RCPSDC
Rubber, Chemical & Petrochemical Skill Development Council

सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP

Qualification Pack

N·S·D·C
National Skill Development Corporation
Transforming the skill landscape

Machine Operator Assistant Injection Moulding

QP Code: RSC/Q4501

Version: 1.0

NSQF Level: 3

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Contents

RSC/Q4501: Machine Operator Assistant Injection Moulding

Brief Job Description

The individual at work, assists in setting up and in operation of the Injection moulding machine to produce good quality products for different applications from Plastics materials

Personal Attributes

This job requires the basic communication, basic numerical & computational abilities for the individuals to work under close supervion. The Junior operator is expected to be able to work in a factory environment and have the ability to work in standing position for long hours.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. RSC/N4101: Maintain basic health and safety practices at the workplace, 5S
2. RSC/N4501: Understand basic concept, job requirements and basics know how related to the Injection moulding process
3. RSC/N4502: Assit in performing the Injection molding related operations, monitor process parameters and troubleshoot the process/product if any under the guidance of operator
4. RSC/N4503: Conduct basic quality checks of the finished products with reference to the approved product
5. RSC/N4504: Basics of computer and data entry in MS OFFICE/office Open source suite Software

Qualification Pack (QP) Parameters

Sector	Rubber
Sub-Sector	Manufacturing / Plastics Processing
Occupation	Injection Moulding
Country	India
NSQF Level	3
Aligned to NCO/ISCO/ISIC Code	NIL

Minimum Educational Qualification & Experience	8th Class
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 Years
Last Reviewed On	26/12/2016
Next Review Date	31/12/2024
NSQC Approval Date	21/07/2016
Version	1.0
Reference code on NQR	2019/CP/CIPET/02889
NQR Version	1.0

Remarks:

Rubber SSC QP-NOS and CIPET qualification codes mapping. QP: RSC/Q4501 (CPC/Q0203)NOS: RSC/N4501(CPC/N0214), RSC/N4502(CPC/N0215), RSC/N4503(CPC/N0216), RSC/N4101(CPC/N0411), RSC/N4504(CPC/N0219)

RSC/N4101: Maintain basic health and safety practices at the workplace, 5S

Description

This OS unit is about knowledge and practices relating to health, safety and security that candidates need to use in the workplace. It covers responsibilities towards self, others, assets and the environment. It includes understanding of risks & hazards in the workplace, along with common techniques to minimize risk, deal with accidents, emergencies etc. It covers knowledge of fire safety, common first aid applications and safe practice. This OS is about ensuring all 5S activities both at the shop floor and the office area to facilitate increase in work productivity.

Scope

The role holder will be responsible for

Elements and Performance Criteria

Health and safety

To be competent, the user/individual on the job must be able to:

PC1. wear protective clothing/equipment for specific tasks and work conditions

PC2. carry out safe working practices while dealing with hazards to ensure the safety of self and others.

PC3. ensure good housekeeping practices at all times

Fire safety

To be competent, the user/individual on the job must be able to:

PC4. use the various appropriate fire extinguishers on different types of fires correctly

PC5. demonstrate rescue techniques applied during fire hazard, demonstrate good housekeeping in order to prevent fire hazards, demonstrate the correct use of a fire extinguisher.

Emergencies, rescue and first aid procedure

To be competent, the user/individual on the job must be able to:

PC6. identify activities which can cause potential injury through sharp objects, burns, fall, electricity, gas leakages, radiation, poisonous fumes, chemicals, loud noise, and identify areas in the plant which are potentially hazardous / unhygienic in nature. conduct regular checks with support of the maintenance team on machine health to identify potential hazards due to wear and tear of machine.

PC7. inform the concerned authorities on the potential risks identified in the processes, workplace area/ layout, materials used etc, inform the concerned authorities about machine breakdowns, damages which can potentially harm man/ machine during operations.

PC8. create awareness amongst others by sharing information on the identified risks.

Ensure sorting, stream lining, storage and documentation, cleaning, standardization and sustenance across the plant premises of the organization.

To be competent, the user/individual on the job must be able to:

PC9. follow the sorting process and check that the tools, fixtures & jigs that are lying on workstations are the ones in use and un- necessary items are not cluttering the workbenches or work surfaces.

PC10. ensure segregation of waste in hazardous/ non hazardous waste as per the sorting work instructions

PC11. follow the technique of waste disposal and waste storage in the proper bins as per sop

PC12. segregate the items which are labeled as red tag items for the process area and keep them in the correct places

PC13. sort the tools/ equipment/ fasteners/ spare parts as per specifications/ utility into proper trays, cabinets, lockers as mentioned in the 5s guidelines/ work instructions

PC14. ensure that areas of material storage are not overflowing

PC15. ensure properly stack the various types of boxes and containers as per the size/ utility to avoid any fall of items/ breakage and also enable easy sorting when required

PC16. return of extra material and tools to the designated sections and make sure that no additional material/ tool is lying near the work area

PC17. follow the floor markings/ area markings used for demarcating the various sections in the plant as per the prescribed instructions and standards

PC18. follow the proper labelling mechanism of instruments/ boxes/ containers and maintaining reference files/ documents with the codes and the lists

PC19. ensure to check the items in the respective areas have been identified as broken or damaged

PC20. ensure to check the items in the respective areas have been identified as broken or damaged

PC21. to make sure that all material and tools are stored in the designated places and in the manner indicated in the 5s instructions

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. the relevant standards, procedures and policies related to health, safety and environment followed in the company

KU2. the emergency handling procedures & hierarchy for escalation

KU3. the basic knowledge of safety procedures (fire fighting, first aid) within the organization

KU4. the basic knowledge of various types of ppes and their usage

KU5. the basic knowledge of risks/hazards associated with each occupation in the organization

KU6. the knowledge of personal hygiene and how an individual contribute towards creating a highly safe and clean working environment the individual on the job needs to know and understand.

KU7. the meaning of hazards and risks

KU8. the health and safety hazards commonly present in the work environment and related precautions

KU9. the possible causes of risk, hazard or accident in the workplace and why risk and/or accidents are possible

KU10. the possible causes of risk and accident (due to oil leakage)
KU11. methods of accident prevention
KU12. safe working practices when working with tools and machines
KU13. safe working practices while working at various hazardous sites
KU14. to know the where to find all the general health and safety equipment in the workplace
KU15. various dangers associated with the use of electrical equipment
KU16. preventative and remedial actions to be taken in the case of exposure to toxic materials
KU17. the importance of using protective clothing/equipment while working
KU18. precautionary activities to prevent the fire accident
KU19. various causes of fire
KU20. to know the techniques of using the different fire extinguishers
KU21. to know the different methods of extinguishing fire
KU22. to know the different materials used for extinguishing fire
KU23. rescue techniques applied during a fire hazard
KU24. various types of safety signs and what they mean
KU25. to know the appropriate basic first aid treatment relevant to the condition e.g. shock, electrical shock, bleeding, breaks to bones, minor burns, resuscitation, poisoning, eye injuries
KU26. to know the content of written accident report
KU27. potential injuries and ill health associated with incorrect manual handing
KU28. safe lifting and carrying practices
KU29. personal safety, health and dignity issues relating to the movement of a person by others
KU30. potential impact to a person who is moved incorrectly
KU31. to have basic knowledge of 5s procedures
KU32. to know the various types 5s practices followed in various areas
KU33. understand to the 5s checklists provided in the department/ team
KU34. to have skills to identify useful & non useful items
KU35. to have knowledge of labels , signs & colours used as indicators
KU36. to have knowledge on how to sort and store various types of tools, equipment, material etc
KU37. to know , how to identify various types of waste products
KU38. understand to the impact of waste/ dirt/ dust/unwanted substances on the process/ environment/ machinery/ human body.
KU39. to have knowledge of best ways of cleaning & waste disposal

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. understand basic level notes and observations.
GS2. safety instructions put up across the plant premises
GS3. safety precautions mentioned in equipment manuals and panels and understand the potential risks associated

GS4. effectively communicate information to team members

GS5. inform employees in the plant and concerned functions about events, incidents & potential risks observed related to safety, health and environment.

GS6. question operator/ supervisor in order to understand the safety related issues

GS7. attentively listen with full attention and comprehend the information given by the speaker during safety drills and training programs

GS8. process the work order and jobs received from the internal customers.

GS9. design documents received from internal customers

GS10. understand & organize all process/ equipment manuals so that sorting out information is fast.

GS11. use common sense and make judgments during day to day basis

GS12. use intuition to detect any potential problems which could arise during operations

GS13. follow instructions and work on areas of improvement identified

GS14. complete the assigned tasks with minimum supervision

GS15. complete the job defined by the supervisor within the timelines and quality norms

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Health and safety	**1.5**	**6**	**-**	**-**
PC1. wear protective clothing/equipment for specific tasks and work conditions	0.5	2	-	-
PC2. carry out safe working practices while dealing with hazards to ensure the safety of self and others.	0.5	2	-	-
PC3. ensure good housekeeping practices at all times	0.5	2	-	-
Fire safety	**1**	**4**	**-**	**-**
PC4. use the various appropriate fire extinguishers on different types of fires correctly	0.5	2	-	-
PC5. demonstrate rescue techniques applied during fire hazard, demonstrate good housekeeping in order to prevent fire hazards, demonstrate the correct use of a fire extinguisher.	0.5	2	-	-
Emergencies, rescue and first aid procedure	**1.5**	**6**	**-**	**-**
PC6. identify activities which can cause potential injury through sharp objects, burns, fall, electricity, gas leakages, radiation, poisonous fumes, chemicals, loud noise, and identify areas in the plant which are potentially hazardous / unhygienic in nature. conduct regular checks with support of the maintenance team on machine health to identify potential hazards due to wear and tear of machine.	0.5	2	-	-
PC7. inform the concerned authorities on the potential risks identified in the processes, workplace area/ layout, materials used etc, inform the concerned authorities about machine breakdowns, damages which can potentially harm man/ machine during operations.	0.5	2	-	-
PC8. create awareness amongst others by sharing information on the identified risks.	0.5	2	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Ensure sorting, stream lining, storage and documentation, cleaning, standardization and sustenance across the plant premises of the organization.	**6**	**14**	**-**	**-**
PC9. follow the sorting process and check that the tools, fixtures & jigs that are lying on workstations are the ones in use and un- necessary items are not cluttering the workbenches or work surfaces.	0.5	2	-	-
PC10. ensure segregation of waste in hazardous/ non hazardous waste as per the sorting work instructions	0.5	1	-	-
PC11. follow the technique of waste disposal and waste storage in the proper bins as per sop	0.5	1	-	-
PC12. segregate the items which are labeled as red tag items for the process area and keep them in the correct places	0.5	1	-	-
PC13. sort the tools/ equipment/ fasteners/ spare parts as per specifications/ utility into proper trays, cabinets, lockers as mentioned in the 5s guidelines/ work instructions	0.5	1	-	-
PC14. ensure that areas of material storage are not overflowing	0.5	1	-	-
PC15. ensure properly stack the various types of boxes and containers as per the size/ utility to avoid any fall of items/ breakage and also enable easy sorting when required	0.5	1	-	-
PC16. return of extra material and tools to the designated sections and make sure that no additional material/ tool is lying near the work area	0.5	1	-	-
PC17. follow the floor markings/ area markings used for demarcating the various sections in the plant as per the prescribed instructions and standards	0.5	1	-	-
PC18. follow the proper labelling mechanism of instruments/ boxes/ containers and maintaining reference files/ documents with the codes and the lists	0.5	1	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC19. ensure to check the items in the respective areas have been identified as broken or damaged	0.5	1	-	-
PC20. ensure to check the items in the respective areas have been identified as broken or damaged	0.5	1	-	-
PC21. to make sure that all material and tools are stored in the designated places and in the manner indicated in the 5s instructions	-	1	-	-
NOS Total	**10**	**30**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	RSC/N4101
NOS Name	Maintain basic health and safety practices at the workplace, 5S
Sector	Rubber
Sub-Sector	Manufacturing / Plastics Processing
Occupation	Blow Moulding
NSQF Level	3
Credits	TBD
Version	1.0
Last Reviewed Date	26/12/2016
Next Review Date	31/12/2024
NSQC Clearance Date	21/07/2016

RSC/N4501: Understand basic concept, job requirements and basics know how related to the Injection moulding process

Description

This OS unit is about understanding the job requirement, operating the injection moulding machine under the guidance/ instruction of operator in order to produce good quality plastic parts using given material and mould.

Scope

This unit/ task covers the following:

- Understanding the work order and the processrequirement from the operator
- Arranging the required raw material and Moulds for the process
- Assist in cleaning the equipment and the moulds for the process

Elements and Performance Criteria

Understand the work and the process requirements from Operator

To be competent, the user/individual on the job must be able to:

PC1. interact with the operator in order to understand the production schedule

PC2. help in planning the days production activities based on the operators instructions

PC3. ensure availability of consumables and plastics materials for production in sufficient quantity as per production plan/operators instructions.

PC4. ensure that clearly understanding the does and donts of the manufacturing process as defined in sops/ work instructions or defined by operator.

PC5. check availability of the personal protective equipments (ppe) like gloves, goggles etc.

PC6. follow the molding procedure and process to be adopted for completing the work order from the operator by referring the work instruction document/ sop manual.

Help in arrange for the material to be moulded and Mould required for the same

To be competent, the user/individual on the job must be able to:

PC7. ensure that the required material is procured from the store before starting the process

PC8. ensure that mould required for execute the molding operation and ensure that the same is available for operation.

PC9. collect the mould from tool room if mould is not available

PC10. install and bolt the mould in place and slide the safety door shut

PC11. add the raw material in the machine using material loader or by manual feeding.

Clean the apparatus and the components before executing the process

To be competent, the user/individual on the job must be able to:

PC12. ensure moulds are clean if not clean with soft cotton cloth.

PC13. ensure that cleaning of other auxiliaries tools, (if any) before the initiation of the moulding and trimming process

PC14. ensure that cleaning of the area around the apparatus for any oil, grease, combustible substances etc. so as to prevent any accident

PC15. ensure availability of the coolant and working of valves to circulate the coolant to cool and solidify plastic

Check materials and apparatus for Operations

To be competent, the user/individual on the job must be able to:

PC16. identify the raw material like plastics granules, fillers, bonding additives etc. required for executing the activity

Escalations of queries on the given job

To be competent, the user/individual on the job must be able to:

PC17. refer the queries to supervisor if they cannot be resolved by the operator

PC18. confirm self - understanding to the operator once the query is resolved so that all doubts & queries can be resolved before the actual process execution

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. the companys code of conduct

KU2. the different types of products manufactured by the company

KU3. functional processes like procurement, store management, inventory management, quality management, incentives, personnel management

KU4. functional processes like procurement, store management, inventory management, quality management, incentives, personnel management

KU5. organization culture

KU6. the companys reporting structure

KU7. the companys documentation policy

KU8. the general principles of moulding procedure and process knowledge mould loading and unloading procedure.

KU9. the types of plastics like thermoplastics and the additives & grades to be used tonnage and capacity of the machine being operated.

KU10. the different types of tools and machinery to process the plastic and trim the output

KU11. the various types of cooling systems and their properties

KU12. how to perform moulding machine safety check

KU13. hazards and safety aspects involved in tape production and usage of relevant ppes

KU14. safety procedures to be adopted to complete mould removal process

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. read warnings, instructions and other text material on product labels, components etc

GS2. enter into the history card details of the fault identified in the plastic product manufactured read equipment manuals and process documents to understand the equipment and processes better its

GS3. read instructions especially safety instructions especially symbols while using the equipment in the plant area logs.

GS4. discuss task lists, schedules, and work-loads with co-workers

GS5. question internal customers/ shop floor operator appropriately in order to understand the nature of the problem and make a diagnosis

GS6. avoid using jargon, slang or acronyms when communicating with an operator /fellow subordinates etc. unless it is required.

GS7. to support operator in using specific problem solving techniques and detailing out the problems

GS8. to discuss possible solution with the operator for problem solving.

GS9. plan and organize the work order and jobs received from the internal customers/ operator.

GS10. organize all process/ equipment manuals so that sorting out

GS11. follow instructions and work on areas of improvement identified

GS12. complete the assigned tasks with minimum supervision

GS13. complete the job defined by the operator within the timelines and quality.

GS14. use common sense and make judgments during day to day basis

GS15. use basic reasoning skills to identify and resolve basic problems

GS16. use intuition to detect any potential problems which could arise during operations.

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Understand the work and the process requirements from Operator	**21**	**10**	**-**	**-**
PC1. interact with the operator in order to understand the production schedule	4	2	-	-
PC2. help in planning the days production activities based on the operators instructions	4	2	-	-
PC3. ensure availability of consumables and plastics materials for production in sufficient quantity as per production plan/operators instructions.	4	2	-	-
PC4. ensure that clearly understanding the does and donts of the manufacturing process as defined in sops/ work instructions or defined by operator.	3	2	-	-
PC5. check availability of the personal protective equipments (ppe) like gloves, goggles etc.	3	1	-	-
PC6. follow the molding procedure and process to be adopted for completing the work order from the operator by referring the work instruction document/ sop manual.	3	1	-	-
Help in arrange for the material to be moulded and Mould required for the same	**12.5**	**5**	**-**	**-**
PC7. ensure that the required material is procured from the store before starting the process	2.5	1	-	-
PC8. ensure that mould required for execute the molding operation and ensure that the same is available for operation.	2.5	1	-	-
PC9. collect the mould from tool room if mould is not available	2.5	1	-	-
PC10. install and bolt the mould in place and slide the safety door shut	2.5	1	-	-
PC11. add the raw material in the machine using material loader or by manual feeding.	2.5	1	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Clean the apparatus and the components before executing the process	**10.5**	**4**	**-**	**-**
PC12. ensure moulds are clean if not clean with soft cotton cloth.	2.5	1	-	-
PC13. ensure that cleaning of other auxiliaries tools, (if any) before the initiation of the moulding and trimming process	2.5	1	-	-
PC14. ensure that cleaning of the area around the apparatus for any oil, grease, combustible substances etc. so as to prevent any accident	2.5	1	-	-
PC15. ensure availability of the coolant and working of valves to circulate the coolant to cool and solidify plastic	3	1	-	-
Check materials and apparatus for Operations	**2**	**2**	**-**	**-**
PC16. identify the raw material like plastics granules, fillers, bonding additives etc. required for executing the activity	2	2	-	-
Escalations of queries on the given job	**4**	**4**	**-**	**-**
PC17. refer the queries to supervisor if they cannot be resolved by the operator	2	2	-	-
PC18. confirm self - understanding to the operator once the query is resolved so that all doubts & queries can be resolved before the actual process execution	2	2	-	-
NOS Total	**50**	**25**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	RSC/N4501
NOS Name	Understand basic concept, job requirements and basics know how related to the Injection moulding process
Sector	Rubber
Sub-Sector	Manufacturing / Plastics Processing
Occupation	Injection moulding
NSQF Level	3
Credits	TBD
Version	1.0
Last Reviewed Date	26/12/2016
Next Review Date	31/12/2024
NSQC Clearance Date	21/07/2016

RSC/N4502: Assit in performing the Injection molding related operations, monitor process parameters and troubleshoot the process/product if any under the guidance of operator

Description

This OS unit is about assisting in producing good quality moldings in line with the required specifications

Scope

The Injection Moulding Machine Operator Assistant will be responsible for

Elements and Performance Criteria

Check the operations of the equipment used in the molding process

To be competent, the user/individual on the job must be able to:

PC1. check for operation of molding apparatus like hopper, heaters etc. as per the checklist provided

PC2. fix the desired mould to the injection moulding machine in order to achieve the desired operation as per the work instructions/ sops

PC3. make modifications in the process parameters (by selecting the right program from the machine control system) if required and ensure alignment with the prescribed standards as guided by operator.

Feed the plastic granules in the hopper and inform operator for readiness of the machine for setting the parameters

To be competent, the user/individual on the job must be able to:

PC4. perform preheating of plastic granules (in case of engineering plastics)

PC5. ensure that the plastic granules are mixed with additives (if any) before being fed into the hopper

PC6. conduct a test process and produce a sample output as per the required

PC7. ensure that the dimensions of the output product are measured as per the process given in the work instructions/ sop under guidance of operator.

PC8. start the production process as instructed by operator.

Assist in Conducting the actual process with parameter setting as per operator guidance

To be competent, the user/individual on the job must be able to:

PC9. feed the required operation code in the apparatus for heaters to melt the plastic granules at the predefined temperature

PC10. run the machine in semi-auto or automatic mode of operation as guided by the operator.

PC11. check-list procedure to ensure quality of final product

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. departments code of conduct
KU2. different types machines in the company, its specifications etc.
KU3. department documentation policy
KU4. the general principles of moulding machine operations, startup, shutdown etc.
KU5. basic process parameters setting, producing good product etc.

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. read instructions especially safety instructions especially symbols while using the equipment in the plant area
GS2. note measurements, equipment panel readings for various process parameters in the required reporting formats
GS3. visualize final product output and hence decide on the key steps to be followed
GS4. safety precautions to be taken for entire injection moulding and post injection moulding activities.
GS5. avoid defects in machine operation and final product manufacture.
GS6. discuss task lists, schedules, and work-loads with co-workers/operator
GS7. question internal customers/ moulding shop operator appropriately in order to understand the nature of the problem and make a diagnosis
GS8. detect problems in day to day tasks
GS9. support operator in using specific problem solving techniques and detailing out the problems
GS10. discuss possible solution with the operator for problem solving
GS11. make decisions in emergency conditions in case the operator is not available (as per the authority matrix defined by the organization)
GS12. the job needs
GS13. all process/ equipment manuals so that sorting out information is fast
GS14. apparatus etc. in an orderly manner at proper designated areas
GS15. how to visualize final product output and hence decide on the key steps to be followed.
GS16. follow instructions and work on areas of improvement identified
GS17. complete the assigned tasks with minimum supervision
GS18. complete the job defined by the operator within the timelines and quality
GS19. visualize the final job product after understanding the given standard product.
GS20. finalize the optimum levels of physical parameters with operator guidance so that the job output meets the prescribed job standards

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Check the operations of the equipment used in the molding process	**11**	**15**	**-**	**-**
PC1. check for operation of molding apparatus like hopper, heaters etc. as per the checklist provided	4	5	-	-
PC2. fix the desired mould to the injection moulding machine in order to achieve the desired operation as per the work instructions/ sops	4	5	-	-
PC3. make modifications in the process parameters (by selecting the right program from the machine control system) if required and ensure alignment with the prescribed standards as guided by operator.	3	5	-	-
Feed the plastic granules in the hopper and inform operator for readiness of the machine for setting the parameters	**17**	**25**	**-**	**-**
PC4. perform preheating of plastic granules (in case of engineering plastics)	4	5	-	-
PC5. ensure that the plastic granules are mixed with additives (if any) before being fed into the hopper	3	5	-	-
PC6. conduct a test process and produce a sample output as per the required	4	5	-	-
PC7. ensure that the dimensions of the output product are measured as per the process given in the work instructions/ sop under guidance of operator.	3	5	-	-
PC8. start the production process as instructed by operator.	3	5	-	-
Assist in Conducting the actual process with parameter setting as per operator guidance	**12**	**20**	**-**	**-**
PC9. feed the required operation code in the apparatus for heaters to melt the plastic granules at the predefined temperature	4	10	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. run the machine in semi-auto or automatic mode of operation as guided by the operator.	4	5	-	-
PC11. check-list procedure to ensure quality of final product	4	5	-	-
NOS Total	**40**	**60**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	RSC/N4502
NOS Name	Assit in performing the Injection molding related operations, monitor process parameters and troubleshoot the process/product if any under the guidance of operator
Sector	Rubber
Sub-Sector	Manufacturing / Plastics Processing
Occupation	Injection moulding
NSQF Level	3
Credits	TBD
Version	1.0
Last Reviewed Date	26/12/2016
Next Review Date	31/12/2024
NSQC Clearance Date	21/07/2016

RSC/N4503: Conduct basic quality checks of the finished products with reference to the approved product

Description

This OS unit is about checking the finished goods produced for any damages, deformities and further repairing the parts produced so that the damaged/ defective pieces can be corrected and right quality components are supplied to 1. The customer/ end user 2. Internal manufacturing team

Scope

The Injection moulding operator assistant will be responsible for

Elements and Performance Criteria

checking of finished goods for detect or any deviations from the approved product

To be competent, the user/individual on the job must be able to:

PC1. compare texture, colour, surface properties, hardness and strength etc. with the given approved product.

Assisting in Corrective batch process with minor defects

To be competent, the user/individual on the job must be able to:

PC2. rectify minor defects like dimension variation, thickness variation etc. by control process parameters etc and informing operator.

Perform Batch Quality Procedure

To be competent, the user/individual on the job must be able to:

PC3. provide first and last output from each batch to the lab for quality check on its composition, properties etc.

PC4. obtain clearance for the entire batch from the lab and submit the operator.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. relevant standards specified for the manufacturing process

KU2. basic process followed for inspection of the lot.

KU3. quality management policy of the organization.

KU4. the processes and procedures followed for manufacturing the lot/ pieces/ products.

KU5. the techniques of using measurement instruments like rulers, weighing scales etc.

KU6. the methods to identify quality defects in the lot.

KU7. the impact of defects on the overall working of the injection moulding machine.

KU8. the methods used for cutting, finishing which can repair lot (moulded products) with minor defects.

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. note the number of lot with defects which can be repaired to number of lot which will be discarded.

GS2. read process and equipment manuals, material data sheets etc. to understand the working of the equipment & material properties.

GS3. inform operator of any quality related defects arising out of the manufacturing process.

GS4. question internal customers/ operator appropriately in order to understand the nature of the problem and make a diagnosis.

GS5. organize all process/ equipment manuals so that sorting/ accessing information is easy.

GS6. keep fixtures, tools, drawings, work instructions, sop manuals as per the part number, colour codes etc. as defined under the 5s systems.

GS7. use common sense and make judgments during day to day basis use reasoning skills to identify and resolve basic problems

GS8. carefully analyze each defect observed and try to find solution for the defect along with the operator.

GS9. identify defective parts in the manufacturing line by comparing manufactured with the work standard.

GS10. link the defect observed with the overall impact on the performance of the lot/production

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
checking of finished goods for detect or any deviations from the approved product	**2**	**7**	**-**	**-**
PC1. compare texture, colour, surface properties, hardness and strength etc. with the given approved product.	2	7	-	-
Assisting in Corrective batch process with minor defects	**4**	**6**	**-**	**-**
PC2. rectify minor defects like dimension variation, thickness variation etc. by control process parameters etc and informing operator.	4	6	-	-
Perform Batch Quality Procedure	**4**	**12**	**-**	**-**
PC3. provide first and last output from each batch to the lab for quality check on its composition, properties etc.	2	6	-	-
PC4. obtain clearance for the entire batch from the lab and submit the operator.	2	6	-	-
NOS Total	**10**	**25**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	RSC/N4503
NOS Name	Conduct basic quality checks of the finished products with reference to the approved product
Sector	Rubber
Sub-Sector	Manufacturing / Plastics Processing
Occupation	Injection moulding
NSQF Level	3
Credits	TBD
Version	1.0
Last Reviewed Date	26/12/2016
Next Review Date	31/12/2024
NSQC Clearance Date	21/07/2016

RSC/N4504: Basics of computer and data entry in MS OFFICE/office Open source suite Software

Description

This OS unit is about the Data Entry Operation for Injection Moulding like entering, updating and maintain Job work related data the computer systems having MS Office software

Scope

This unit / task covers the following

Elements and Performance Criteria

Enter, update and maintain data

To be competent, the user/individual on the job must be able to:

PC1. fill and process mandated forms for receiving, processing, or tracking data, enter data from source documents (such as trial report, process sheet etc.) in to computer application having ms office software/office opensource software.

PC2. scan source documents in accordance with specific instructions.

PC3. verify data entered with source documents, checks for compliance and corrects all typographical errors and missing or repeated data.

PC4. maintain files of source documents or other information related to data entered.

PC5. investigate and confirm data that is unclear before entering, generate reports of data entry, store completed work in designated locations and perform backup operations.

PC6. update database information to reflect most current source information

PC7. assist in the filing and storage of security and back up data files

PC8. respond to requests for information and access relevant files

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. data management applications/tools used by the company

KU2. data entry protocol

KU3. data integrity and security policies of the company

KU4. approved methods for carrying document control and archiving

KU5. about basics of computers and its terminology

KU6. about working on different software needed for report writing including ms office.

Generic Skills (GS)

User/individual on the job needs to know how to:

GS1. efficiently enter data into computer applications
GS2. prepare legible reports
GS3. read and understand manuals, sops, instructions, memos, reports, job cards etc.
GS4. communicate effectively with the team members and supervisors
GS5. to apply basic logic to identify data errors
GS6. to pay attention to details
GS7. plan assigned tasks within timeline and as per priority order specified
GS8. identify process improvements

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Enter, update and maintain data	**25**	**15**	**-**	**-**
PC1. fill and process mandated forms for receiving, processing, or tracking data, enter data from source documents (such as trial report, process sheet etc.) in to computer application having ms office software/office opensource software.	4	2	-	-
PC2. scan source documents in accordance with specific instructions.	3	2	-	-
PC3. verify data entered with source documents, checks for compliance and corrects all typographical errors and missing or repeated data.	3	2	-	-
PC4. maintain files of source documents or other information related to data entered.	3	2	-	-
PC5. investigate and confirm data that is unclear before entering, generate reports of data entry, store completed work in designated locations and perform backup operations.	3	2	-	-
PC6. update database information to reflect most current source information	3	2	-	-
PC7. assist in the filing and storage of security and back up data files	3	2	-	-
PC8. respond to requests for information and access relevant files	3	1	-	-
NOS Total	**25**	**15**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	RSC/N4504
NOS Name	Basics of computer and data entry in MS OFFICE/office Open source suite Software
Sector	Rubber
Sub-Sector	Manufacturing / Plastics Processing
Occupation	Injection moulding
NSQF Level	3
Credits	TBD
Version	1.0
Last Reviewed Date	26/12/2016
Next Review Date	31/12/2024
NSQC Clearance Date	21/07/2016

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Element/ 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 Element/ 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 these criteria.

6. To pass the Qualification Pack assessment, every trainee should score the Recommended Pass % aggregate for the QP.

7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

Minimum Aggregate Passing % at QP Level : 50

(**Please note**: Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
RSC/N4101.Maintain basic health and safety practices at the workplace, 5S	10	30	-	-	40	10
RSC/N4501.Understand basic concept, job requirements and basics know how related to the Injection moulding process	50	25	-	-	75	15
RSC/N4502.Assit in performing the Injection molding related operations, monitor process parameters and troubleshoot the process/product if any under the guidance of operator	40	60	-	-	100	60
RSC/N4503.Conduct basic quality checks of the finished products with reference to the approved product	10	25	-	-	35	10
RSC/N4504.Basics of computer and data entry in MS OFFICE/office Open source suite Software	25	15	-	-	40	5
Total	**135**	**155**	**-**	**-**	**290**	**100**

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training

Glossary

Sector	Sector is a conglomeration of different business operations having similar business and 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 organisation.
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 (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria (PC)	Performance Criteria (PC) 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 (QP)	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
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 (KU)	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.
Organisational Context	Organisational context includes the way the organisation 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/ Generic Skills (GS)	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment 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.
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.