfaces<br>PC2. Identify the material requirements for cleaning the areas inspected, by considering risk, time, efficiency and type of stain<br>PC3. Ensure that the cleaning equipment is in proper working condition<br>PC4. Select the suitable alternatives for cleaning the areas in case the appropriate equipment and materials are not available and inform the appropriate person<br>PC5. Plan the sequence for cleaning the area to avoid re-soiling clean areas and surfaces<br>PC6. Inform the affected people about the cleaning activity<br>PC7. Display the appropriate signage for the work being conducted<br>PC8. Ensure that there is adequate ventilation for the work being carried out<br>PC9. Wear the personal protective equipment required for the cleaning method and materials being used |
| **Operations** | PC10. Use the correct cleaning method for the work area, type of soiling and surface<br>PC11. Carry out cleaning activity without disturbing others<br>PC12. Deal with accidental damage, if any, caused while carrying out the work<br>PC13. Report to the appropriate person any difficulties in carrying out your work<br>PC14. Identify and report to the appropriate person any additional cleaning required that is outside one's responsibility or skill |
| **Post housekeeping activities** | PC15. Ensure that there is no oily substance on the floor to avoid slippage<br>PC16. Ensure that no scrap material is lying around<br>PC17. Maintain and store housekeeping equipment and supplies<br>PC18. Follow workplace procedures to deal with any accidental damage caused during the cleaning process<br>PC19. Ensure that, on completion of the work, the area is left clean and dry and meets requirements<br>PC20. Return the equipment, materials and personal protective equipment that |

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| | were used to the right places making sure they are clean, safe and securely stored<br>PC21. Dispose the waste garnered from the activity in an appropriate manner<br>PC22. Dispose of used and un-used solutions according to manufacturer's instructions, and clean the equipment thoroughly |
| **General** | PC23. Maintain schedules and records for housekeeping duty<br>PC24. Replenish any necessary supplies or consumables |
| **Knowledge and Understanding (K)** | |
| **A. Organizational Context** (Knowledge of the company / organization and its processes) | The user/individual on the job needs to know and understand:<br>KA1. Importance of learning proper procedures and techniques<br>KA2. Implications of not following the organizational requirement for approval for undertaking the specific task<br>KA3. Importance of completing the activities as per the schedule<br>KA4. Implications of not following the defined procedures/work instructions<br>KA5. Importance of team work<br>KA6. Health, Safety and Environment guidelines, legislation and regulations as applicable<br>KA7. Actions to be taken in case of non-conformity to behavioral standards of the organization<br>KA8. Impact of poor practices on the individual's and organization's performance<br>KA9. Importance of optimal utilization of resources<br>KA10. Importance of providing feedback for improvement<br>KA11. Importance of indigenous knowledge for evolving/adopting operation specific practices<br>KA12. Rectification/solution of problems/conflicts for the smooth functioning of the organization<br>KA13. Importance of documentation/reporting as per guidelines and procedures<br>KA14. Knowledge of do's and don'ts (company's HR instructions)<br>KA15. Importance of attending trouble shooting<br>KA16. Importance of subject learning/ training<br>KA17. Importance of Product and its application |
| **B. Technical Knowledge** | The user/individual on the job needs to know and understand:<br>KB1. The levels of hygiene required by workplace and why it is important to maintain them during your work<br>KB2. How to inspect a work area to decide what cleaning it needs<br>KB3. Methods and materials that used for cleaning variety of surfaces<br>KB4. The types of cleansing agents that are not to be mixed together<br>KB5. The correct method for cleaning equipment and/or machinery used during your work<br>KB6. The importance of personal protective equipment<br>KB7. Appropriate personal protective equipment for the work area, cleaning equipment, tools, materials and chemicals used |

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| | KB8. The correct sequence for cleaning the work area<br>KB9. The time taken by the treatment to work<br>KB10. The importance of following manufacturer's instructions on cleaning agents<br>KB11. The most appropriate place to carry out test cleans and why this should be done before applying treatments<br>KB12. The importance of applying treatments evenly and the effect of not doing this<br>KB13. Process of cleaning the surfaces without causing injury or damage<br>KB14. The method to check the treated surface and equipment on completion of cleaning<br>KB15. Procedures for reporting any unidentified soiling<br>KB16. Procedures for disposing off waste<br>KB17. Procedures for disposing off or storing personal protective equipment<br>KB18. Escalation procedures for soils or stains that could not be removed |
| **Skills (S)** | |
| **A. Core Skills/ Generic Skills** | **Writing Skills**<br>The user/ individual on the job needs to know and understand how to:<br>SA1. Construct simple sentences and express ideas clearly through written communication<br>SA2. Fill up appropriate technical forms, process charts, activity logs in required format of the company<br>SA3. Write simple letters, mails, etc<br>SA4. Perform functional mathematical operations, including apply basic mathematical principles, such as numbers and space, and techniques such as estimation and approximation, for practical purposes |
| | **Reading Skills**<br>SA5. Read and understand manuals, health and safety instructions, memos, reports, job cards etc<br>SA6. Read images, graphs, diagrams<br>SA7. Understand the various coding systems as per company norms |
| | **Oral Communication**<br>SA8. Express statements, opinions or information clearly so that others can hear and understand<br>SA9. Respond appropriately to any queries<br>SA10. Communicate with supervisor<br>SA11. Communicate with upstream and downstream teams |
| **B. Professional Skills** | **Decision Making** |

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| | The individual needs to know and understand how to:<br><br>SB1. Take a decision for any change/issue based on earlier successes(documented previous history)on similar issues<br>SB2. Work out changes in case a new improved machine/equipment is added in the process or any new material/chemical is developed replacing existing one.<br>SB3. Make changes in cycle time due to improved process.<br>SB4. Use the standard operating procedure or trouble shooting manuals for trouble shooting and other reference documents approved by plant management<br>SB5. Consult the peer group and superiors to arrive at a favourable decision.<br>SB6. Use of standard available problem solving techniques for decision making<br>SB7. Review and analyze the process steps to check on system non adherence and non conformity<br>SB8. Review the current SOP and other standards for continuous improvement to facilitate decision making<br>SB9. Take a calculated risk with minimum losses |
| | **Plan and Organize** |
| | SB10. Plan and organize the factors of production to execute the business plan<br>SB11. Fix up tasks and allotment of the same<br>SB12. Assign tasks to suitable persons<br>SB13. Motivate them for better output and time bound completion of tasks |
| | **Customer Centricity** |
| | SB14. Match customer needs/specification by adjusting the processing conditions (interact with customer in case any clarification required)<br>SB15. Ensure that performance of his action/operation/activity does not lead to any divergence from the specified quality of the final product as required by the customer.<br>SB16. Complete the assigned task in timely manner so that the final product is delivered in the timeline given by the customer.<br>SB17. Communicate effectively to the superior/customer for any delay in supplies to the clients.<br>SB18. Work towards fulfilling the customers requirement as per their demand.<br>SB19. In case of any complaint, ensure its timely resolution if the problem is emanating at his level<br>SB20. Communicate effectively to the superior/customer for any delay in resolving the problem faced by the customer.<br>SB21. Maintain good/cordial relation with customers.<br>SB22. Work on the feedback received from customer regarding the product. |
| | **Problem Solving** |
| | SB23. Interpret quality for sheet |

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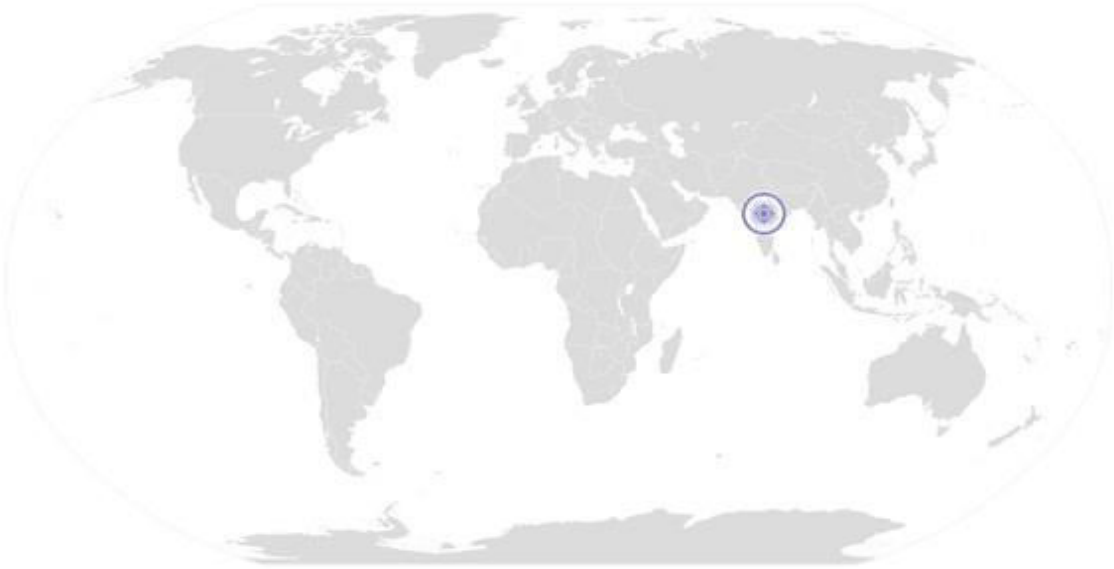
| | SB24. Suggest improvements(if any) in process/product/materials based on results and experience |
| | **Analytical Thinking** |
| | SB25. Proper collection of waste material<br>SB26. Identify defects in the material and communicate it at the earliest and suggest improvements(if any) in process/material based on experience |
| | **Critical Thinking** |
| | SB27. Seek clarification on problems from others<br>SB28. Apply problem-solving approaches in different situations<br>SB29. Refer anomalies to the line manager |



## NOS Version Control

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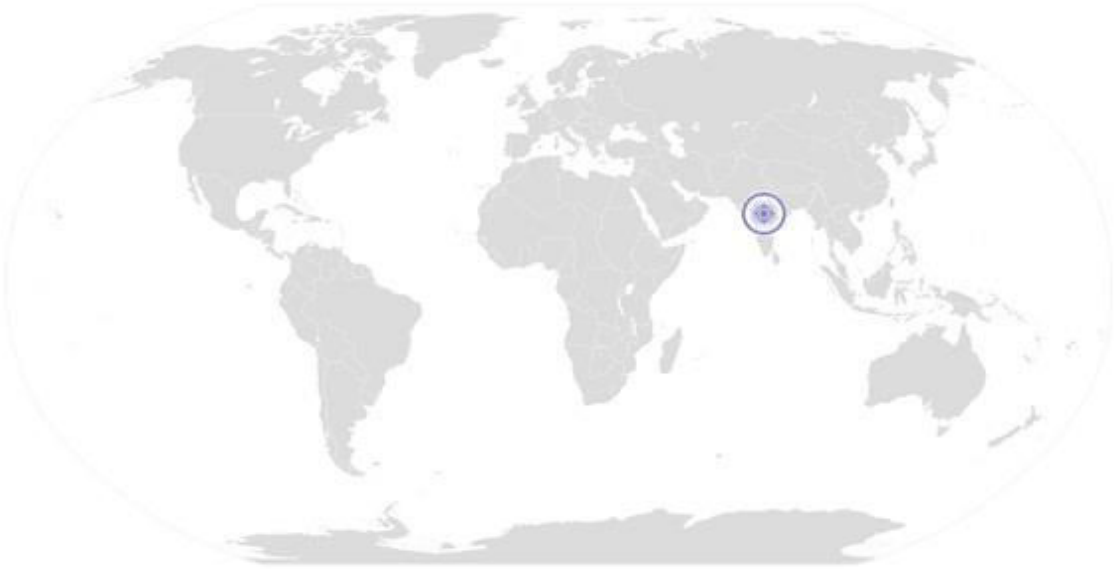
|---|---|---|---|
| **NOS Code** | **RSC/N5001** | | |
| **Credits(NSQF)** | **TBD** | **Version number** | |
| **Industry** | **Rubber Manufacturing** | **Drafted on** | **04/06/2013** |
| **Industry Sub-sector** | **Tyre and Non Tyre** | **Last reviewed on** | **23/08/2017** |
| **Occupation** | **Extrusion** | **Next review date** | **23/08/2021** |



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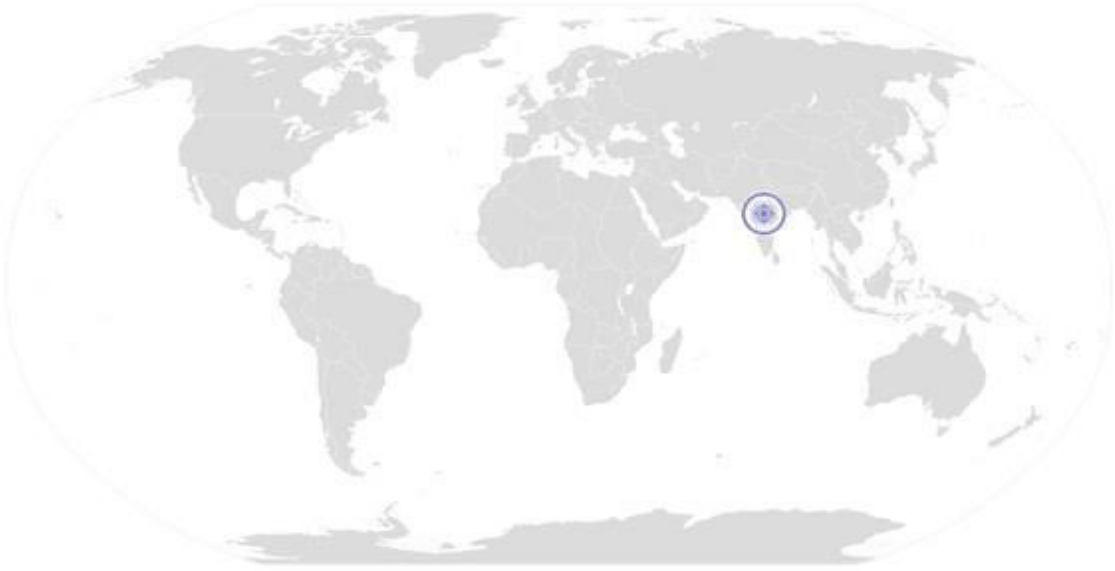
# National Occupational Standard



## Overview

**This unit is about reporting and documentation**

National Occupational Standard

| Unit Code | RSC/N5002 |
|---|---|
| Unit Title (Task) | Carry out reporting and documentation |
| Description | This unit is about carrying out reporting and documentation |
| Scope | This unit/task covers the following:<br>• Reporting<br>• Documentation<br>• Information Security |

| Performance Criteria (PC) w.r.t. the Scope | |
|---|---|
| **Element** | **Performance Criteria** |
| **Reporting** | To be competent, the user/individual on the job must be able to:<br>PC1. Report data/problems/incidents as applicable in a timely manner<br>PC2. Report to the appropriate authority as laid down by the company<br>PC3. Follow reporting procedures as prescribed by the company |
| **Recording and Documentation** | PC4. Identify documentation to be completed relating to one's role<br>PC5. Record details accurately an appropriate format<br>PC6. Complete all documentation within stipulated time according to company procedure<br>PC7. Ensure that the final document meets with the requirements of the persons who requested it or make any amendments accordingly<br>PC8. Ensure documents are available to all appropriate authorities to inspect |
| **Information Security** | PC9. Respond to requests for information in an appropriate manner whilst following organizational procedures<br>PC10. Inform the appropriate authority of requests for information received |

| Knowledge and Understanding (K) | |
|---|---|
| **A. Organizational Context** (Knowledge of the company / organization and its processes) | The user/individual on the job needs to know and understand:<br>KA1. Importance of learning proper procedures and techniques<br>KA2. Implications of not following the organizational requirement for approval for undertaking the specific task<br>KA3. Importance of completing the activities as per the schedule<br>KA4. Implications of not following the defined procedures/work instructions<br>KA5. Importance of team work<br>KA6. Health, Safety and Environment guidelines, legislation and regulations as applicable<br>KA7. Actions to be taken in case of non-conformity to behavioral standards of the organization<br>KA8. Impact of poor practices on the individual's and organization's performance<br>KA9. Importance of optimal utilization of resources<br>KA10. Importance of providing feedback for improvement<br>KA11. Importance of indigenous knowledge for evolving/adopting operation specific practices |

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| | KA12. Rectification/solution of problems/conflicts for the smooth functioning of the organization<br>KA13. Importance of documentation/reporting as per guidelines and procedures<br>KA14. Knowledge of do's and don'ts (company's HR instructions)<br>KA15. Importance of attending trouble shooting<br>KA16. Importance of subject learning/ training<br>KA17. Importance of Product and its application |
| **B. Technical Knowledge** | The user/individual on the job needs to know and understand:<br>KB1. Different methods of recording information<br>KB2. Various documents that need to be maintained<br>KB3. Company procedure for filling/maintaining up the documents<br>KB4. Procedures for reporting to the appropriate authority<br>KB5. Procedures for recording damage, breakages etc<br>KB6. Reporting incidents where standard operating procedures are not followed<br>KB7. The importance of complete and accurate documentation<br>KB8. How to maintain complete documentation accurately and within agreed timescales<br>KB9. The importance of ensuring that the documents are correct<br>KB10. The actions to be taken if the documents are not correct<br>KB11. The importance of maintaining the security and confidentiality of recorded information<br>KB12. Procedures to maintain confidentiality of information<br>KB13. The appropriate method for responding to requests for information<br>KB14. The reporting procedures to followed before disclosing information to any outside party |
| **Skills (S)** | |
| **A. Core Skills/ Generic Skills** | **Writing Skills** |
| | The user/ individual on the job needs to know and understand how to:<br>SA1. Construct simple sentences and express ideas clearly through written communication<br>SA2. Fill up appropriate technical forms, process charts, activity logs in required format of the company<br>SA3. Write simple letters, mails, etc<br>SA4. Perform functional mathematical operations, including apply basic mathematical principles, such as numbers and space, and techniques such as estimation and approximation, for practical purposes |
| | **Reading Skills** |
| | SA5. Read and understand manuals, health and safety instructions, memos, reports, job cards etc<br>SA6. Read images, graphs, diagrams<br>SA7. Understand the various coding systems as per company norms |
| | **Oral Communication** |

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| | SA8. Express statements, opinions or information clearly so that others can hear and understand<br>SA9. Respond appropriately to any queries<br>SA10. Communicate with supervisor<br>SA11. Communicate with upstream and downstream teams |
| **B. Professional Skills** | **Decision Making** |
| | The individual needs to know and understand how to:<br><br>SB1. Take a decision for any change/issue based on earlier successes(documented previous history)on similar issues<br>SB2. Work out changes in case a new improved machine/equipment is added in the process or any new material/chemical is developed replacing existing one.<br>SB3. Make changes in cycle time due to improved process.<br>SB4. Use the standard operating procedure or trouble shooting manuals for trouble shooting and other reference documents approved by plant management<br>SB5. Consult the peer group and superiors to arrive at a favourable decision.<br>SB6. Use of standard available problem solving techniques for decision making<br>SB7. Review and analyze the process steps to check on system non adherence and non conformity<br>SB8. Review the current SOP and other standards for continuous improvement to facilitate decision making<br>SB9. Take a calculated risk with minimum losses |
| | **Plan and Organize** |
| | SB1. Plan and organize the factors of production to execute the business plan<br>SB2. Fix up tasks and allotment of the same<br>SB3. Assign tasks to suitable persons<br>SB10. Motivate them for better output and time bound completion of tasks |
| | **Customer Centricity** |
| | SB13. Match customer needs/specification by adjusting the processing conditions (interact with customer in case any clarification required)<br>SB14. Ensure that performance of his action/operation/activity does not lead to any divergence from the specified quality of the final product as required by the customer.<br>SB15. Complete the assigned task in timely manner so that the final product is delivered in the timeline given by the customer.<br>SB16. Communicate effectively to the superior/customer for any delay in supplies to the clients.<br>SB17. Work towards fulfilling the customers requirement as per their demand.<br>SB18. In case of any complaint, ensure its timely resolution if the problem is emanating at his level |

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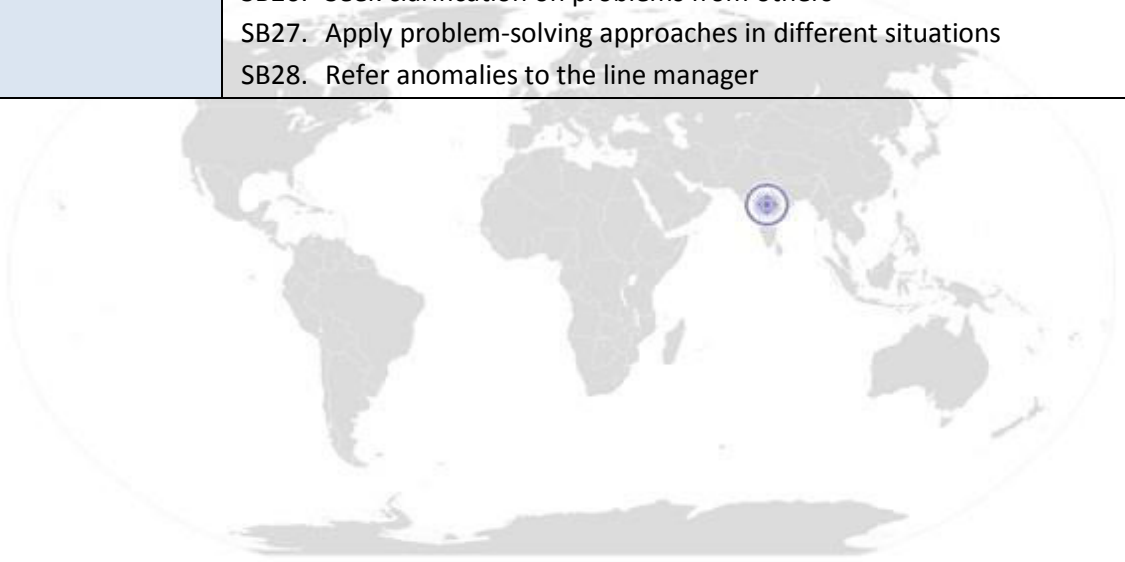
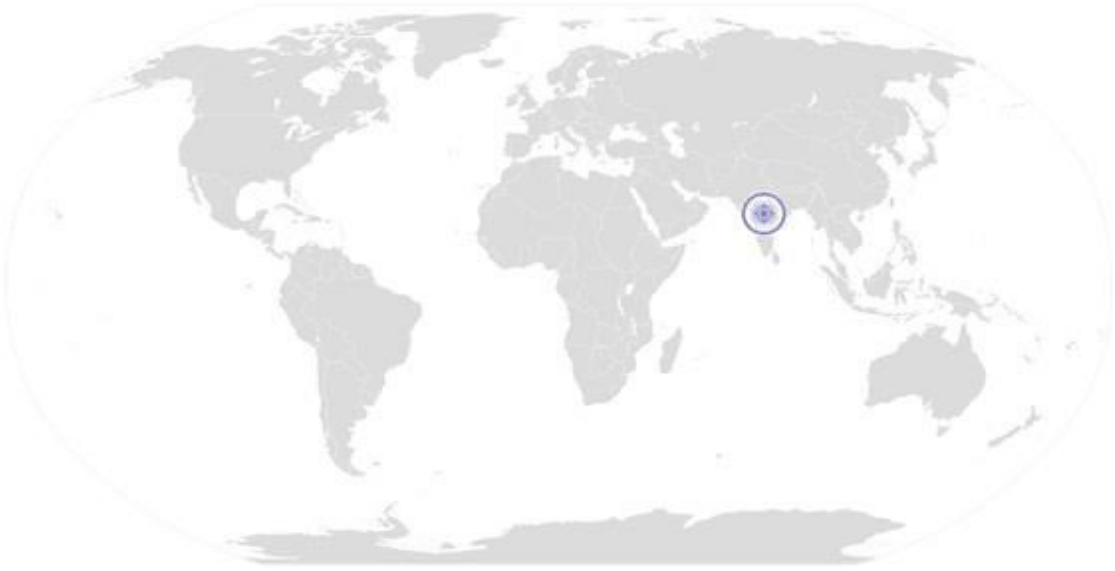
| | SB19. Communicate effectively to the superior/customer for any delay in resolving the problem faced by the customer.<br>SB20. Maintain good/cordial relation with customers.<br>SB21. Work on the feedback received from customer regarding the product. |
| | **Problem Solving** |
| | SB22. Interpret quality for sheet<br>SB23. Suggest improvements(if any) in process/product/materials based on results and experience |
| | **Analytical Thinking** |
| | SB24. Proper collection of waste material<br>SB25. Identify defects in the material and communicate it at the earliest and suggest improvements(if any) in process/material based on experience |
| | **Critical Thinking** |
| | SB26. Seek clarification on problems from others<br>SB27. Apply problem-solving approaches in different situations<br>SB28. Refer anomalies to the line manager |



## NOS Version Control

| NOS Code | RSC/N5002 | | |
|---|---|---|---|
| Credits(NSQF) | TBD | Version number | |
| Industry | Rubber Manufacturing | Drafted on | 04/06/2013 |
| Industry Sub-sector | Tyre and Non Tyre | Last reviewed on | 23/08/2017 |
| Occupation | Extrusion | Next review date | 23/08/2021 |



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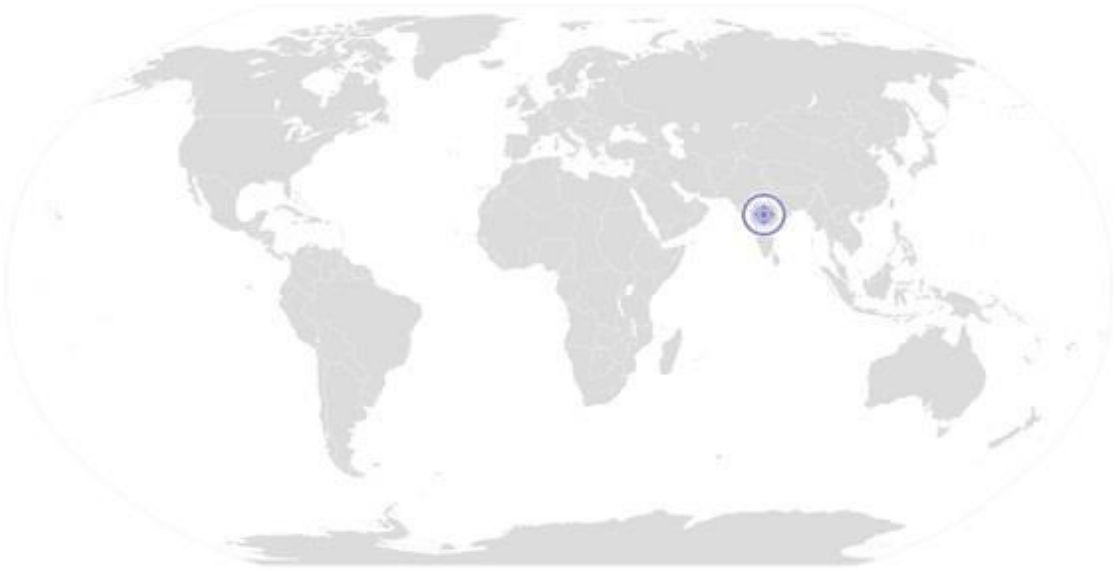
# National Occupational Standard



## Overview

**This unit is about carrying out quality checks**

National Occupational Standard

| Unit Code | RSC/N5003 |
|---|---|
| Unit Title (Task) | Carry out quality checks |
| Description | This unit is about carrying out quality control activities |
| Scope | This unit/task covers the following:<br>• Inspection<br>• Analysis<br>• Reporting |

| Performance Criteria (PC) w.r.t. the Scope | |
|---|---|
| **Element** | **Performance Criteria** |
| Inspection | To be competent, the user/individual on the job must be able to:<br>PC1. Ensure that total range of checks are regularly and consistently performed<br>PC2. Use appropriate measuring instruments, equipment, tools, accessories etc ,as required |
| Analysis | PC3. Identify non-conformities to quality assurance standards<br>PC4. Identify potential causes of non-conformities to quality assurance standards<br>PC5. Identify impact on final product due to non-conformance to company standards<br>PC6. Evaluating the need for action to ensure that problems do not recur<br>PC7. Suggest corrective action to address problem<br>PC8. Review effectiveness of corrective action |
| Reporting | PC9. Interpret the results of the quality check correctly<br>PC10. Take up results of the findings with QC in charge/appropriate authority.<br>PC11. Take up the results of the findings within stipulated time<br>PC12. Record of results of action taken<br>PC13. Record adjustments not covered by established procedures for future reference<br>PC14. Review effectiveness of action taken<br>PC15. Follow reporting procedures where the cause of defect cannot be identified |

| Knowledge and Understanding (K) | |
|---|---|
| **A. Organizational Context** (Knowledge of the company / organization and its processes) | The user/individual on the job needs to know and understand:<br>KA1. Importance of learning proper procedures and techniques<br>KA2. Implications of not following the organizational requirement for approval for undertaking the specific task<br>KA3. Importance of completing the activities as per the schedule<br>KA4. Implications of not following the defined procedures/work instructions<br>KA5. Importance of team work<br>KA6. Health, Safety and Environment guidelines, legislation and regulations as applicable<br>KA7. Actions to be taken in case of non-conformity to behavioral standards of the |

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| | organization<br>KA8. Impact of poor practices on the individual's and organization's performance<br>KA9. Importance of optimal utilization of resources<br>KA10. Importance of providing feedback for improvement<br>KA11. Importance of indigenous knowledge for evolving/adopting operation specific practices<br>KA12. Rectification/solution of problems/conflicts for the smooth functioning of the organization<br>KA13. Importance of documentation/reporting as per guidelines and procedures<br>KA14. Knowledge of do's and don'ts (company's HR instructions)<br>KA15. Importance of attending trouble shooting<br>KA16. Importance of subject learning/ training<br>KA17. Importance of Product and its application |
| **B. Technical Knowledge** | The user/individual on the job needs to know and understand:<br>KB1. The importance of quality control procedures<br>KB2. Relevance and importance of activities and how they contribute to the achievement of the quality objectives,<br>KB3. Proper procedure for selecting the material/product and performing quality checks without affecting the material<br>KB4. Availability of work instructions, as necessary,<br>KB5. Characteristics of the product/material<br>KB6. Use of suitable equipment<br>KB7. Availability and use of monitoring and measuring devices,<br>KB8. Requirements of records<br>KB9. Importance of maintaining accurate up-to-date records<br>KB10. The need to report within the stipulated time<br>KB11. Implications of inaccurate measuring and testing instruments and equipment<br>KB12. The cost of non-conformance to quality standards<br>KB13. Implications (impact on internal/external customers) of defective products, materials or components |
| **Skills (S)** | |
| **A. Core Skills/ Generic Skills** | **Writing Skills** |
| | The user/ individual on the job needs to know and understand how to:<br>SA1. Construct simple sentences and express ideas clearly through written communication<br>SA2. Fill up appropriate technical forms, process charts, activity logs in required format of the company<br>SA3. Write simple letters, mails, etc<br>SA4. Perform functional mathematical operations, including apply basic mathematical principles, such as numbers and space, and techniques such as estimation and approximation, for practical purposes |
| | **Reading Skills** |

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|---|---|
| | SA5. Read and understand manuals, health and safety instructions, memos, reports, job cards etc<br>SA6. Read images, graphs, diagrams<br>SA7. Understand the various coding systems as per company norms |
| | **Oral Communication** |
| | SA8. Express statements, opinions or information clearly so that others can hear and understand<br>SA9. Respond appropriately to any queries<br>SA10. Communicate with supervisor<br>SA11. Communicate with upstream and downstream teams |
| **Professional Skills** | **Decision Making** |
| | The individual needs to know and understand how to:<br><br>SB4. Take a decision for any change/issue based on earlier successes(documented previous history)on similar issues<br>SB5. Work out changes in case a new improved machine/equipment is added in the process or any new material/chemical is developed replacing existing one.<br>SB6. Make changes in cycle time due to improved process.<br>SB7. Use the standard operating procedure or trouble shooting manuals for trouble shooting and other reference documents approved by plant management<br>SB8. Consult the peer group and superiors to arrive at a favourable decision.<br>SB9. Use of standard available problem solving techniques for decision making<br>SB10. Review and analyze the process steps to check on system non adherence and non conformity<br>SB11. Review the current SOP and other standards for continuous improvement to facilitate decision making<br>SB12. Take a calculated risk with minimum losses |
| | **Plan and Organize** |
| | SB13. Plan and organize the factors of production to execute the business plan<br>SB14. Fix up tasks and allotment of the same<br>SB15. Assign tasks to suitable persons<br>SB16. Motivate them for better output and time bound completion of tasks |
| | **Customer Centricity** |
| | SB17. Match customer needs/specification by adjusting the processing conditions (interact with customer in case any clarification required)<br>SB18. Ensure that performance of his action/operation/activity does not lead to any divergence from the specified quality of the final product as required by the customer.<br>SB19. Complete the assigned task in timely manner so that the final product is delivered in the timeline given by the customer. |

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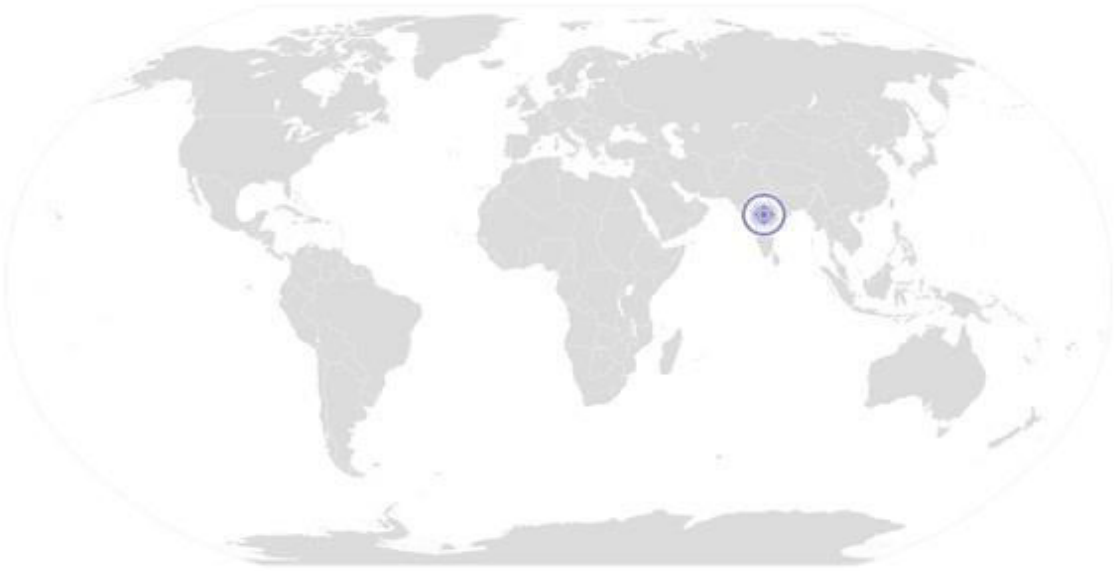
| | SB20. Communicate effectively to the superior/customer for any delay in supplies to the clients.<br>SB21. Work towards fulfilling the customers requirement as per their demand.<br>SB22. In case of any complaint, ensure its timely resolution if the problem is emanating at his level<br>SB23. Communicate effectively to the superior/customer for any delay in resolving the problem faced by the customer.<br>SB24. Maintain good/cordial relation with customers.<br>SB25. Work on the feedback received from customer regarding the product. |
| | **Problem Solving** |
| | SB26. Interpret quality for sheet<br>SB27. Suggest improvements(if any) in process/product/materials based on results and experience |
| | **Analytical Thinking** |
| | SB28. Proper collection of waste material<br>SB29. Identify defects in the material and communicate it at the earliest and suggest improvements(if any) in process/material based on experience |
| | **Critical Thinking** |
| | SB30. Seek clarification on problems from others<br>SB31. Apply problem-solving approaches in different situations<br>SB32. Refer anomalies to the line manager |

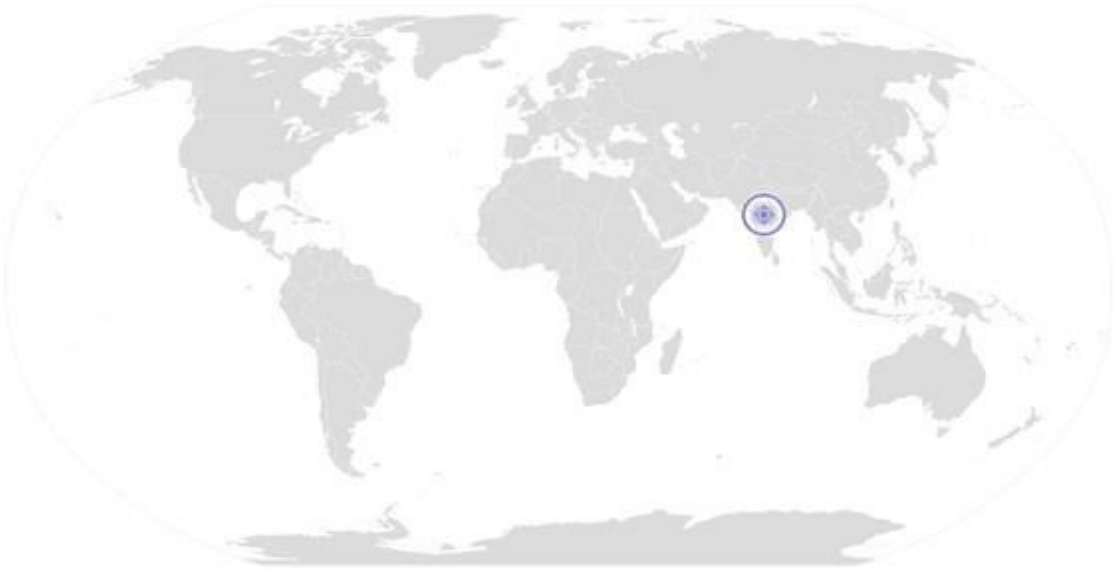
## NOS Version Control

| NOS Code | RSC/N5003 | | |
|---|---|---|---|
| Credits(NSQF) | TBD | Version number | |
| Industry | Rubber Manufacturing | Drafted on | 04/06/2013 |
| Industry Sub-sector | Tyre and Non Tyre | Last reviewed on | 23/08/2017 |
| Occupation | Extrusion | Next review date | 23/08/2021 |



Back to QP

# National Occupational Standard



## Overview

**This unit is about problem identification and escalation**

National Occupational Standard

| Unit Code | RSC/N5004 |
|---|---|
| Unit Title (Task) | Carry out problem identification and escalation |
| Description | This unit is about problem identification and escalation |
| Scope | This unit/task covers the following:<br>• Problem Identification<br>• Necessary Action<br>• Problem Escalation |

| Performance Criteria (PC) w.r.t. the Scope | |
|---|---|
| **Element** | **Performance Criteria** |
| **Problem Identification** | To be competent, the user/individual on the job must be able to:<br>PC1. Identify defects/indicators of problems<br>PC2. Identify any wrong practices that may lead to problems<br>PC3. Identify practices that may impact the final product quality<br>PC4. Identify if the problem has occurred before<br>PC5. Identify other operations that might be impacted by the problem<br>PC6. Ensure that no delays are caused as a result of failure to escalate problems |
| **Necessary Action** | PC7. Take appropriate materials and sample, conduct tests and evaluate results to establish reasons to confirm suspected reasons for non-conformance (where required)<br>PC8. Consider possible reasons for identification of problems<br>PC9. Consider applicable corrections and formulate corrective action<br>PC10. Formulate action in a timely manner<br>PC11. Communicate problem/remedial action to appropriate parties<br>PC12. Take corrective action in a timely manner<br>PC13. Take corrective action for problems identified according to the company procedures<br>PC14. Report/document problem and corrective action in an appropriate manner<br>PC15. Monitor corrective action<br>PC16. Evaluate implementation of corrective action taken to determine if the problem has been resolved<br>PC17. Ensure that corrective action selected is viable and practical<br>PC18. Ensure that correct solution is identified to an identified problem<br>PC19. Take corrective action for problems identified according to the company procedures<br>PC20. Ensure that no delays are caused as a result of failure to take necessary action |
| **Problem Escalation** | PC21. Escalate problem as per laid down escalation matrix<br>PC22. Escalate the problem within stipulated time<br>PC23. Escalate the problem in an appropriate manner<br>PC24. Ensure that no delays are caused as a result of failure to escalate problems |

| Knowledge and Understanding (K) | |
|---|---|
| **A. Organizational Context** (Knowledge of the company / | The user/individual on the job needs to know and understand:<br>KA1. Importance of learning proper procedures and techniques<br>KA2. Implications of not following the organizational requirement for approval for undertaking the specific task<br>KA3. Importance of completing the activities as per the schedule |

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| organization and its processes) | KA4. Implications of not following the defined procedures/work instructions<br>KA5. Importance of team work<br>KA6. Health, Safety and Environment guidelines, legislation and regulations as applicable<br>KA7. Actions to be taken in case of non-conformity to behavioral standards of the organization<br>KA8. Impact of poor practices on the individual's and organization's performance<br>KA9. Importance of optimal utilization of resources<br>KA10. Importance of providing feedback for improvement<br>KA11. Importance of indigenous knowledge for evolving/adopting operation specific practices<br>KA12. Rectification/solution of problems/conflicts for the smooth functioning of the organization<br>KA13. Importance of documentation/reporting as per guidelines and procedures<br>KA14. Knowledge of do's and don'ts (company's HR instructions)<br>KA15. Importance of attending trouble shooting<br>KA16. Importance of subject learning/ training<br>KA17. Importance of Product and its application |
| **B. Technical Knowledge** | The user/individual on the job needs to know and understand:<br>KB1. Indicators of problems<br>KB2. The working of the equipment and accessories( if applicable)<br>KB3. The impact of operations on the user and equipment( if applicable)<br>KB4. The impact of operations on the final product ( if applicable)<br>KB5. The effect of not rectifying the problems identified<br>KB6. The reason for the occurrence of previous problems<br>KB7. Measures and steps that have been taken to address the previous problems<br>KB8. Possible solutions for various problems<br>KB9. The correct method for carrying out corrective actions outlined for each problem<br>KB10. The impact of not carrying out the corrective actions<br>KB11. The documentation procedure for recording such problems, as per company norms<br>KB12. The escalation matrix for reporting problems<br>KB13. Escalation matrix for reporting unresolved problems<br>KB14. The time frame within which in which each problem needs to be escalated<br>KB15. Manner in which each problem needs to be escalated |
| **Skills (S)** | |
| **A. Core Skills/ Generic Skills** | **Writing Skills**<br>The user/ individual on the job needs to know and understand how to:<br>SA1. Construct simple sentences and express ideas clearly through written communication<br>SA2. Fill up appropriate technical forms, process charts, activity logs in required format of the company<br>SA3. Write simple letters, mails, etc<br>SA4. Perform functional mathematical operations, including apply basic mathematical principles, such as numbers and space, and techniques such as |

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| | estimation and approximation, for practical purposes |
| | **Reading Skills** |
| | SA5. Read and understand manuals, health and safety instructions, memos, reports, job cards etc<br>SA6. Read images, graphs, diagrams<br>SA7. Understand the various coding systems as per company norms |
| | **Oral Communication** |
| | SA8. Express statements, opinions or information clearly so that others can hear and understand<br>SA9. Respond appropriately to any queries<br>SA10. Communicate with supervisor<br>SA11. Communicate with upstream and downstream teams |
| **B. Professional Skills** | **Decision Making** |
| | The individual needs to know and understand how to:<br>SB1. Take a decision for any change/issue based on earlier successes(documented previous history)on similar issues<br>SB2. Work out changes in case a new improved machine/equipment is added in the process or any new material/chemical is developed replacing existing one.<br>SB3. Make changes in cycle time due to improved process.<br>SB4. Use the standard operating procedure or trouble shooting manuals for trouble shooting and other reference documents approved by plant management<br>SB5. Consult the peer group and superiors to arrive at a favourable decision.<br>SB6. Use of standard available problem solving techniques for decision making<br>SB7. Review and analyze the process steps to check on system non adherence and non conformity<br>SB8. Review the current SOP and other standards for continuous improvement to facilitate decision making<br>SB9. Take a calculated risk with minimum losses |
| | **Plan and Organize** |
| | SB10. Plan and organize the factors of production to execute the business plan<br>SB11. Fix up tasks and allotment of the same<br>SB12. Assign tasks to suitable persons<br>SB13. Motivate them for better output and time bound completion of tasks |
| | **Customer Centricity** |
| | SB14. Match customer needs/specification by adjusting the processing conditions (interact with customer in case any clarification required)<br>SB15. Ensure that performance of his action/operation/activity does not lead to any |

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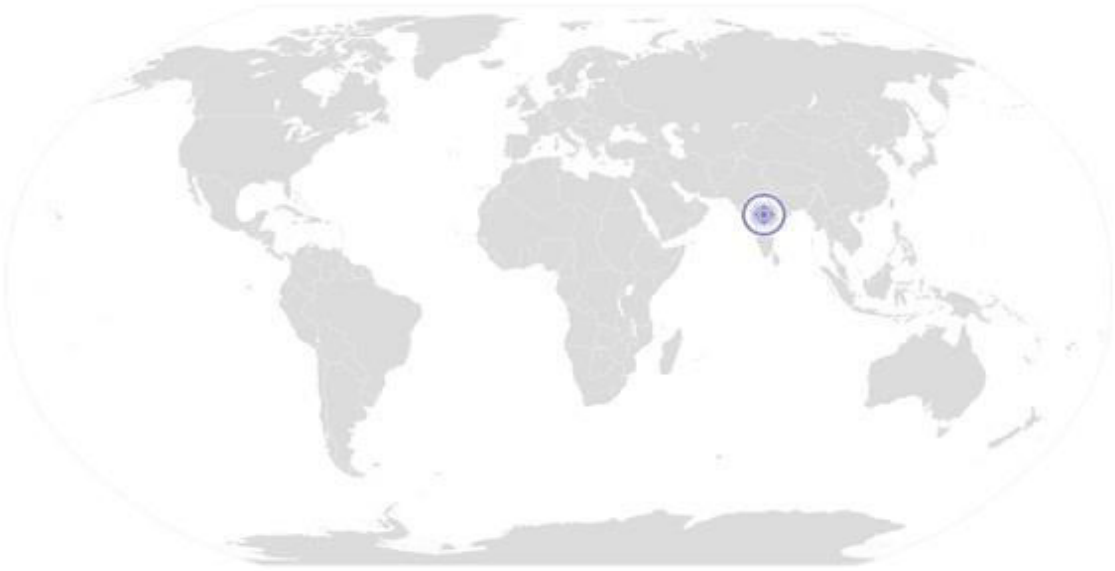
|---|---|
| | divergence from the specified quality of the final product as required by the customer.<br>SB16. Complete the assigned task in timely manner so that the final product is delivered in the timeline given by the customer.<br>SB17. Communicate effectively to the superior/customer for any delay in supplies to the clients.<br>SB18. Work towards fulfilling the customers requirement as per their demand.<br>SB19. In case of any complaint, ensure its timely resolution if the problem is emanating at his level<br>SB20. Communicate effectively to the superior/customer for any delay in resolving the problem faced by the customer.<br>SB21. Maintain good/cordial relation with customers.<br>SB22. Work on the feedback received from customer regarding the product. |
| | **Problem Solving** |
| | SB23. Interpret quality for sheet<br>SB24. Suggest improvements(if any) in process/product/materials based on results and experience |
| | **Analytical Thinking** |
| | SB25. Proper collection of waste material<br>SB26. Identify defects in the material and communicate it at the earliest and suggest improvements(if any) in process/material based on experience |
| | **Critical Thinking** |
| | SB27. Seek clarification on problems from others<br>SB28. Apply problem-solving approaches in different situations<br>SB29. Refer anomalies to the line manager |

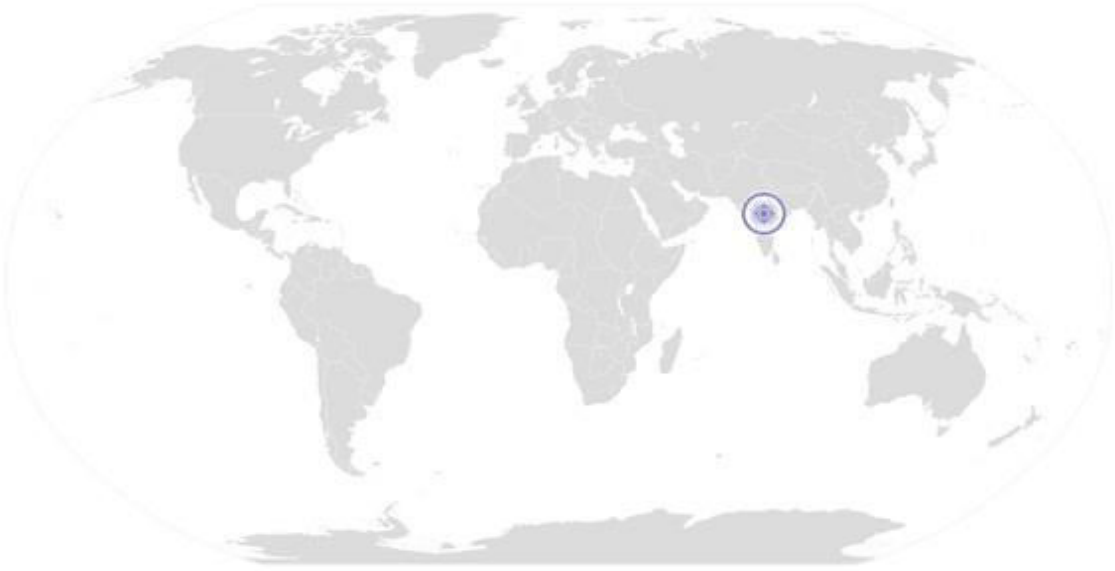
## NOS Version Control

| | | | |
|---|---|---|---|
| **NOS Code** | **RSC/N5004** | | |
| **Credits(NSQF)** | **TBD** | **Version number** | |
| **Industry** | **Rubber Manufacturing** | **Drafted on** | **04/06/2013** |
| **Industry Sub-sector** | **Tyre and Non Tyre** | **Last reviewed on** | **23/08/2017** |
| **Occupation** | **Extrusion** | **Next review date** | **23/08/2021** |



Back to QP

# National Occupational Standard



## Overview

**This unit is about health & safety**

National Occupational Standard

| Unit Code | RSC/N5007 |
|---|---|
| **Unit Title (Task)** | **Carry Out Health & Safety** |
| **Description** | This unit is about maintaining health and safety of self and others at workplace. |
| **Scope** | This unit/task covers the following:<br>• Maintain a clean and efficient workplace<br>• Render appropriate emergency procedures<br>• Maintain standard safety procedures at the workplace<br>• Participate in safety awareness campaigns<br>• Understand potential sources of accidents<br>• Use safety gears to avoid accidents |
| **Performance Criteria (PC)** | |
| **Maintain a clean and efficient workplace** | To be competent, the individual on the job must be able to:<br>PC1. Undertake basic safety checks before operation of all machinery and equipment and report hazards to the appropriate supervisor<br>PC2. Identify the work for which protective clothing or equipment is required and the appropriate protective clothing or equipment is used in performing these duties in accordance with workplace policy.<br>PC3. Read and understand the hazards of use and contamination mentioned on the labels of chemicals, utilities etc<br>PC4. Assess the risk prior to performing manual handling jobs and work is carried out according to currently recommended safe practices.<br>PC5. Use equipment and materials safely and correctly and return the same to designated storage when not in use<br>PC6. Dispose off waste safely and correctly in a designated area<br>PC7. Recognize the risk to bystanders and take action to reduce risk associated with jobs in the workplace<br>PC8. Perform work in a manner which minimizes environmental damage<br>PC9. Monitor closely all procedures and work instructions for controlling risk<br>PC10. Report any accidents, incidents or problems without delay to an appropriate person and take immediate necessary action to reduce further danger. |
| **Render appropriate emergency procedures** | PC11. Follow procedures for dealing with accidents, fires and emergencies, including communicating location and directions to emergency.<br>PC12. Follow emergency procedures as per company standards and workplace requirements.<br>PC13. Use Emergency equipment in accordance with manufacturers' specifications and workplace requirements.<br>PC14. Provide treatment appropriate to the patient's injuries in accordance with recognized first aid techniques.<br>PC15. Recover (if practical), clean, inspect/test, refurbish, replace and store the first |

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| | aid equipment as appropriate<br>PC16. Dispose off medical waste in accordance with workplace requirements<br>PC17. Report details of first aid administered in accordance with work place procedures. |
| **Maintain standard safety procedures at the workplace** | PC18. Comply with general safety procedures<br>PC19. Follow standard safety procedures while handling equipment, hazardous material or tool<br>PC20. Check parts of the workplace and take preventive actions like spraying and other steps to protect from leakages, water logging, pests, fire, pollution, etc.<br>PC21. Ensure no accidents and damages at the workplace, reporting of any breach of company safety procedure<br>PC22. Keep the workplace organized, swept, clean and hazard free |
| **Participate in safety awareness campaigns** | PC23. Attend fire drills and other safety related workshops organized at the workplace<br>PC24. Awareness about first aid, evacuation and emergency procedures<br>PC25. Ensuring all safety procedures are followed without neglecting any event |
| **Understand potential sources of accidents** | PC26. Avoid accidents while using hazardous chemicals, machines, sharp tools and equipment |
| **Use safety gears to avoid accidents** | PC27. Use safety materials such as protective gear, goggles, caps, shoes, etc. (as applicable with workplace)<br>PC28. Handle heavy and hazardous materials with care and using appropriate tools and handling equipment such as trolleys, ladders |
| **Knowledge and Understanding (K)** | |
| **A. Organizational context** | The individual on the job needs to know and understand:<br>KA1. Policies on incentives, delivery standards, and personnel management.<br>KA2. Occupational safety and health policy followed<br>KA3. Emergency evacuation procedure<br>KA4. Medical Policy<br>KA5. Company laws and acts |
| **B. Technical knowledge** | The individual on the job needs to know and understand:<br>KB1. The risks to health and safety and the measures to be taken to control those risks in the area of work<br>KB2. Workplace procedures and requirements for the handling of workplace injuries/illnesses.<br>KB3. Basic emergency first aid procedure<br>KB4. Local emergency services<br>KB5. Reporting on accidents, incidents and problems to appropriate authorities.<br>KB6. How to use machines as per standard operating procedure<br>KB7. How to maintain work area safe and secure |

| | |
|---|---|
| | KB8. Use of hazardous materials, tools and equipments<br>KB9. Emergency evacuation and first aid procedures to be followed<br>KB10. Personal hygiene and fitness requirements<br>KB11. General duties under the relevant health and safety legislation<br>KB12. What personal protective equipment and clothing should be worn and how it is cared for<br>KB13. The correct and safe way to use materials and equipment required for work<br>KB14. The importance of good housekeeping in the workplace<br>KB15. Safe disposal methods for waste<br>KB16. Methods for minimizing environmental damage during work |
| **Skills (S)** | |
| **A. Core Skills/ Generic Skills** | **Writing Skills**<br>The individual on the job needs to know and understand how to:<br>SA1. Record data which are required for record keeping purpose<br>SA2. Report problems to the appropriate person in a timely manner<br>SA3. Write descriptions and details about incidents in reports |
| | **Reading Skills**<br>SA4. Read instruction manuals for hand tools and equipment<br>SA5. Read instructions on work orders and procedures |
| | **Oral Communication**<br>SA6. Receive instructions and seek advice from superiors<br>SA7. Communicate clearly and effectively with others |
| **B. Professional Skills** | **Decision Making**<br>To be competent, the individual must be able to:<br>SB1. Take a decision for any change/issue based on earlier successes(documented previous history)on similar issues<br>SB2. Work out changes in case a new improved machine/equipment is added in the process or any new material/chemical is developed replacing existing one.<br>SB3. Make changes in cycle time due to improved process.<br>SB4. Use the standard operating procedure or trouble shooting manuals for trouble shooting and other reference documents approved by plant management<br>SB5. Consult the peer group and superiors to arrive at a favourable decision.<br>SB6. Use of standard available problem solving techniques for decision making<br>SB7. Review and analyze the process steps to check on system non adherence and non conformity<br>SB8. Review the current SOP and other standards for continuous improvement to facilitate decision making<br>SB9. Take a calculated risk with minimum losses |

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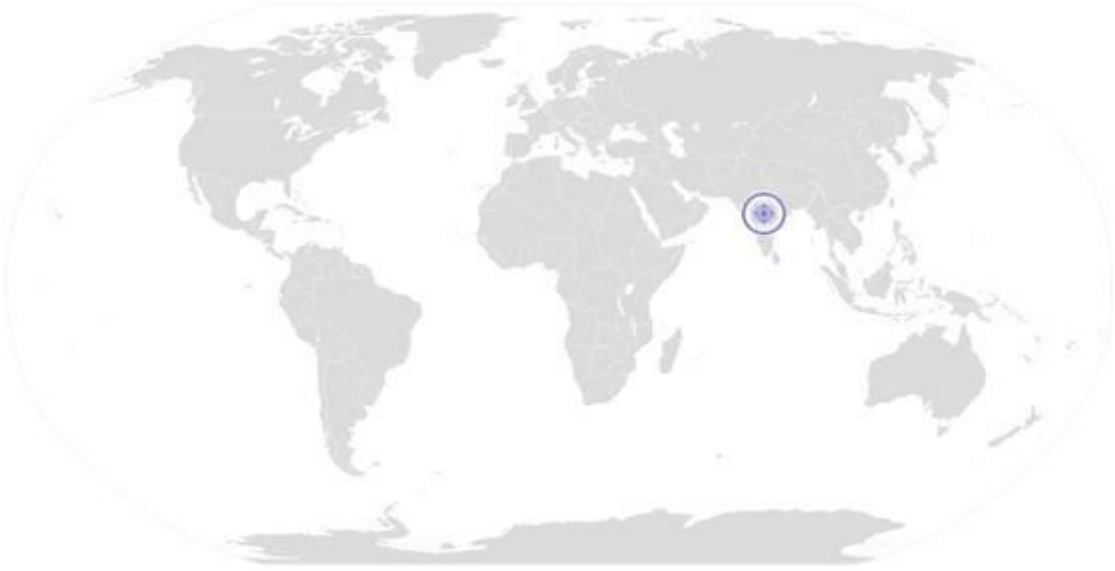
|---|---|
| | **Plan and Organize** |
| | SB10. Schedule daily activities and drawing up priorities; Allocate start times, estimation of completion times and materials, equipment and assistance required for completion. |
| | **Customer Centricity** |
| | SB11. Match customer needs/specification by adjusting the processing conditions (interact with customer in case any clarification required)<br>SB12. Ensure that performance of his action/operation/activity does not lead to any divergence from the specified quality of the final product as required by the customer.<br>SB13. Complete the assigned task in timely manner so that the final product is delivered in the timeline given by the customer.<br>SB14. Communicate effectively to the superior/customer for any delay in supplies to the clients.<br>SB15. Work towards fulfilling the customers requirement as per their demand.<br>SB16. In case of any complaint, ensure its timely resolution if the problem is emanating at his level<br>SB17. Communicate effectively to the superior/customer for any delay in resolving the problem faced by the customer.<br>SB18. Maintain good/cordial relation with customers.<br>SB19. Work on the feedback received from customer regarding the product. |
| | **Problem Solving** |
| | SB20. Use first aid treatment in case of any injury/accident. |
| | **Analytical Thinking** |
| | SB21. Monitor and maintain the condition of tools and equipment<br>SB22. Assess situation & identify appropriate control measures |
| | **Critical Thinking** |
| | SB23. Act, communicate and report in emergency situation |

# NOS Version Control

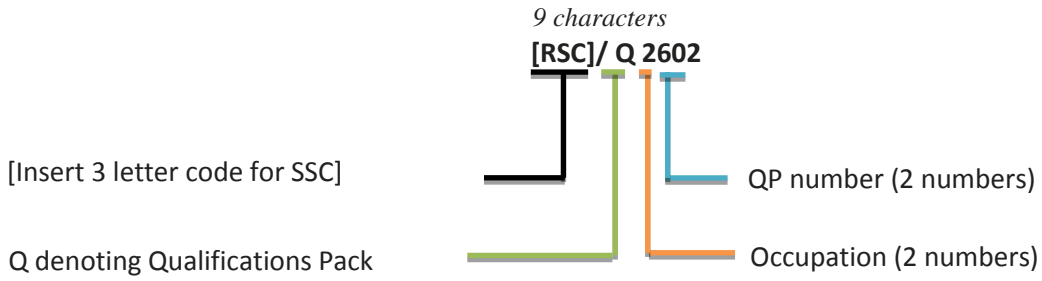
| NOS Code | RSC/N5007 | | |
|---|---|---|---|
| Credits(NSQF) | TBD | Version number | 1.0 |
| Industry | Rubber Manufacturing | Drafted on | 04/06/2013 |
| Industry Sub-sector | Tyre and non-tyre | Last reviewed on | 23/08/2017 |
| Occupation | Extrusion | Next review date | 23/08/2021 |



# Annexure

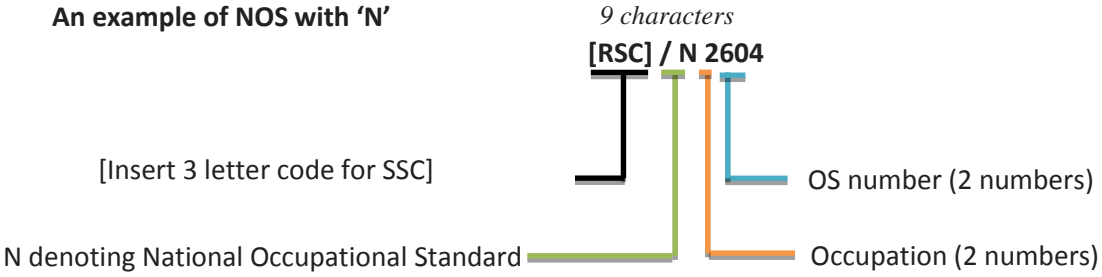
## Nomenclature for QP and NOS

### Qualifications Pack




### Occupational Standard

**An example of NOS with 'N'**

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The following acronyms/codes have been used in the nomenclature above:

| Sub-sector | Range of Occupation numbers |
|---|---|
| **Latex** | **02-34** |
| **Non-tyre** | **12-12** |
| **Rubber Manufacturing** | **28-28** |
| **Tyre** | **02-36** |
| **Tyre & Non -Tyre** | **01-37** |

| Sequence | Description | Example |
|---|---|---|
| **Three letters** | Industry name | [RSC] |
| **Slash** | / | / |
| **Next letter** | Whether **Q**P or NOS | N |
| **Next two numbers** | Occupation code | 26 |
| **Next two numbers** | OS number | 04 |
| | | |

# Criteria For Assessment Of Trainees

**Job Role:** Rubber Tube Extruder Operator
**Qualification Pack Code:** RSC/Q2602
**Sector Skill Council:** Rubber Skill Development Council

## Guidelines for Assessment

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criterion.
6. To pass the Qualification Pack, every trainee should score a minimum of 70% of aggregate marks to successfully clear the assessment.
7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

| Compulsory NOS<br>Total Marks: 700 | | | | Marks Allocation | |
|---|---|---|---|---|---|
| **Assessment outcomes** | **Assessment Criteria for outcomes** | **Total Marks** | **Out Of** | **Theory** | **Skills Practical** |
| **RSC/N2604 Prepare for tube extrusion** | PC1. Ensure that extruder is clean | 100 | 2 | 0 | 2 |
| | PC2. Prepare breakdown, warm up and feed mills | | 4 | 3 | 1 |
| | PC3. Prepare strainer | | 4 | 3 | 1 |
| | PC4. Prepare the feed mill and overhead conveyor for feeding the strip to the extruder. | | 5 | 3 | 2 |
| | PC5. Ensure that the spray pipe for spraying talc powder inside the tube is warm and ready for continuous spraying while extrusion is on | | 2 | 0 | 2 |
| | PC6. Fit the correct die on the extruder head as applicable | | 5 | 3 | 2 |
| | PC7. Set parameters for the extruder (screw speed, temperature, conveyor speed) as per job card | | 7 | 4 | 3 |
| | PC8. Set the cooling line and water flow as per requirements | | 5 | 4 | 1 |
| | PC9. Set the online measurement system as per specifications and tolerances | | 5 | 4 | 1 |
| | PC10. Ensure that vacuum pump is on and reaches the set vacuum level, wherever applicable | | 4 | 2 | 2 |
| | PC11. Follow equipment preparation process as per company requirements | | 4 | 2 | 2 |

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| | PC12. Ensure that no delays are caused as a result of improper preparation and failure to identify problems. | | 4 | 2 | 2 |
| | PC13. Ensure that rubber compound to be fed is approved by laboratory | | 3 | 2 | 1 |
| | PC14. Collect all rubber compound required for the batch | | 3 | 2 | 1 |
| | PC15. Match the batch code of each raw material with the batch code on the job schedule given by the planning department | | 3 | 2 | 1 |
| | PC16. Ensure availability of correct poly valve patches, stripe marker for identifying tube is either NR or Butyl based , paint for tube size marking | | 4 | 3 | 1 |
| | PC17. Ensure that each raw material is in the correct quantity | | 4 | 3 | 1 |
| | PC18. Ensure, by visual inspection, that raw material is of desired quality (free of contamination etc.) | | 4 | 3 | 1 |
| | PC19. Ensure that no delays are caused as a result of improper preparation and failure to identify problems | | 4 | 3 | 1 |
| | PC20. Ensure housekeeping in Tube Extrusion area | | 4 | 3 | 1 |
| | PC21. Inject lubricating oil before staring the operations so as to avoid damage to the extrusion machine. | | 3 | 2 | 1 |
| | PC22. Perform the checks before starting the conveyor belt such as checking for people working on different part of the conveyor belt etc. | | 3 | 2 | 1 |
| | PC23. Ensure that there are no loose clothes around the conveyor belt. | | 3 | 2 | 1 |
| | PC24. Maintain the correct posture while undertaking physical activities such as lifting heavy objects (such as extrudate, if heavy) | | 3 | 2 | 1 |
| | PC25. Ensure that workman wears proper mask to avoid detrimental effects of inhaling rubber fumes. | | 2 | 0 | 2 |
| | PC26. Adhere to all safety norms (like wearing protective gloves, shoes, safety goggles, mask etc | | 3 | 3 | 0 |
| | PC27. Comply with health, safety, environment guidelines, regulations etc in accordance with company procedure | | 3 | 3 | 0 |
| | **Total** | | **100** | **65** | **35** |
| **RSC/N2605 Perform tube extrusion operation** | PC1. Ensure, by visual inspection, that raw material is of desired quality (free of contamination etc.) | 100 | 4 | 3 | 1 |
| | PC2. Ensure that batch size of rubber mix is as per specified quantity | | 4 | 3 | 1 |
| | PC3. Plan batch sequence in shifts based on raw material availability/rejection to maximize output | | 3 | 1 | 2 |
| | PC4. Select the correct compound | | 3 | 1 | 2 |
| | PC5. Feed the extruder with strip of correct dimension | | 3 | 1 | 2 |
| | PC6. Produce product of correct width, thickness and texture (if template has been used) | | 3 | 1 | 2 |
| | PC7. Ensure inside powder application is continuous and uniform | | 3 | 1 | 2 |
| | PC8. Apply stripe marking, tube size stamping, ad valve patch before the tube enters the cooling section using water as coolant | | 3 | 1 | 2 |
| | PC9. Visually inspect the rubber strip to make sure it is free from defects and meets required specifications for further processing. | | 3 | 1 | 2 |
| | PC10. Ensure that the extruded product is free of contamination | | 1 | 0 | 1 |
| | PC11. Allow sufficient maturing time to handle shrinkage | | 3 | 1 | 2 |
| | PC12. Collect the extruded product correctly on the leaf truck/trolley | | 3 | 1 | 2 |

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| | PC13. Ensure that material wastage is within tolerance limits | | 1 | 0 | 1 |
| | PC14. Ensure that no rework or rejection is generated. | | 1 | 0 | 1 |
| | PC15. Match the quality of output to company's product requirements | | 2 | 1 | 1 |
| | PC16. Use the right quantity and quality of material required for product | | 3 | 1 | 2 |
| | PC17. Meet production quantity targets set for the operation | | 3 | 1 | 2 |
| | PC18. Follow work instructions as laid down by the company | | 2 | 1 | 1 |
| | PC19. Handover the equipment to the next operator in clean and good condition | | 3 | 1 | 2 |
| | PC20. Send the remaining material to the designated storage area. | | 3 | 1 | 2 |
| | PC21. Dispose off waste material as per waste disposal procedures laid down by the company | | 4 | 3 | 1 |
| | PC22. Carry out disposal of waste material safely | | 4 | 3 | 1 |
| | PC23. Ensure identification and traceability by batch marking/coding for the right product as per the instructions laid down by the company (in terms of batch number, weight, color and date stamp). | | 4 | 3 | 1 |
| | PC24. Send samples in specified form for testing. | | 4 | 3 | 1 |
| | PC25. Perform the checks before starting the conveyor belt such as checking for people working on different part of the conveyor belt etc. | | 3 | 2 | 1 |
| | PC26. Handle the moving parts like the conveyor belts, the feed inlet and discharge port, belts, gears and other rotating parts when the machine is running | | 3 | 2 | 1 |
| | PC27. Operate the conveyor belt within the speed limit at all times and always be aware of the upper limit | | 3 | 2 | 1 |
| | PC28. Ensure that there are no loose clothes around the conveyor belt. | | 3 | 2 | 1 |
| | PC29. Maintain protocol while the machine is in operation, like never reaching over the machine or machine guard to the point of operation | | 3 | 2 | 1 |
| | PC30. Handle the hot extrudate properly using hand gloves and other safety equipment | | 3 | 2 | 1 |
| | PC31. Maintain the correct posture while undertaking physical activities such as lifting heavy objects (such as extrudate, if heavy) | | 3 | 2 | 1 |
| | PC32. Ensure that he wears proper mask to avoid detrimental effects of inhaling rubber fumes. | | 3 | 2 | 1 |
| | PC33. Adhere to all safety norms (like wearing protective gloves, shoes etc. | | 3 | 3 | 0 |
| | PC34. Comply with health, safety, environment guidelines, regulations etc in accordance with company procedure | | 3 | 3 | 0 |
| | **Total** | | **100** | **55** | **45** |
| **RSC/N2606 Perform tube cutting operation_v2** | PC1. Ensure the functioning of the cutting machine (auto cutters or scissors). | 100 | 3 | 2 | 1 |
| | PC2. Ensure that the tools are clean and well sharpened. | | 3 | 2 | 1 |
| | PC3. Set length of mechanical / electronic device of the auto cutting device to cut the tube at the desired length | | 3 | 2 | 1 |
| | PC4. For Manual cutting provide long scales with markings for specified lengths | | 4 | 3 | 1 |
| | PC5. Place the hand tools on a safe location. | | 4 | 3 | 1 |

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| | PC6. Ensure that the tube has the required booking temperature ( adequate cooling on cooling water tanks ) to reduce cutting variation | | 1 | 0 | 1 |
| | PC7, Green tubes availability are dependent on the extruder schedule if it is on line cutting. Off line cutting requires ,ensuring availability | | 5 | 3 | 2 |
| | PC8. Ensure all the required cutting length specifications are available | | 2 | 0 | 2 |
| | PC9. Ensure that green tubes to be cut is approved that is QA/QC certified and usable | | 2 | 0 | 2 |
| | PC10. Check the availability of all tubes of different sizes with reference to the job schedule. ( In case of tube length resizing ) | | 6 | 3 | 3 |
| | PC11. Marking for cutting lengths of the tubes using a long scale for required specification in case of manual cutting device in use | | 6 | 3 | 3 |
| | PC12. Setting the length sensors /electronic device for specified length cutting | | 6 | 3 | 3 |
| | PC13. As specified by the Technical, undertake green tube cutting (through manual or automatic cutting device) at the extruder and then cut extruded tubes to length before they are booked in books / tray Trolleys | | 6 | 3 | 3 |
| | PC14. Understanding the needed allowance for shrinkage while cutting the tubes at extruders | | 6 | 4 | 2 |
| | PC15. Understanding proper dwell time in cooling tank to ensure uniform shrinkage of cut tubes lengths | | 6 | 4 | 2 |
| | PC16. Ensure that the cutting length is close to the specified length | | 3 | 0 | 3 |
| | PC17. Ensure that the tubes are cut to specification to minimize the losses and reduce work away tube cut ends | | 3 | 0 | 3 |
| | PC18. Carry out fine tuning of cut tube lengths done after ageing just before splicing operation done at splicer area | | 3 | 0 | 3 |
| | PC19. Arrange to get all the pieces of scrap tube cut ends collected in a container for rework/reuse at the extruders /mixers | | 5 | 3 | 2 |
| | PC20. Clean tools and keep the tools at designated place after the completion of cutting operation. | | 5 | 3 | 2 |
| | PC21. Report any problem/repair and maintenance requirement for cutting device to the supervisor | | 3 | 2 | 1 |
| | PC22. Dispose of waste material safely, as per organizational SOP. | | 5 | 4 | 1 |
| | PC23. Handle the tubes using hand gloves and other safety equipment. | | 3 | 2 | 1 |
| | PC24. Ensure the use of certified/tested cutting hand tools and machine and check their functioning. | | 3 | 2 | 1 |
| | PC25. Adhere to all safety norms (such as wearing protective gloves, masks and shoes). | | 2 | 2 | 0 |
| | PC26. Comply with health, safety, environment guidelines and regulations in accordance with international/national standards or the organizational standards. | | 2 | 2 | 0 |
| | **Total** | | **100** | **55** | **45** |
| **RSC/N2607 Perform tube mandrelling and demandrelling operation** | PC1. Arrange all the tools required for tube mandrelling and demandrelling | 100 | 4 | 3 | 1 |
| | PC2. Ensure the availability of Aluminum tubes | | 4 | 3 | 1 |
| | PC3. Availability of pot heater with required services like steam at the required pressure, the automatic timers | | 4 | 3 | 1 |
| | PC4. The stands for holding the tubes and mandrel assembly suitably for pot heater curing | | 4 | 3 | 1 |

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| | PC5. Ensure the availability of tubes as per the schedule | | 4 | 3 | 1 |
| | PC6. Ensure availability of valve patches | | 4 | 3 | 1 |
| | PC7. Ensure availability of specified lab released adhesive cement | | 4 | 3 | 1 |
| | PC8. Ensure availability of valves , cores and the tightening nuts for valve assembly | | 3 | 2 | 1 |
| | PC9. Clean the Aluminum tube surface | | 3 | 1 | 2 |
| | PC10. Insert the Aluminum tube on the extruded green tube, taking care of avoiding damaging the tube | | 3 | 1 | 2 |
| | PC11. Apply valve patch at 8 inches away from the open end | | 3 | 1 | 2 |
| | PC12. Arrange the green tubes with mandrels on the stand for curing in pot heater | | 3 | 1 | 2 |
| | PC13. Place the stands with the green tubes and mandrels in the pot heater | | 3 | 1 | 2 |
| | PC14. Close the pot heater and switch on steam for curing | | 3 | 1 | 2 |
| | PC15. Stop curing after specified curing time (follow SOP) | | 3 | 1 | 2 |
| | PC16. Remove the stand from pot heater after the specified time of curing | | 3 | 1 | 2 |
| | PC17. Send the wastage to the appropriate place for disposal | | 1 | 0 | 1 |
| | PC18. Report any problem related to tube and mandrel to the Supervisor | | 3 | 2 | 1 |
| | PC19. Once the Pot heater curing is over and the tubes are cold, remove the Aluminum mandrels by rolling the rubber tubes | | 3 | 1 | 2 |
| | PC20. The rubber tube thus removed from the mandrel will be inside out and the valve patch will be on the inner side | | 3 | 1 | 2 |
| | PC21. Make the valve punch hole on the cured tube where the valve patch was applied | | 3 | 1 | 2 |
| | PC22. Ensure the punching is done only at the applied patch area and does not damage other side of the tube | | 2 | 0 | 2 |
| | PC23. Fix the brass valve with required rubber gum and tighten it with the nuts provided | | 3 | 1 | 2 |
| | PC24. Buff the 0.5 inch edges of the tube ends with the specified buffer | | 3 | 1 | 2 |
| | PC25. Apply cement and ensure the ends are joined ( overlapped ) and stitched | | 3 | 1 | 2 |
| | PC26. Join the ends properly | | 3 | 1 | 2 |
| | PC27. Press it evenly to ensure that the joint is free of any air trap | | 4 | 2 | 2 |
| | PC28. Send the wastage to the appropriate place for disposal | | 2 | 2 | 0 |
| | PC29. Adhere to all safety norms (such as wearing protective gloves and masks, etc) | | 4 | 3 | 1 |
| | PC30. Ensure the use of certified/tested tools and check their functioning. | | 4 | 4 | 0 |
| | PC31. Comply with health, safety, environment guidelines and regulations in accordance with international/national standards or the organizational standards. | | 4 | 4 | 0 |
| | **Total** | | **100** | **55** | **45** |
| **RSC/N2608 Perform tube valve Application** | PC1. Ensure the availability of all required tools for valve application on green tubes | 100 | 5 | 3 | 2 |
| | PC2. Ensure that the tools are clean and well maintained. | | 5 | 3 | 2 |

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| | PC3. Ensure the proper functioning of mechanical punching device | | 5 | 3 | 2 |
| | PC4. Place the tools on a safe location. | | 5 | 3 | 2 |
| | PC5. Ensure that the green tubes, valves and cement to be used are approved/released as OK to use by the lab. | | 2 | 0 | 2 |
| | PC6. Check the availability of green tubes, valves and cement with reference to the given job schedule | | 3 | 3 | 0 |
| | PC7. Check that the valves rubber base are duly painted with specified rubber adhesives and aged in oven for specified time | | 3 | 3 | 0 |
| | PC8. Check the cleanliness of the valve base before applying the cement and use solvent to freshen it | | 4 | 4 | 0 |
| | PC9. Ensure that the painted valve rubber base is free of any foreign material which may hamper adhesion of valve to tubes | | 3 | 0 | 3 |
| | PC10. Ensure valve rubber base is clean and apply the specified cement Keep cemented rubberized valves in pin trays with rubber surface in the up direction. | | 1 | 0 | 1 |
| | PC11. Keep the cemented valves for warming in an oven for specified time as directed by the technical | | 2 | 2 | 0 |
| | PC12. Insert a thick cardboard or wooden strip on the valve patch side and position is just below the valve patch | | 3 | 1 | 2 |
| | PC13. Make a hole with a mechanical punching device on the valve patch area which is identifiable by the polyethylene patch ( wooden strip protects the punch make a hole on the valve patch area only ) | | 3 | 1 | 2 |
| | PC14. Remove the cardboard /wooden strip , | | 3 | 1 | 2 |
| | PC15. Remove the polyethylene patch ensuring that the area from where patch is removed is free of talc or any foreign matter | | 3 | 1 | 2 |
| | PC16. Remove cemented valve pin tray | | 3 | 1 | 2 |
| | PC17. Place the valve rubber base on the valve patch area ensuring the valve base hole is centered and exactly on the punched hole in the valve patch area | | 3 | 1 | 2 |
| | PC18. Avoid contamination which could result in loss of adhesion by not allowing to touch the cemented valve base area | | 2 | 1 | 1 |
| | PC19. After the valve patch is set in position, apply pressure on the valve rubber face to get good green adhesion between green tube and valve base | | 3 | 1 | 2 |
| | PC20. Use mechanical device to make the cemented valve sticks to tube firmly | | 3 | 1 | 2 |
| | PC21. Clean tools and keep the tools at designated place after the completion of valve application. | | 3 | 1 | 2 |
| | PC22. Organize to send the Green tubes with valves in place for splicing | | 3 | 1 | 2 |
| | PC23. Get the polyethylene valve patches removed from tubes collected in the designated waste bins | | 3 | 1 | 2 |
| | PC24. Report any issue w.r.t the material and tools to the Supervisor | | 3 | 1 | 2 |
| | PC25. Get the left over cemented valves in the designated place for use at a later date | | 3 | 1 | 2 |
| | PC26. Dispose of waste material safely, as per organizational SOP. | | 5 | 3 | 2 |
| | PC27. Proper handling of heating ovens, cement cans and tools to avoid any injury/accident | | 5 | 4 | 1 |
| | PC28. Handle the material using hand gloves and other safety equipment. | | 5 | 4 | 1 |

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| | PC29. Adhere to all safety norms (such as wearing protective gloves and shoes, safety mask etc) | | 3 | 3 | 0 |
| | PC30. Comply with health, safety, environment guidelines and regulations in accordance with international/national standards or the organizational standards. | | 3 | 3 | 0 |
| | | | 100 | 55 | 45 |
| **RSC/N2609 Perform tube splicing activity_v2** | PC1. Ensure proper functioning of the splice | 100 | 4 | 1 | 3 |
| | PC2. Ensure that the tools are clean and well sharpened. | | 2 | 1 | 1 |
| | PC3. Ensure cleanliness and maintenance of splicer | | 4 | 1 | 3 |
| | PC4. Set the splicer as per the machine set up specifications | | 4 | 3 | 1 |
| | PC5. Check that the temperature and pressure setting are OK before commencing the splice operation | | 4 | 3 | 1 |
| | PC6. Check the temperature on knives on the splicer | | 4 | 3 | 1 |
| | PC7. Ensure that tubes to be spliced are QA/QC certified and usable. | | 5 | 3 | 2 |
| | PC8. Check the availability of tubes with reference to the job schedule. | | 4 | 3 | 1 |
| | PC9. Ensure availability of cement for application on tube splice joints | | 4 | 3 | 1 |
| | PC10. Check the width of tubes to be spliced against specification | | 4 | 1 | 3 |
| | PC11. Make a trial joint on tubes and check the splice for weak spots, open joints and dog ears | | 4 | 1 | 3 |
| | PC12. Recheck the machine set points, adjust if not OK, perform the clamps conduct checks again and commence continuous splicing once splice is of good quality. | | 4 | 1 | 3 |
| | PC13. If the splice is NOT OK still call supervisor and engineering for support and adjustment of machine set points - Manage the rubberized clamps in order of tube sizes | | 3 | 1 | 2 |
| | PC14. Inform the supervisor about the poor/worn out or damaged rubberized clamps | | 3 | 1 | 2 |
| | PC15. Ensure that the splicer temperature and pressure settings are as per the settings provided by technical | | 3 | 1 | 2 |
| | PC16. Apply specified cement at the ends where dog ear usually appears | | 3 | 1 | 2 |
| | PC17. Inspect tube splice quality and find possible solutions in case of poor quality | | 3 | 1 | 2 |
| | PC18. Clean tools and keep the tools at designated place after the completion of splicing operation. | | 3 | 1 | 2 |
| | PC19. Arrange to get all the pieces of scrap tube and or cut ends collected in a container for rework /reuse | | 3 | 1 | 2 |
| | PC20. Report any problem/repair and maintenance requirement for splicer and other tools to the supervisor | | 3 | 1 | 2 |
| | PC21. Dispose off waste as per the organization SOP | | 7 | 5 | 2 |
| | PC22. Ensure the use of certified/tested hand tools | | 6 | 4 | 2 |
| | PC23. Proper handling of splicer's hot cutting blades | | 5 | 4 | 1 |
| | PC24. Handle the tubes using hand gloves and other safety equipment. | | 5 | 4 | 1 |
| | PC25. Adhere to all safety norms (such as wearing protective gloves, masks and shoes, etc) | | 3 | 3 | 0 |
| | PC26. Comply with health, safety, environment guidelines and regulations in accordance with international/national standards or the | | 3 | 3 | 0 |

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| | organizational standards. | | | | |
| | **Total** | | **100** | **55** | **45** |
| **RSC/N2610 Perform Tube Curing Operation_v2** | PC1. Ensure that the curing press is clean and ready to use. | 100 | 2 | 1 | 1 |
| | PC2. Ensure that the tools required for curing operation are ready. | | 2 | 1 | 1 |
| | PC3. Keep all the accessories (like cooling water, hydraulic system, temperature control unit (TCU), lubrication system) ready | | 3 | 1 | 2 |
| | PC4. Set parameters for the equipment (cycle time, temperature, energy and pressure) as per company's SOP | | 3 | 1 | 2 |
| | PC5. Check the operational status of press timer | | 3 | 1 | 2 |
| | PC6. Ensure that the press is ready for curing with temperature settings ( specified vs. actual are within the tolerance) | | 3 | 2 | 1 |
| | PC7. Ensure that the shaping rings are available near the curing presses | | 5 | 4 | 1 |
| | PC8. Check that the air pressure line for shaping is on | | 6 | 4 | 2 |
| | PC9. Ensure the availability of tubes for the required curing operation as per specification | | 3 | 0 | 3 |
| | PC10. Check that tube is properly spliced and ready for curing | | 6 | 4 | 2 |
| | PC11. Pre-shape the tube before curing | | 6 | 4 | 2 |
| | PC12. Curing process to be strictly followed as per instructions /SOP | | 6 | 4 | 2 |
| | PC13. Ensure correct spliced tube is placed in curing press | | 6 | 4 | 2 |
| | PC14. Keep a close watch on timer setting and steam generation during curing process | | 5 | 3 | 2 |
| | PC15. Ensure that the dimension requirement are met while shaping | | 5 | 3 | 2 |
| | PC16. Note down the tube blemishes and take corrective action | | 5 | 3 | 2 |
| | PC17. Ensure the use of certified equipments during curing operation | | 4 | 3 | 1 |
| | PC18. Proper safety and maintenance of press | | 4 | 3 | 1 |
| | PC19. Awareness of steam leakages in work area | | 4 | 3 | 1 |
| | PC20. Handle the material using hand gloves and other safety equipment as directed by organizations safety department | | 4 | 3 | 1 |
| | PC21. Adhere to all safety norms (such as wearing protective gloves, masks and shoes) | | 4 | 4 | 0 |
| | PC22. Carry out all activities safely and correctly, and in a manner that does not cause risk of injury to himself or others, or damage to components and equipment | | 4 | 3 | 1 |
| | PC23. Comply with health, safety, environment guidelines and regulations in accordance with international/national standards or the organizational standards. | | 4 | 3 | 1 |
| | PC24. Follow the guidance of safety department to contain spillages which may affect the health and safety of self or the environment in the curing area | | 3 | 3 | 0 |
| | | | 100 | 65 | 35 |
| **RSC/N2611 Perform Post Tube Curing Activities_v2** | PC1. Draw sample for lab testing and release. | 100 | 10 | 7 | 3 |
| | PC2. Arrange to send the OK tube for inspection and finishing | | 10 | 7 | 3 |
| | PC3. Stack rejected tubes in designated area for technical team to review and dispose | | 10 | 7 | 3 |
| | PC4. Report the repair and maintenance requirement to the Supervisor | | 10 | 7 | 3 |

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| | PC5. Dispose of waste material safely, as per organizational SOP | | 10 | 7 | 3 |
| | PC6. Ensure identification and traceability by batch marking/coding for the product as per the instructions laid down by the company. | | 10 | 7 | 3 |
| | PC7. Send sample of the prepared product in the specified sample size and method as directed by the company | | 10 | 7 | 3 |
| | PC8. Handle the prepared product using hand gloves and other safety equipment. | | 10 | 7 | 3 |
| | PC9. Adhere to all safety norms (such as wearing protective gloves, shoes, safety masks etc). | | 10 | 7 | 3 |
| | PC10. Comply with health, safety, environment guidelines and regulations in accordance with international/national standards or the organizational standards. | | 10 | 7 | 3 |
| | **Total** | | **100** | **70** | **30** |
| **RSC/N5001 Carry out housekeeping in rubber product manufacturing** | PC1. Inspect the area while taking into account various surfaces | 100 | 3 | 3 | 0 |
| | PC2. Identify the material requirements for cleaning the areas inspected, by considering risk, time, efficiency and type of stain | | 3 | 3 | 0 |
| | PC3. Ensure that the cleaning equipment is in proper working condition | | 3 | 3 | 0 |
| | PC4. Select the suitable alternatives for cleaning the areas in case the appropriate equipment and materials are not available and inform the appropriate person | | 3 | 3 | 0 |
| | PC5. Plan the sequence for cleaning the area to avoid re-soiling clean areas and surfaces | | 3 | 3 | 0 |
| | PC6. Inform the affected people about the cleaning activity | | 2 | 2 | 0 |
| | PC7. Display the appropriate signage for the work being conducted | | 3 | 3 | 0 |
| | PC8. Ensure that there is adequate ventilation for the work being carried out | | 3 | 3 | 0 |
| | PC9. Wear the personal protective equipment required for the cleaning method and materials being used | | 3 | 3 | 0 |
| | PC10. Use the correct cleaning method for the work area, type of soiling and surface | | 3 | 3 | 0 |
| | PC11. Carry out cleaning activity without disturbing others | | 3 | 3 | 0 |
| | PC12. Deal with accidental damage, if any, caused while carrying out the work | | 3 | 3 | 0 |
| | PC13. Report to the appropriate person any difficulties in carrying out your work | | 3 | 3 | 0 |
| | PC14. Identify and report to the appropriate person any additional cleaning required that is outside one's responsibility or skill | | 3 | 3 | 0 |
| | PC15. Ensure that there is no oily substance on the floor to avoid slippage | | 9 | 3 | 6 |
| | PC16. Ensure that no scrap material is lying around | | 9 | 3 | 6 |
| | PC17. Maintain and store housekeeping equipment and supplies | | 3 | 3 | 0 |
| | PC18. Follow workplace procedures to deal with any accidental damage caused during the cleaning process | | 3 | 3 | 0 |
| | PC19. Ensure that, on completion of the work, the area is left clean and dry and meets requirements | | 8 | 2 | 6 |
| | PC20. Return the equipment, materials and personal protective equipment that were used to the right places making sure they are clean, safe and securely stored | | 3 | 3 | 0 |

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| | PC21. Dispose the waste garnered from the activity in an appropriate manner | | 9 | 3 | 6 |
| | PC22. Dispose of used and un-used solutions according to manufacturer's instructions, and clean the equipment thoroughly | | 9 | 3 | 6 |
| | PC23. Maintain schedules and records for housekeeping duty | | 3 | 3 | 0 |
| | PC24. Replenish any necessary supplies or consumables | | 3 | 3 | 0 |
| | **Total** | | **100** | **70** | **30** |
| **RSC/N5002 Carry Out Reporting And Documentation** | PC1. Report data/problems/incidents as applicable in a timely manner | | 12 | 8 | 4 |
| | PC2. Report to the appropriate authority as laid down by the company | | 12 | 8 | 4 |
| | PC3. Follow reporting procedures as prescribed by the company | | 12 | 8 | 4 |
| | PC4. Identify documentation to be completed relating to one's role | | 10 | 6 | 4 |
| | PC5. Record details accurately an appropriate format | | 16 | 6 | 10 |
| | PC6. Complete all documentation within stipulated time according to company procedure | | 14 | 4 | 10 |
| | PC7. Ensure that the final document meets with the requirements of the persons who requested it or make any amendments accordingly | | 6 | 4 | 2 |
| | PC8. Make sure documents are available to all appropriate authorities to inspect | | 6 | 4 | 2 |
| | PC9. Respond to requests for information in an appropriate manner whilst following organizational procedures | | 6 | 6 | 0 |
| | PC10. Inform the appropriate authority of requests for information received | | 6 | 6 | 0 |
| | **Total** | | **100** | **60** | **40** |
| **RSC/N5003 Carry Out Quality Checks** | PC1. Ensure that total range of checks are regularly and consistently performed | 100 | 24 | 10 | 14 |
| | PC2. Use appropriate measuring instruments, equipment, tools, accessories etc ,as required | | 24 | 10 | 14 |
| | PC3. Identify non-conformities to quality assurance standards | | 6 | 4 | 2 |
| | PC4. Identify potential causes of non-conformities to quality assurance standards | | 5 | 3 | 2 |
| | PC5. Identify impact on final product due to non-conformance to company standards | | 5 | 3 | 2 |
| | PC6. Evaluating the need for action to ensure that problems do not recur | | 6 | 4 | 2 |
| | PC7. Suggest corrective action to address problem | | 5 | 3 | 2 |
| | PC8. Review effectiveness of corrective action | | 5 | 3 | 2 |
| | PC9. Interpret the results of the quality check correctly | | 4 | 4 | 0 |
| | PC10. Take up results of the findings with QC in charge/appropriate authority. | | 3 | 3 | 0 |
| | PC11. Take up the results of the findings within stipulated time | | 3 | 3 | 0 |
| | PC12. Record of results of action taken | | 3 | 3 | 0 |
| | PC13. Record adjustments not covered by established procedures for future reference | | 3 | 3 | 0 |
| | PC14. Review effectiveness of action taken | | 2 | 2 | 0 |
| | PC15. Follow reporting procedures where the cause of defect cannot be identified | | 2 | 2 | 0 |
| | **Total** | | **100** | **60** | **40** |

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| **RSC/N5004 Carry Out Problem Identification And Escalation** | PC1. Identify defects/indicators of problems | 100 | 7 | 4 | 3 |
| | PC2. Identify any wrong practices that may lead to problems | | 6 | 3 | 3 |
| | PC3. Identify practices that may impact the final product quality | | 6 | 3 | 3 |
| | PC4. Identify if the problem has occurred before | | 5 | 3 | 2 |
| | PC5. Identify other operations that might be impacted by the problem | | 6 | 4 | 2 |
| | PC6. Ensure that no delays are caused as a result of failure to escalate problems | | 5 | 3 | 2 |
| | PC7. Take appropriate materials and sample, conduct tests and evaluate results to establish reasons to confirm suspected reasons for non-conformance (where required) | | 8 | 5 | 3 |
| | PC8. Consider possible reasons for identification of problems | | 8 | 5 | 3 |
| | PC9. Consider applicable corrections and formulate corrective action | | 3 | 3 | 0 |
| | PC10. Formulate action in a timely manner | | 3 | 3 | 0 |
| | PC11. Communicate problem/remedial action to appropriate parties | | 7 | 5 | 2 |
| | PC12. Take corrective action in a timely manner | | 2 | 2 | 0 |
| | PC13. Take corrective action for problems identified according to the company procedures | | 2 | 2 | 0 |
| | PC14. Report/document problem and corrective action in an appropriate manner | | 8 | 5 | 3 |
| | PC15. Monitor corrective action | | 2 | 2 | 0 |
| | PC16. Evaluate implementation of corrective action taken to determine if the problem has been resolved | | 2 | 2 | 0 |
| | PC17. Ensure that corrective action selected is viable and practical | | 2 | 2 | 0 |
| | PC18. Ensure that correct solution is identified to an identified problem | | 2 | 2 | 0 |
| | PC19. Take corrective action for problems identified according to the company procedures | | 1 | 1 | 0 |
| | PC20. Ensure that no delays are caused as a result of failure to take necessary action | | 1 | 1 | 0 |
| | PC21. Escalate problem as per laid down escalation matrix | | 4 | 3 | 1 |
| | PC22. Escalate the problem within stipulated time | | 4 | 3 | 1 |
| | PC23. Escalate the problem in an appropriate manner | | 3 | 2 | 1 |
| | PC24. Ensure that no delays are caused as a result of failure to escalate problems | | 3 | 2 | 1 |
| | **Total** | | **100** | **70** | **30** |
| **RSC/N5007 Carry out health and safety** | PC1. Undertake basic safety checks before operation of all machinery and equipment and report hazards to the appropriate supervisor | **100** | 6 | 4 | 2 |
| | PC2. Work for which protective clothing or equipment is required is identified and the appropriate protective clothing or equipment is used in performing these duties in accordance with workplace policy. | | 6 | 4 | 2 |
| | PC3. Read and understand the hazards of use and contamination mentioned on the labels of chemicals, utilities etc | | 0 | 0 | 0 |
| | PC4. Prior to performing manual handling jobs, risk is assessed and work is carried out according to currently recommended safe practices. | | 6 | 4 | 2 |
| | PC5. Use equipment and materials safely and correctly and return the same to designated storage when not in use | | 3 | 2 | 1 |

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|---|---|---|---|---|---|
| | PC6.Dispose off waste safely and correctly in a designated area | | 6 | 4 | 2 |
| | PC7. Risks to bystanders are recognized and action taken to reduce risk associated with jobs in the workplace | | 0 | 0 | 0 |
| | PC8. Perform work in a manner which minimizes environmental damage | | 0 | 0 | 0 |
| | PC9. All procedures and work instructions for controlling risk are followed closely. | | 0 | 0 | 0 |
| | PC10. Report any accidents, incidents or problems without delay to an appropriate person and take immediate necessary action to reduce further danger. | | 0 | 0 | 0 |
| | PC11.Follow procedures for dealing with accidents, fires and emergencies, including communicating location and directions to emergency. | | 6 | 4 | 2 |
| | PC12.Follow emergency procedures as per company standards and workplace requirements. | | 8 | 5 | 3 |
| | PC13.Use Emergency equipment in accordance with manufacturers' specifications and workplace requirements. | | 8 | 5 | 3 |
| | PC14. Provide treatment appropriate to the patient's injuries in accordance with recognized first aid techniques. | | 0 | 0 | 0 |
| | PC15. Recover (if practical), clean, inspect/test, refurbish, replace and store the first aid equipment as appropriate | | 0 | 0 | 0 |
| | PC16. Dispose off medical waste in accordance with workplace requirements | | 0 | 0 | 0 |
| | PC17.Report details of first aid administered in accordance with work place procedures. | | 7 | 4 | 3 |
| | PC18. Comply with general safety procedures | | 8 | 4 | 4 |
| | PC 19. Follow standard safety procedures while handling equipment, hazardous material or tool | | 0 | 0 | 0 |
| | PC20. Check parts of the workplace and take preventive actions like spraying and other steps to protect from leakages, water logging, pests, fire, pollution, etc. | | 8 | 5 | 3 |
| | PC21. Ensure no accidents and damages at the workplace, reporting of any breach of company safety procedure | | 0 | 0 | 0 |
| | PC22. Keep the workplace organized, swept, clean and hazard free | | 8 | 5 | 3 |
| | PC23. Attend fire drills and other safety related workshops organized at the workplace | | 4 | 2 | 2 |
| | PC24. Be aware of first aid, evacuation and emergency procedures | | 4 | 2 | 2 |
| | PC25. Be alert of any events and do not be negligent to any safety procedures to be followed | | 0 | 0 | 0 |
| | PC26. Avoid accidents while using hazardous chemicals, machines, sharp tools and equipment | | 4 | 2 | 2 |
| | PC27.Use safety materials such as protective gear, goggles, caps, shoes, etc.(as applicable with workplace) | | 4 | 2 | 2 |
| | PC28. Handle heavy and hazardous materials with care and using appropriate tools and handling equipment such as trolleys, ladders | | 4 | 2 | 2 |
| | **Total** | | **100** | **60** | **40** |