QUALIFICATIONS PACK- OCCUPATIONAL STANDARDS FOR PLASTICS 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

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Introduction

Qualifications Pack- Plastics Product Manufacturing Operator

SECTOR: RUBBER

SUB SECTOR: PLASTICS PROCESSING

OCCUPATION: PLASTICS PRODUCT MANUFACTURING

REFERENCE ID: RSC/Q4807 (CPC/Q0105)

ALIGNED TO:

Brief Job Description:

The Machine operator handles the plastic granules (raw material), set up and operate the plastic processing machines ,finishes the product & stores in desired place.

Personal Attributes:

The Machine operator should have basic communication, numerical and computational abilities. He should be attentive & vigilant towards his duties. He should coordinate with his co members & seniors to deliver desired output. He should possess good physical fitness.

Qualifications Pack for Machine operator plastics processing

Job Details

Qualifications Pack Code	**RSC/Q4807 (CPC/Q0105)**		
Job Role	**Plastics Product Manufacturing Operator**		
Credits (NSQF)	**48**	**Version number**	**1.0**
Sector	**Rubber**	**Drafted on**	**18/05/2016**
Sub Sector	**Plastics Processing**	**Last reviewed on**	**26/12/2016**
Occupation	**Plastics Processing**	**Next review date**	**31/12/2021**
NSQC Clearance on	**21/07/2016**		

Job Role	**Plastics Product Manufacturing Operator**
Role Description	Responsible for operation of different plastic processing machineries & process documentation during the process
NSQF level	4
Minimum Educational Qualifications*	VIII Standard
Maximum Educational Qualifications*	
Training (Suggested but not mandatory)	No previous training required
Minimum Job Entry Age	18
Experience	No previous experience required
Applicable National Occupational Standards (NOS)	1. RSC/N4104 (CPC/N0414): Basics of Plastics Processing method. 2. RSC/N4802 (CPC/N0114) : Basic Knowledge about different plastic material 3. RSC/N4807 (CPC/N0115): Operate the Injection moulding machine & its trouble shooting 4. RSC/N4808 (CPC/N0116): Operate the extrusion machine & its trouble shooting 5. RSC/N4809 (CPC/N0117): Operate the Blow moulding machine & its trouble shooting 6. RSC/N 4101 CPC/N0411): Maintan basic health and safety practices at the workplace,5S. 7. RSC/N4825 (CPC/N 1108) Entrepreneurship in Plastics Processing
Performance Criteria	As described in the relevant OS units

Definitions

Keywords /Terms	Description
Core Skills/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.
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.
Function	Function is an activity necessary for achieving the key purpose of the sector, occupation, or area of work, which can be carried out by a person or a group of persons. Functions are identified through functional analysis and form the basis of OS.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organization.
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.
Occupational Standards (OS)	OS are Occupational Standards which apply uniquely in the Indian context
Occupation	Occupation is a set of job roles, which perform similar/related set of functions in an industry.
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.
Performance Criteria	Performance Criteria are statements that together specify the standard of performance required when carrying out a task.
Qualifications Pack(QP)	Qualifications Pack comprises the set of NOS, together with the educational, training and other criteria required to perform a job role. A Qualifications Pack is assigned a unique qualification pack code.
Qualifications Pack Code	Qualifications Pack Code is a unique reference code that identifies a qualifications pack.
Scope	Scope is the 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 the quality of performance required.
Sector	Sector is a conglomeration of different business operations having similar businesses 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.
Sub-functions	Sub-functions are sub-activities essential to fulfil the achieving the objectives of the function.
Technical Knowledge	Technical Knowledge is the specific knowledge needed to accomplish specific designated responsibilities.

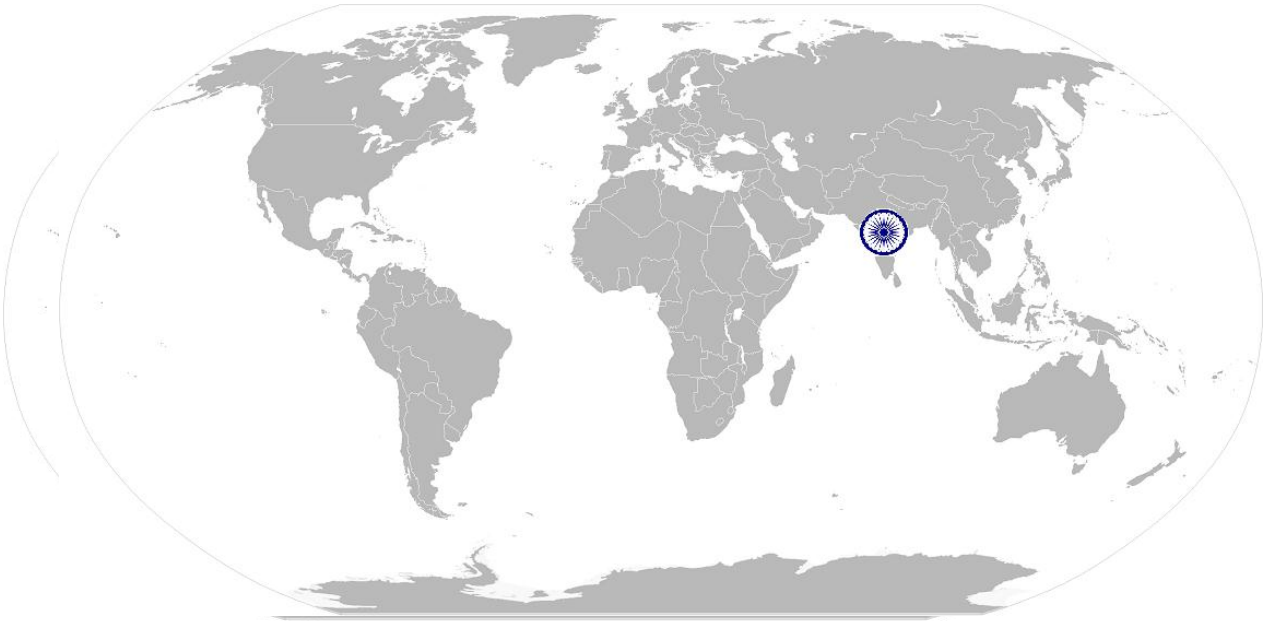
Qualifications Pack for Machine operator plastics processing

Unit Code	Unit Code is a unique identifier for a OS unit, which can be denoted with an '**N**'
Unit Title	Unit Title gives a clear overall statement about what the incumbent should be able to do.
Vertical	Vertical may exist within a sub-sector representing different domain areas or the client industries served by the industry.

Acronyms

Keywords /Terms	Description
OS	Occupational Standard(s)
NVEQF	National Vocational Education Qualifications Framework
NVQF	National Vocational Qualifications Framework
NSQF	National Skills Qualifications Framework
OEM	Original Equipment Manufacturer
OS	Occupational Standard(s)
QP	Qualifications Pack

National Occupational Standards



Overview

This unit is for an overview of plastics processing methods with respect to various products. Various types of equipment /process used and melt processing ranges of various polymer formulations to make plastic products in comparison with blow moldings are discussed. Depending upon the configuration of the part, the selection of processing methods, economic viability are also discussed.

RSC/N4104 (CPC/N0414) Basics of Plastics Processing Methods

National Occupational Standard

Unit Code	**RSC/N4104 (CPC/N0414)**
Unit Title (Task)	**Basics of Plastics Processing Methods**
Description	This unit is about Basics of Plastics Processing methods 1. There are a variety of methods used to process plastic. Each method has its Advantages and disadvantages and are better suited for specific applications. 2. Plastics processing encompasses the processing, design, development, and Manufacture of plastics products.
Scope	1. Plastic industry is making significant contribution. 3. Development and growth of various key sectors such as: Automotive, Construction, Electronics, Healthcare, Textiles etc. 4. To understand the merits and demerits of Blow Moulding to over the all others plastic Process. 5. To understand the basic knowledge of fundamental of Plastics Processing Methods.

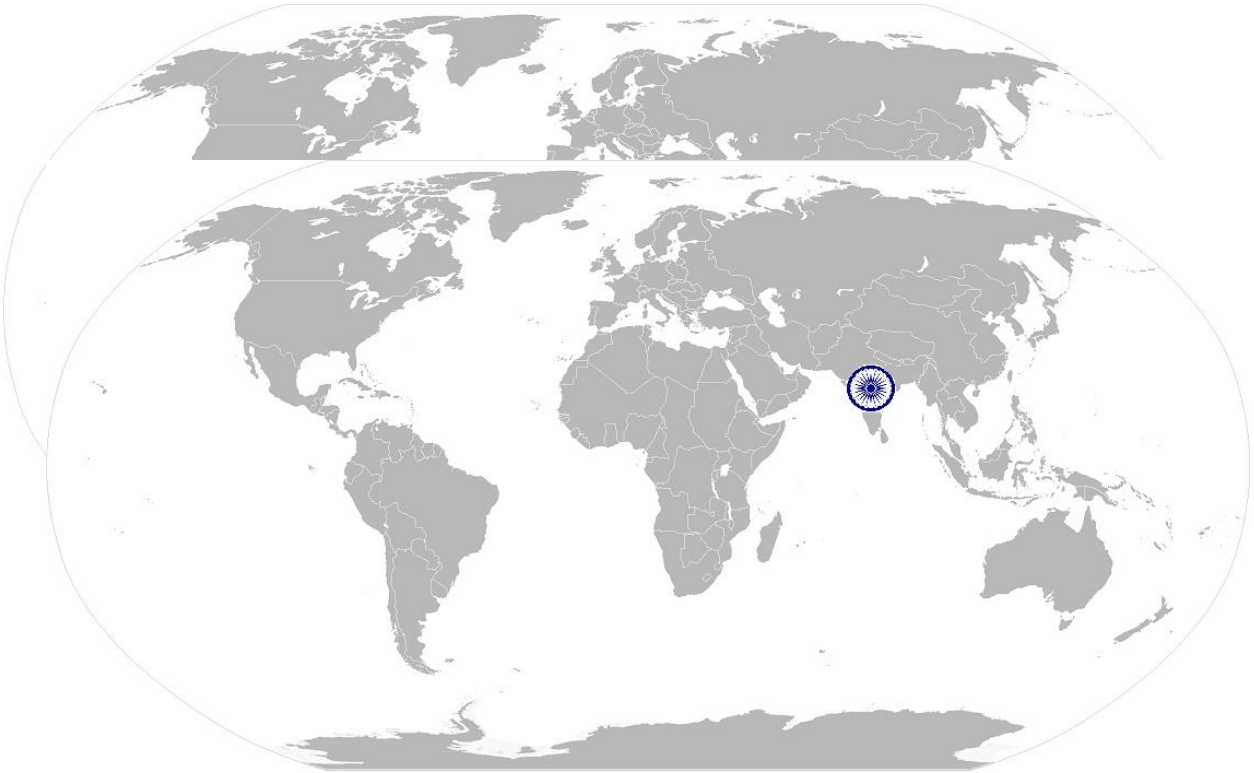
Performance Criteria (PC) w.r.t. the Scope	
Element	**Performance criteria**
Introduction to Plastics Processing	**To be competent, the user/individual on the job must be able to:** PC1. Learn the all plastics processing Machineries. PC2. Identify merits and demerits of Blow Moulding and over all others plastic Process. PC3. Ensure the definition and terminology related to Plastic Processing. PC4. Ensure the finishing operation including surface treatment of the fabricated product if required as per SOP.
Classification of processing methods	PC5. Follow the Primary Processing Methods as per SOP. PC6. Follow the Secondary Processing Methods as per SOP. PC7. Follow the Fundamentals of processing method.
Processing methods and comparison of Blow Molding with other process	PC8. Adhere the type of process to be used depends on a variety of factors, including product shape and size, plastic type, quantity to be produced, quality and accuracy (Tolerances) required, design load performance, cost limitation, and time schedule. PC9. Follow the Machine Operation Terminology: as per manual, semiautomatic, fully automatic. PC10. Learn the type of Conversion Techniques: Injection, Blow, Compression, Transfer, Rotational and Other processes. PC11. Identify the Material to be processed PC12. Ensure the Product design / configuration, Tolerance. PC13. Ensure the process Limitations PC14. Ensure the quality PC15. Ensure the cost / Performance balance.

Knowledge and Understanding (K)	
1. Organizational	The user/individual on the job needs to know and understand:

RSC/N4104 (CPC/N0414) Basics of Plastics Processing Methods

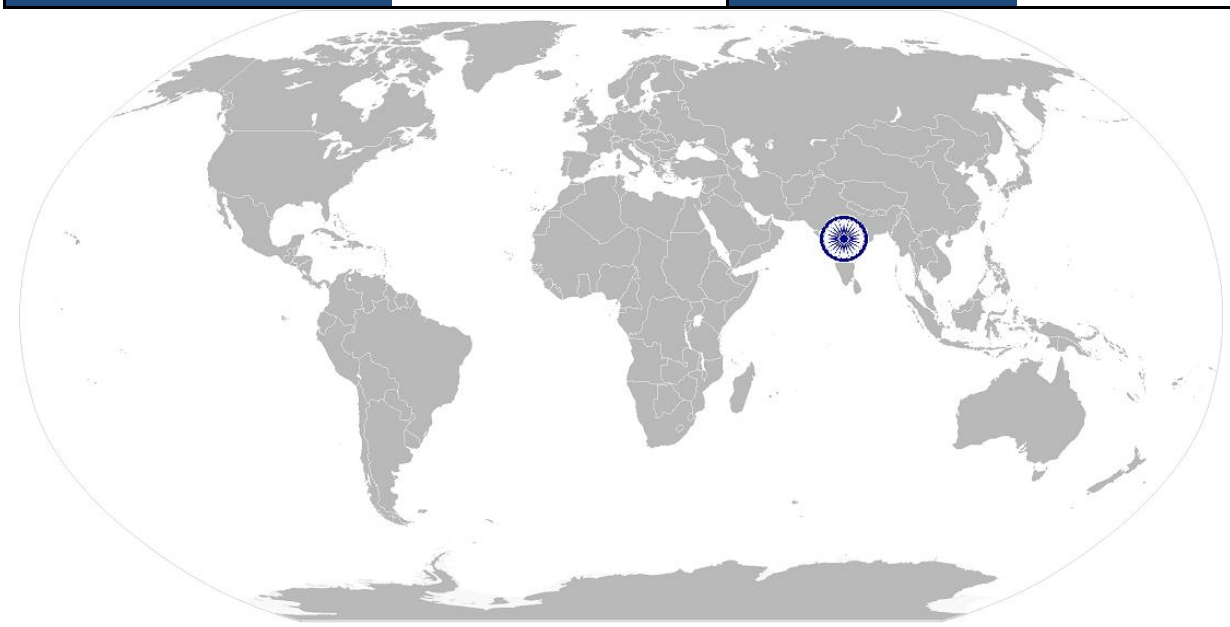
Context (Knowledge of the company / organization and its processes)	KA1. Relevant standards specified for the Processing KA2. Basic process followed through manual. KA3. Quality Management policy of the organization
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. Processes and procedures followed for Processing the lot/ pieces/ products. KB2. Techniques of using measurement instruments like rulers, Vernier calipers, micrometers, weighing scales etc. KB3. Methods to identify quality defects in the Processing. KB4. Impact of defects on the overall working of the product. KB5. Methods used for cutting, finishing which can repair lot with minor defects KB6. Various quality standards in India (ISO) used by the organization
Skills (S) [Optional]	
A. Core Skills/ Generic Skills	**Writing Skills**
	The user/ individual on the job needs to know and understand how to: SA1. Note the number of lot with defects which can be repaired to number of lot which will be discarded
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA2. Read process and equipment manuals to understand the working of the equipment SA3. Read measuring instruments reading to identify any deviations from the dimensions given in the product engineering drawing
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA4. Inform supervisor of any quality related defects arising out of the manufacturing process SA5. Question internal customers/ supervisor appropriately in order to understand the nature of the problem and make a Diagnosis
B. Professional Skills	**Plan and Organize**
	The user/individual on the job needs to know and understand how to: SB1. Plan & organize the work order and jobs received from the supervisor. SB2. Organize all process/ equipment manuals so that sorting/ identifying information is easy SB3. Keep fixtures, tools, drawings, Work Instructions, SOP manuals as per the part number, colour codes etc as defined under the 5S systems
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB4. Use common sense and make judgments during day to day basis use

	reasoning skills to identify and resolve basic problems SB5. Carefully analyze the body part for various assembling defects at every station SB6. Carefully analyze each defect observed during inspection and try to find solution for the defect along with the assembly line operator
	Quality Consciousness
	The user/individual on the job needs to know and understand how to: SB7. Identify defective materials in the manufacturing line by comparing manufactured hollow articles(container; bottles) with the work standard SB8. Link the defect observed with the overall impact on the performance of the output.

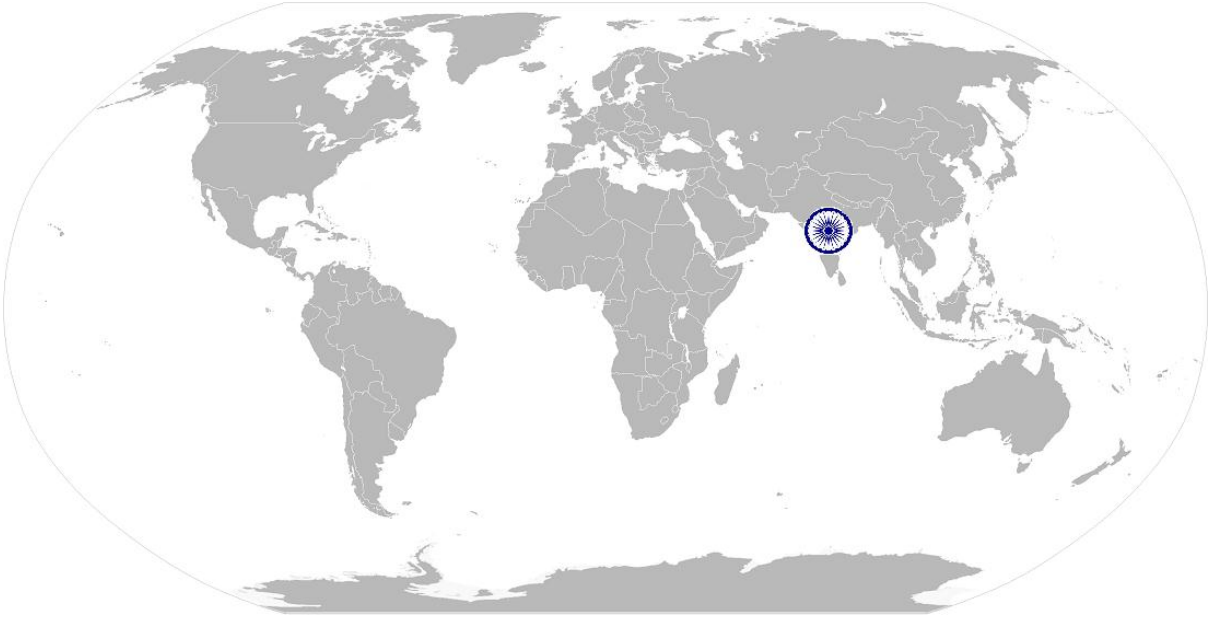


NOS Version Control

NOS Code	**RSC/N4104 (CPC/N0414)**		
Credits (NSQF)	**6**	**Version number**	**1.0**
Sector	**Rubber**	**Drafted on**	**18/05/2016**
Sub Sector	**Plastics Processing**	**Last reviewed on**	**26/12/2016**
Occupation	**Blow Moulding**	**Next review date**	**31/12/2021**



National Occupational Standards



Overview

This unit is about understanding of different types of plastic material, their properties & application

National Occupational Standards

Unit Code	**RSC/N4802 (CPC /N 0110)**
Unit Title (Task)	**Basic Knowledge about different plastic material**
Description	This OS unit is about understanding the different types of plastics materials being used in the industry, their basic knowhow, properties, etc.
Scope	The Machine Operator - Plastics Processing will be responsible for • understanding the various types of Plastics materials • basic knowhow of the processing behaviour of Plastics materials • maintaining the raw material for the process • cleaning the material spillage around machine
Performance Criteria(PC) w.r.t. the Scope	
Element	**Performance Criteria**
understanding the various types of Plastics materials	**To be competent, the user/individual on the job must be able to:** PC1. Discuss about the type of raw material being used in the industry & for work Order required for the process and with the supervisor PC2. Refer all material related documents to understand properties of the required work output and able to identify the material PC3. Follow the process requirements for the Plastics material in terms of temperature of the heater, rotating speed of the Screw, pressure, injection as mentioned in the Work Instruction / SOP / Control Diagrams
basic knowhow of the processing behavior of Plastics materials	PC4. Study the melting temperature, processing temperature etc. for plastic raw material PC5. Identify the processing characteristics of the plastics material being used for conversion procedure and process to be adopted for completing the work order from the supervisor by referring the Work Instruction document / SOP manual
maintaining the raw material for the process	PC6. Ensure that the required material is available before starting the process PC7. Ensure that the plastics material is blended with requisite additives
cleaning the material spillage around machine	PC8. Ensure that machine / mould / Die are cleaned properly & no foreign material is entrapped in parts of machine / mould / die. PC9. Keep that clean of the materials spilled around the machine PC10. Ensure cleaning of the area around the machine for any oil, grease, water etc.
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: KA1. company's policies on personnel management KA2. company's code of conduct & policy KA3. importance of individual's role in the work flow KA4. organization culture KA5. company's reporting structure KA6. Functional process like store management, procurement, quality management

RSC/N4802 (CPC/N0110) Basic knowledge about different plastic material

B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. different of plastic materials KB2. various types of plastics like thermoplastics / thermosetting plastics and the additives to be used KB3. properties / characteristics of various plastic materials KB4. Processing behaviour of various plastic raw materials KB5. Safe storage of raw materials KB6. hazards and safety aspects involved with different processing techniques
Skills (S) [Optional]	
A. Core Skills/ Generic Skills	**Writing Skills**
	The user/individual on the job needs to know and understand how to: SA1. prepare document related to raw material used, stock position, other technical records like machine log sheets, job card etc. SA2. write information documents to internal departments/ internal teams
	Reading Skills
	SA3. read & interpret material data sheet SA4. read & interpret machine parameters SA5. read instructions like safety instructions , symbols being used in the plant area
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA6. Communicate orally any instructions related to work with superiors & co-workers with clarity SA7. Listen carefully & follow company protocol for communication
B. Professional Skills	**Decision Making**
	The user / individual on the job needs to know and understand how to: SB1. Identification of problem SB2. make proper decisions pertaining to the work SB3. consult superiors in case of any assistance
	Plan and Organize
	The user/individual on the job needs to know and understand how to: SB4. fix up priorities for work operations as per job requirements SB5. organize and analyze information relevant to work SB6. basic concepts of shop-floor work productivity including material management, waste reduction etc.
	Problem Solving

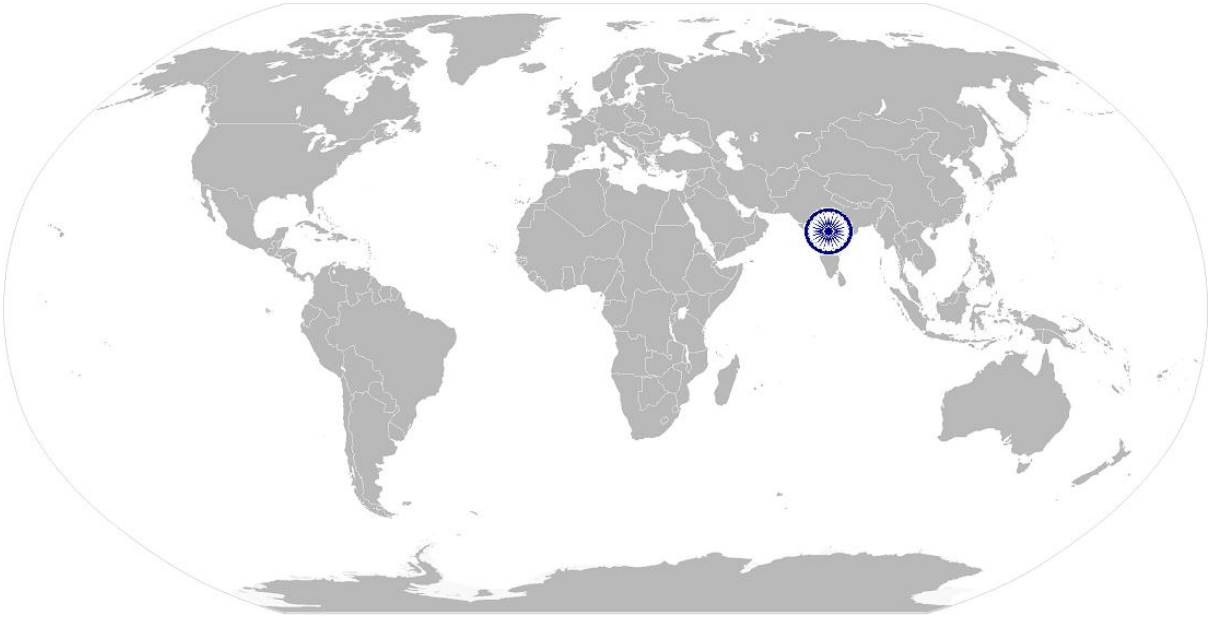
	The user/individual on the job needs to know and understand how to: SB7. undertake and express new ideas and initiatives to others SB8. modify work plan to overcome unforeseen difficulties or developments that occur as work progresses SB9. participate in improvement of procedures including process, quality etc.
	Analytical / Critical Thinking
	The user/individual on the job needs to know and understand how to: SB10. apply, analyze, and evaluate the information gathered from observation, experience, reasoning, or communication, as a guide to thought and action
	Team Work
	The user/individual on the job needs to know and understand how to: SB11. exhibit good team work with all SB12. Maintains good inter personal relations SB13. Consult superiors or fellow workers in case of any assistance

RSC/N4802 (CPC/N0110) Basic knowledge about different plastic material

NOS Version Control

NOS Code	**RSC/N4802 (CPC/N 0110)**		
Credits (NSQF)	**4.0**	**Version number**	**1.0**
Sector	**Rubber**	**Drafted on**	**18/05/2016**
Sub Sector	**Plastics Processing**	**Last reviewed on**	**26/12/2016**
Occupation	**Plastics Processing**	**Next review date**	**31/12/2021**

National Occupational Standards



Overview

This unit is about to operate injection moulding machine & its trouble shooting.

RSC/N4807 (CPC/N0115) Operate the Injection moulding machine & its trouble shooting

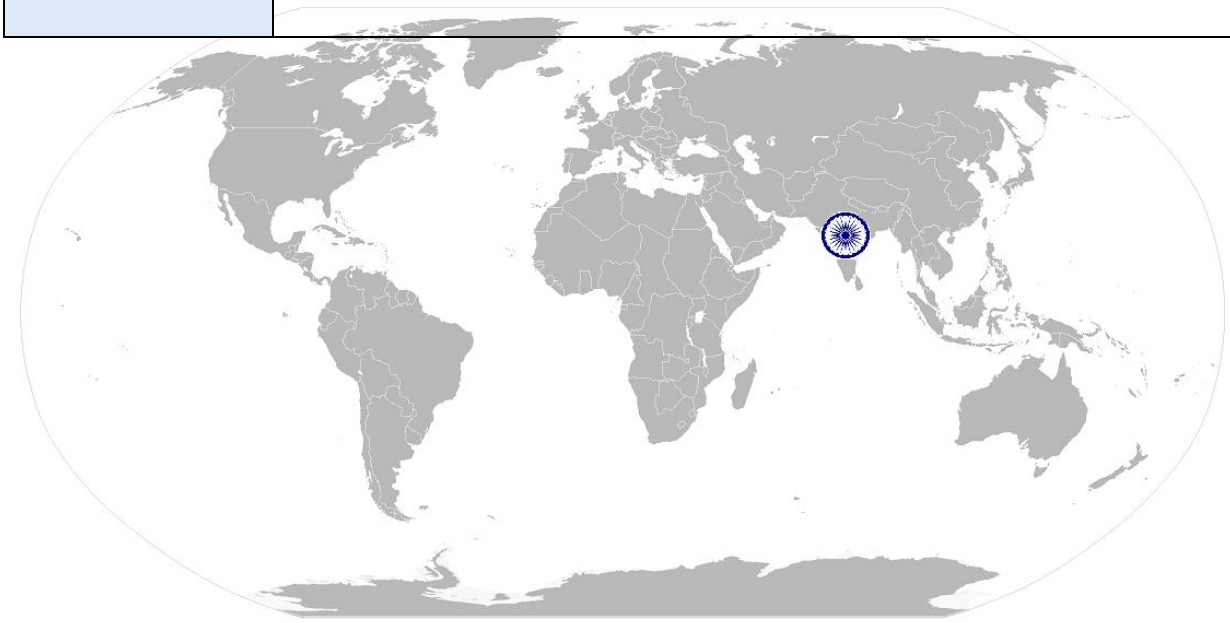
National Occupational Standard

Unit Code	RSC/N4807 (CPC /N 0115)
Unit Title (Task)	Operate Injection Moulding Machine & its trouble shooting
Description	This OS unit is about operating the Injection Moulding Machine & its trouble shooting
Scope	The Machine Operator -Plastics Processing will be responsible for • Pre-moulding operation • Moulding Operation • Trouble shooting • Reporting & Documentation • Achieve productivity, quality and safety standards as per company's norms
Performance Criteria(PC)) w.r.t. the Scope	
Element	**Performance Criteria**
Pre moulding operation	The individual on the job should be able to: PC1. Plan the work schedule in concurrence with Superior PC2. Obtain and check the data on the job card and carry out functions in line with the responsibilities of job role PC3. Ensure availability of data sheet, manual, work instructions PC4. Ensure & check the power supply, hydraulic oil level, water connections PC5. Ensure availability of the tools ,materials & ancillary equipment's for the work PC6. Setup the equipment & machineries as per the job requirement PC7. Update and develop knowledge of the products PC8. Plan for Minimum wastage & its safe disposal PC9. Work in conformance to legal requirements, organizational policies and procedures
Moulding Operation	PC10. Ensure that the mould is ready & having no problem in dry run PC11. Check material is available for production. If required arrange for pre drying PC12. Check the availability & readiness of ancillary equipment's like chiller, mould Temperature controller, hopper loader, cooling towers etc. PC13. Load the material and pigment (if required) in the hopper PC14. Set the parameters of the machine i.e. temperature, pressure, speed etc. PC15. Check the temperature on the barrel with respect to set temperature PC16. Conduct trial run to get sample piece once machine is set PC17. Adjust parameters unless getting final product PC18. Ensure the Visual check of final product PC19. Ensure accepted products and defective products as per approved plan PC20. Carry out post molding operation during the cycle time run such as. trimming, apply protective tapes, putting labels on each product for identification PC21. Store the final product in specified area PC22. Clean the machine & equipment's at regular interval PC23. Work in compliance with specified health and safety standards

Trouble Shooting	PC24. Follow the Prevent maintenance of machines & ancillary equipment's PC25. Keep coordination with maintenance department for resolving breakdown maintenance in minimum possible time. PC26. Find the Root cause analysis of moulding defects PC27. Analysis of data sheets available in department PC28. Take the all corrective & preventive action
Reporting & documentation	PC29. Report the problems caused by machines to superior, when not resolved by operator. PC30. Report defects in the moulds that one do not have the authority to repair PC31. Report major processing defects beyond control of operator PC32. Keep the records of machine log book, data sheet of machine parameter PC33. Keep the file documents related to incoming & outgoing material
Achieve productivity, quality and safety standards as per company's norms	PC34. Meet targets & goals for production PC35. Minimise defects in final product PC36. Follow quality system to get better product PC37. Keep work area clean & systematic PC38. Comply to safety & health guidelines & rules
Knowledge and Understanding (K)	
B. Organizational Context (Knowledge of the company / organization and its processes)	The user/individual on the job needs to know and understand: KA1. company's policies on personnel management KA2. company's code of conduct & policy KA3. importance of individual's role in the work flow KA4. organization culture KA5. company's reporting structure KA6. functional process like store management, procurement, quality management
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. different types of plastic material KB2. properties of plastic material KB3. Knowledge of Semi-Automatic & Fully-Automatic operation of machines KB4. Machine start up procedure KB5. Principle of Injection Moulding KB6. Parameter setting of injection moulding Machine–Temperature, Pressure, Time KB7. Clamping system – Hydraulic & Toggle KB8. Mould loading & unloading procedure KB9. Calculation of tonnage, importance of mould dimensions, mould day-light KB10. Injection Unit, shot weight setting, Calculation of plasticizing capacity of Machine , types of nozzles, ring plunger set KB11. Monitoring of parameters for production of quality components KB12. Post moulding operation like finishing, deflashing

	KB13. Quality Control & testing of plastic product KB14. Minimisation of rejection & reuse of feed system KB15. shut down procedure
Skills (S) [Optional]	
C. Core Skills/ Generic Skills	**Writing Skills**
	The user/individual on the job needs to know and understand how to: SA1. prepare document related to processing parameter, other technical records like machine log sheets, job card etc. SA2. write information documents to internal departments/ internal teams SA3. compilation of production records
	Reading Skills
	SA4. read & interpret machine parameters SA5. read equipment manuals and process documents SA6. read instructions like safety instructions , symbols while using the equipment in the plant area
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA7. Communicate orally any instructions related to work with superiors & coworkers with clarity SA8. Listen actively SA9. Follow company protocol for communication
D. Professional Skills	**Decision Making**
	The user/individual on the job needs to know and understand how to: SB1. make proper decisions pertaining to the work SB2. Identification of problem SB3. Finding the resource to resolve the problem SB4. consult superiors in case of any assistance
	Plan and Organize
	The user/individual on the job needs to know and understand how to: SB5. plan, fix up priorities for work operations as per job requirements SB6. organize and analyze information relevant to work SB7. Basic concepts of shop-floor work productivity including material management waste reduction etc.
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB8. undertake and express new ideas and initiatives to others

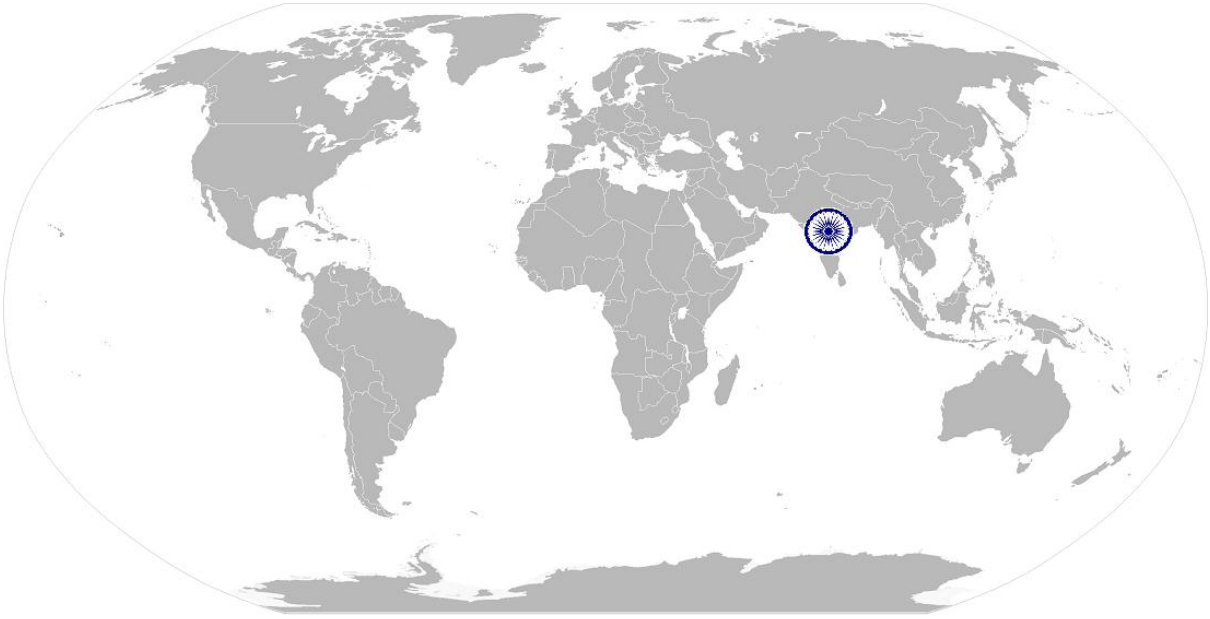
	SB9. modify work plan to overcome unforeseen difficulties or developments that occur as work progresses SB10. participate in improvement procedures including process, quality etc.
	Analytical / Critical Thinking
	The user/individual on the job needs to know and understand how to: SB11. apply, analyze, and evaluate the information gathered from observation, experience, reasoning, or communication, as a guide to thought and action
	Team Work
	The user/individual on the job needs to know and understand how to: SB12. exhibit good team work with all SB13. Consult superiors or fellow workers in case of any assistance SB14. Maintains good inter personal relations



RSC/N4807 (CPC/N0115) Operate the Injection moulding machine & its trouble shooting

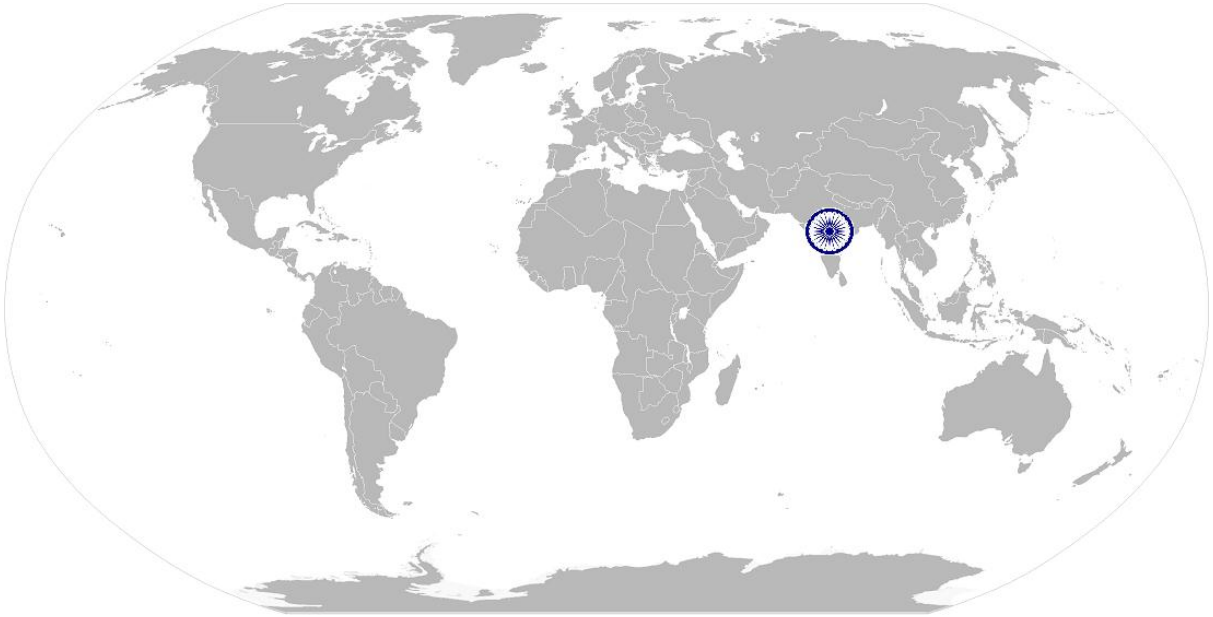
NOS Version Control

NOS Code	RSC/N4807 (CPC/N0115)		
Credits (NSQF)	13.6	Version number	1.0
Sector	Rubber	Drafted on	18/05/2016
Sub Sector	Plastics Processing	Last reviewed on	26/12/2016
Occupation	Plastics Processing	Next review date	31/12/2021



RSC/N4808 (CPC/N0116) Operate Extrusion machine & its trouble shooting

National Occupational Standards



Overview

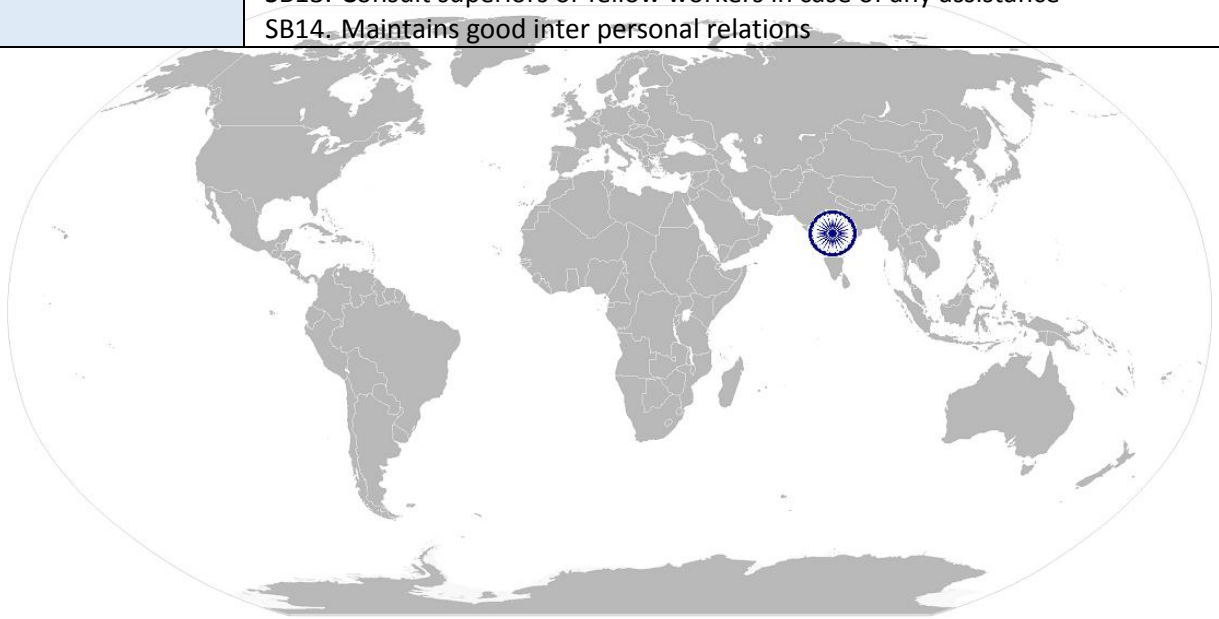
This unit is about operation of extrusion machine & its trouble shooting.

Unit Code	RSC/N4808 (CPC/N0116)
Unit Title (Task)	Operate Extrusion Machine & its trouble shooting
Description	This OS unit is about operating the Extrusion Machine & its trouble shooting
Scope	The Machine Operator -Plastics Processing will be responsible for • Pre-extrusion operation • Extruder operation • Trouble shooting • Reporting & Documentation • Sorting & Placing
Performance Criteria(PC) w.r.t. the Scope	
Element	**Performance Criteria**
Pre extrusion operation	The individual on the job should be able to: PC1. Plan work schedule in concurrence with Superior PC2. Obtain and check the data on the job card and carry out functions in line with the responsibilities of job role PC3. Ensure availability of data sheet, manual, work instructions PC4. Check the power supply, oil level in gear box, water connections PC5. Ensure availability & functioning of the tools ,materials & ancillary equipment's l like Air Compressor, Cooling Tower, High Speed Mixer etc. for the work PC6. Setup the equipment & machineries as per the job requirement PC7. Update and develop knowledge of the products to be produced PC8. Plan for Minimum rejection & its safe reuse/disposal PC9. Safety aspects of machine operation PC10. Work in conformance to legal requirements, organizational policies and procedures
Extrusion	PC11. Check material is available for production. Compounding / Colour blending PC12. Check the availability & readiness of ancillary equipments like air compressor, hopper loader, dehumidifier, Cooling towers etc PC13. Load the material in the hopper PC14. Set the parameters of the machine i.e. temperatures, speeds etc. PC15. Check the temperature on the barrel with respect to set temperature PC16. Conduct trial run to get extruded sample once machine is set PC17. Adjust parameters unless getting final product PC18. Ensure the Visual check of final product PC19. Define accepted products and defective products as per approved plan PC20. Do the Corona treatment & printing, if required PC21. Store the final product in specified area PC22. Clean the machine & equipment's at regular interval

	PC23. Work in compliance with specified health and safety standards
Trouble Shooting	PC24. Preventive maintenance of machines & ancillary equipment's PC25. Keep coordination with maintenance department for resolving breakdown maintenance in minimum possible time. PC26. Find the Root cause analysis of extrusion defects PC27. Read Analysis of data sheets available in department PC28. Take all corrective & preventive action
Reporting & documentation	PC29. Report the problems caused by machines to superior, when not resolved by operator. PC30. Report defects in the moulds that one do not have the authority to repair PC31. Report major processing defects beyond control of operator PC32. Keep records of machine log book, data sheet of machine parameter PC33. Keep the Documents related to incoming & outgoing material
Achieve productivity, quality and safety standards as per company's norms	PC34. Meet targets & goals for production PC35. Minimize defects in final product PC36. Follow quality system to get better product PC37. Keep work area clean & systematic PC38. Comply to safety & health guidelines & rules
Knowledge and Understanding (K)	
C. Organizational Context (Knowledge of the company / organization and its processes)	The user/individual on the job needs to know and understand: KA1. company's policies on personnel management KA2. company's code of conduct & policy KA3. importance of individual's role in the work flow KA4. organization culture KA5. company's reporting structure KA6. functional process like store management, procurement, quality management
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. The different types of extrusion grade plastic material KB2. The properties of above plastic material KB3. Knowledge of Extrusion Machine operation KB4. Machine start up procedure KB5. Principle of Extrusion, Blown film , Pipe/ Profile Extrusion KB6. Screw , L/D ratio, different types of screws KB7. Single Screw & Twin Screw Extrusion KB8. Parameter setting of Extrusion Machine – Temperature, Speed & Time KB9. Die setting, breaker plate, screen pack , back pressure KB10. Sizing methods , Calibrating unit / collapsing unit, Hall off/take off & winding unit, Cutting & sealing unit for films. KB11. Extruder Unit, Gear box, motor, drive

	KB12. Extrusion rate calculation, KB13. Monitoring of parameters for production of quality components KB14. Quality Control & testing of plastic product KB15. Minimisation of rejection & reuse KB16. shut down procedure
Skills (S) [Optional]	
E. Core Skills/ Generic Skills	**Writing Skills**
	The user/individual on the job needs to know and understand how to: SA1. prepare document related to processing parameter, other technical records like machine log sheets, job card etc. SA2. write information documents to internal departments/ internal teams SA3. compilation of production records
	Reading Skills
	SA4. read & interpret machine parameters SA5. read equipment manuals and process documents SA6. read instructions like safety instructions , symbols while using the equipment in the plant area
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA7. Communicate orally any instructions related to work with superiors & coworkers with clarity SA8. Listen actively SA9. Follow company protocol for communication
F. Professional Skills	**Decision Making**
	The user/individual on the job needs to know and understand how to: SB1. make proper decisions pertaining to the work SB2. Identification of problem SB3. Finding the resource to resolve the problem SB4. consult superiors in case of any assistance
	Plan and Organize
	The user/individual on the job needs to know and understand: SB5. plan, fix up priorities for work operations as per job requirements SB6. organize and analyze information relevant to work SB7. basic concepts of shop-floor work productivity including material management waste reduction etc.
	Problem Solving
	The user/individual on the job needs to know and understand how to:

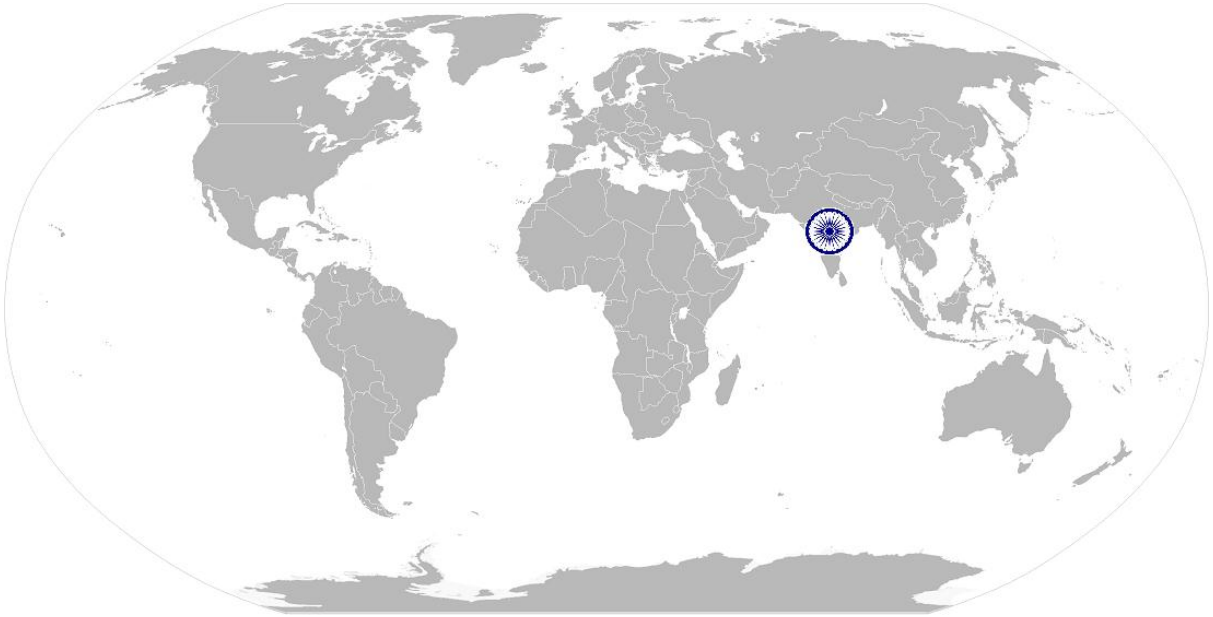
	SB8. undertake and express new ideas and initiatives to others SB9. modify work plan to overcome unforeseen difficulties or developments that occur as work progresses SB10. participate in improvement procedures including process, quality etc.
	Analytical / Critical Thinking
	The user/individual on the job needs to know and understand how to: SB11. apply, analyze, and evaluate the information gathered from observation, experience, reasoning, or communication, as a guide to thought and action
	Team Work
	The user/individual on the job needs to know and understand how to: SB12. exhibit good team work with all SB13. Consult superiors or fellow workers in case of any assistance SB14. Maintains good inter personal relations



RSC/N4808 (CPC/N0116) Operate Extrusion machine & its trouble shooting

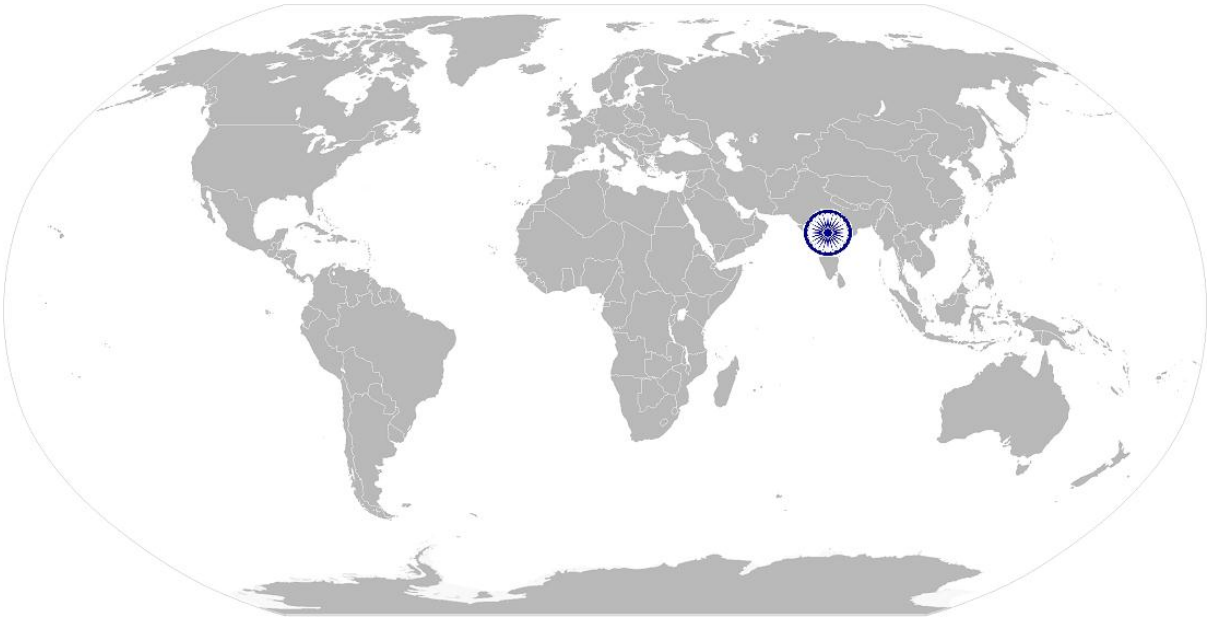
NOS Version Control

NOS Code	**RSC/N4808 (CPC/Q0116)**		
Credits (NSQF)	**10.0**	**Version number**	**1.0**
Sector	**Rubber**	**Drafted on**	**18/05/2016**
Sub Sector	**Plastics Processing**	**Last reviewed on**	**26/12/2016**
Occupation	**Plastics Processing**	**Next review date**	**31/12/2021**



RSC/N 4809 (CPC/N0117) Operate the Blow moulding machine & its trouble shooting

National Occupational Standards



Overview

This unit is about operation of blow moulding machine & its trouble shooting

RSC/N 4809 (CPC/N0117) Operate the Blow moulding machine & its trouble shooting

National Occupational Standard

Unit Code	RSC/N4809 (CPC /N0117)
Unit Title (Task)	Operate the Blow Moulding Machine & Trouble Shooting
Description	This OS unit is about understanding the Blow molding process, mould / materials used, troubleshooting of process
Scope	The Machine Operator -Plastics Processing will be responsible for • Understanding the Process & process requirements • Arranging the required raw material and tools for the process • Troubleshooting & housekeeping • Reporting & Documentation • Achieve productivity, quality and safety standards as per company's norms
Performance Criteria(PC) w.r.t. the Scope	
Element	**Performance Criteria**
Understanding the Process & process requirements	The individual on the job should be able to: PC1. Learn the process, their types, operations involved PC2. Discuss the work requirements for the process and with the supervisor PC3. Refer all components / process related documents to understand dimensions and properties of the required work output PC4. Learn the process requirements in terms of tools / mould / die required, temperature of the heater according to plastics material being used, Hydraulic / pneumatic pressure / rotating speed of the screw, Parison formation, Parison Programming, Blowing time etc. as mentioned in the Work Instruction / SOP / Control Diagrams PC5. Clearly understanding the do's and don'ts of the blow moulding process as defined in SOPs / Work Instructions or as defined by supervisors
Arranging the required raw material and tools for the process	PC6. Learn the conversion procedure and process to be adopted for completing the work order from the supervisor by referring the Work Instruction document / SOP manual PC7. Set the various parameters like temperature of the heaters, temperature of chiller / cooling tower, hydraulic / air pressure, rotating speed of the screw, screw pressure, regulating current, flow of coolant / water etc. before starting the process as per the parameters mentioned in the Work Instructions / SOP PC8. Ensure the raw material like plastics granules, bonding additives etc. required for production PC9. Ensure that the required material with enough stock is available before starting the process PC10. Ensure the type of Mould / Die required to complete the conversion operation and ensure that the same is available for moulding operations PC11. Ensure the availability of spare parts for continuous operation of machine

Troubleshooting & housekeeping	PC12. Learn the troubleshooting of the blow moulding process. Knows the quality defects observed in blow moulding, their causes and remedies PC13. Set the parameters to ensure manufacturing of good product. PC14. Ensure that mould / Die are cleaned properly & no foreign material is trapped in parts of mould/die. PC15. Ensure cleaning of the other moulding machine tools, auxiliaries (if any) PC16. Ensure cleaning of the area around the machine for any oil, grease, water etc.
Reporting & documentation	PC17. Reporting the problems caused by machines to superior, when not resolved by operator. PC18. Report defects in the moulds that one do not have the authority to repair PC19. Report major processing defects beyond control of operator PC20. Keep the records of machine log book, data sheet of machine parameter PC21. Keep the Documents related to incoming & outgoing material
Achieve productivity, quality and safety standards as per company's norms	PC22. Meet targets & goals for production PC23. Minimize defects in final product PC24. Follow quality system to get better product PC25. Keep work area clean & systematic PC26. Comply to safety & health guidelines & rules
Knowledge and Understanding (K)	
D. Organizational Context (Knowledge of the company / organization and its processes)	The user/individual on the job needs to know and understand: KA1. company's policies on personnel management KA2. company's code of conduct & policy KA3. importance of individual's role in the work flow KA4. organization culture KA5. company's reporting structure KA6. Functional process like store management, procurement, quality management
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. The blow moulding processing technique, working principle, operating procedure etc. KB2. different parameters to process like heater temperature, hydraulic pressure/ air pressure/ vacuum pressure, rotating speed of the screw, operating current and voltage, injection time, refilling time, blowing time etc. and the impact of these parameters on the process output KB3. various types of plastics materials like LDPE, HDPE, PP etc. being use for the process and the additives / master batches to be used KB4. Processing behaviour of various plastic raw materials being used KB5. Safe storage of raw materials, their mixing, blending, etc. KB6. Types of moulds & dies used their operation KB7. different types of measuring instruments like vernier callipers, micrometres

	Etc. for geometry and dimension measurement of the product KB8. different types of tools to trim the plastic product KB9. hazards and safety aspects involved in different processing techniques
Skills (S) [Optional]	
G. Core Skills/ Generic Skills	**Writing Skills**
	The user/individual on the job needs to know and understand how to: SA1. prepare document related to processing parameter, other technical records like machine log sheets, job card etc. SA2. prepare draft drawings for the final output product SA3. write information documents to internal departments/ internal teams
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA4. read & interpret machine parameters SA5. read and interpret engineering drawings and sketches SA6. read equipment manuals and process documents SA7. read instructions like safety instructions , symbols while using the equipment in the plant area
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA8. Communicate orally any instructions related to work with superiors & coworkers with clarity SA9. Listen actively SA10. Follow company protocol for communication
H. Professional Skills	**Decision Making**
	The user/individual on the job needs to know and understand how to: SB1. Make proper decisions pertaining to the work SB2. Identify the problem SB3. Find the resource to resolve the problem SB4. Consult superiors in case of any assistance
	Plan and Organize
	The user/individual on the job needs to know and understand: SB5. Plan, fix up priorities for work operations as per job requirements SB6. Organize and analyze information relevant to work SB7. Basic concepts of shop-floor work productivity including material management waste reduction etc.

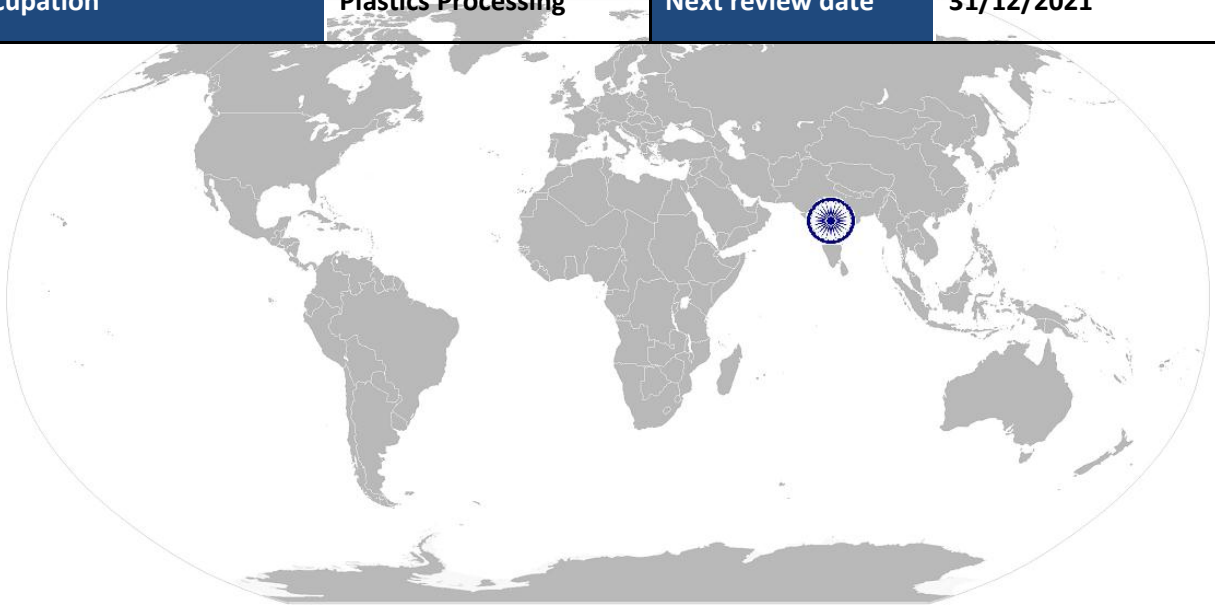
RSC/N 4809 (CPC/N0117) Operate the Blow moulding machine & its trouble shooting

	Problem Solving
	The user/individual on the job needs to know and understand how to: SB8. Undertake and express new ideas and initiatives to others SB9. Modify work plan to overcome unforeseen difficulties or developments that occur as work progresses SB10. Participate in improvement procedures including process, quality etc.
	Analytical / Critical Thinking
	The user/individual on the job needs to know and understand how to: SB11. Apply, analyze, and evaluate the information gathered from observation, experience, reasoning, or communication, as a guide to thought and action
	Team Work
	The user/individual on the job needs to know and understand how to: SB12. Exhibit good team work with all SB13. Consult superiors or fellow workers in case of any assistance SB14. Maintains good inter personal relations

RSC/N 4809 (CPC/N0117) Operate the Blow moulding machine & its trouble shooting

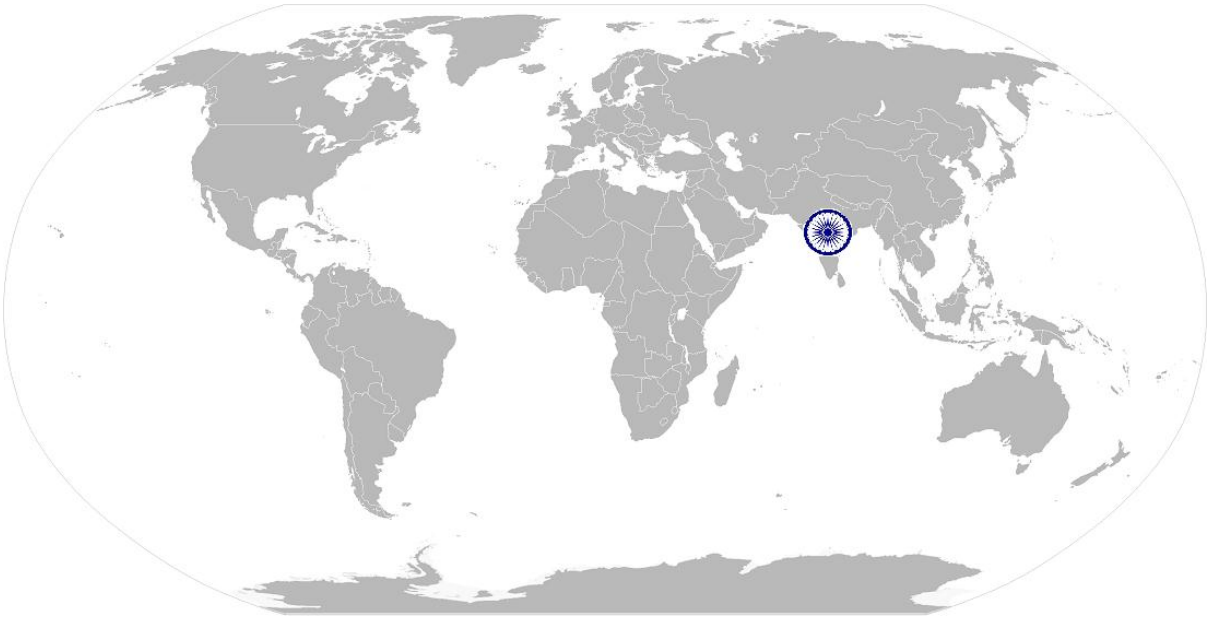
NOS Version Control

NOS Code	**RSC/N4809 (CPC/N0117)**		
Credits (NSQF)	**8.0**	**Version number**	**1.0**
Sector	**Rubber**	**Drafted on**	**18/05/2016**
Sub Sector	**Plastics Processing**	**Last reviewed on**	**26/12/2016**
Occupation	**Plastics Processing**	**Next review date**	**31/12/2021**



RSC/N4101(CPC/N0411) Maintain basic health and safety practices at the workplace,5S

National Occupational Standards



Overview

This unit is about establishing a Safe, Healthy and Environment friendly workplace

RSC/N4101(CPC/N0411) Maintain basic health and safety practices at the workplace,5S

National Occupational Standards

Unit Code	RSC/N4101 (CPC/N0411)
Unit Title (Task)	**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 • Health and safety procedure. • Fire safety procedure. • Emergencies, rescue and first aid procedures. • Ensure sorting, stream lining, storage and documentation, cleaning, standardization and sustenance across the plant premises of the organization.
Performance Criteria (PC) w.r.t. the Scope	
Element	**Performance Criteria**
Health and safety	The individual on the job should ensure 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	The individual on the job should 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 procedures.	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.	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. Follow the given instructions and check for labelling of fluids, oils, lubricants, solvents, chemicals etc. and proper storage of the same to avoid spillage, leakage, fire etc. PC21. 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 (K)	
E. Organizational Context (Knowledge of the company / organization and its processes)	The user/individual on the job needs to know and understand: KA1. The relevant standards, procedures and policies related to Health, Safety and Environment followed in the company KA2. The emergency handling procedures & hierarchy for escalation
B. Technical Knowledge	**The user/individual on the job needs to know and understand:** KB1. The basic knowledge of Safety procedures (fire fighting, first aid) within the organization

RSC/N4101(CPC/N0411) Maintain basic health and safety practices at the workplace,5S

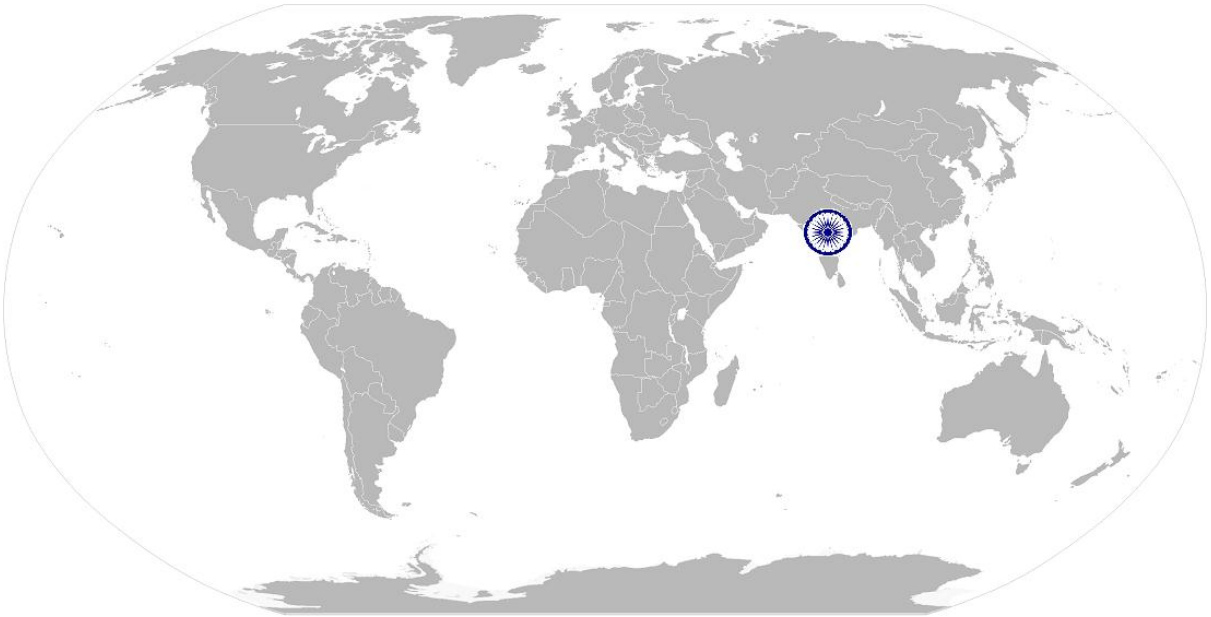
	KB2. The basic knowledge of various types of PPEs and their usage KB3. The basic knowledge of risks/hazards associated with each occupation in the organization KB4. The knowledge of personal hygiene and how an individual contribute towards creating a highly safe and clean working environment the individual on the job needs to know and understand. KB5. The meaning of "hazards" and "risks" KB6 The health and safety hazards commonly present in the work environment and related precautions KB7. The possible causes of risk, hazard or accident in the workplace and why risk and/or accidents are possible KB8. The Possible causes of risk and accident (due to oil leakage) KB9. Methods of accident prevention KB9. Safe working practices when working with tools and machines KB10. Safe working practices while working at various hazardous sites KB11. The where to find all the general health and safety equipment in the workplace KB12. Various dangers associated with the use of electrical equipment KB13. Preventative and remedial actions to be taken in the case of exposure to toxic materials KB14. The Importance of using protective clothing/equipment while working KB15. Precautionary activities to prevent the fire accident KB16. Various causes of fire KB17. The techniques of using the different fire extinguishers KB18. The different methods of extinguishing fire KB19. The different materials used for extinguishing fire KB20. Rescue techniques applied during a fire hazard KB21. Various types of safety signs and what they mean KB22. 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 KB23. The content of written accident report KB24. Potential injuries and ill health associated with incorrect manual handing KB25. Safe lifting and carrying practices KB26. Personal safety, health and dignity issues relating to the movement of a person by others KB27. Potential impact to a person who is moved incorrectly KB28. The basic knowledge of 5S procedures KB29. The various types 5s practices followed in various areas KB30. The 5S checklists provided in the department/ team KB31. The skills to identify useful & non useful items KB32. To have knowledge of labels , signs & colours used as indicators KB33. To have knowledge on how to sort and store various types of tools, equipment, material etc. KB34. How to identify various types of waste products

	KB35. the impact of waste/ dirt/ dust/unwanted substances on the process/ environment/ machinery/ human body. KB36. the knowledge of best ways of cleaning & waste disposal
Skills (S) [Optional]	
Element	**Skills**
I. Core Skills/ Generic Skills	**Writing Skills**
	The user/ individual on the job needs to know and understand how to: SA1. Basic level notes and observations.
	Reading Skills
	The user/individual on the job needs to know and understand about the: SA2. safety instructions put up across the plant premises SA3. Safety precautions mentioned in equipment manuals and panels and understand the potential risks associated
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA4. Communicate information to team members effectively SA5. Inform employees in the plant and concerned functions about events, Incidents & potential risks observed related to Safety, Health and Environment. SA6. Question operator/ supervisor in order to understand the safety related issues SA7. Attentively listen with full attention and comprehend the information given by the speaker during safety drills and training programs
J. Professional Skills	**Plan and Organize**
	The user/individual on the job needs to know and understand how to: SB1. Process the work order and jobs received from the internal customers. SB2. Design documents received from internal customers SB3. Organize all process/ equipment manuals so that sorting out information is fast.
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB4. Use common sense and make judgments during day to day basis SB5. Use intuition to detect any potential problems which could arise during operations
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB6. Follow instructions and work on areas of improvement identified SB7. Complete the assigned tasks with minimum supervision SB8. Complete the job defined by the supervisor within the timelines and quality norms

RSC/N4101(CPC/N0411) Maintain basic health and safety practices at the workplace,5S

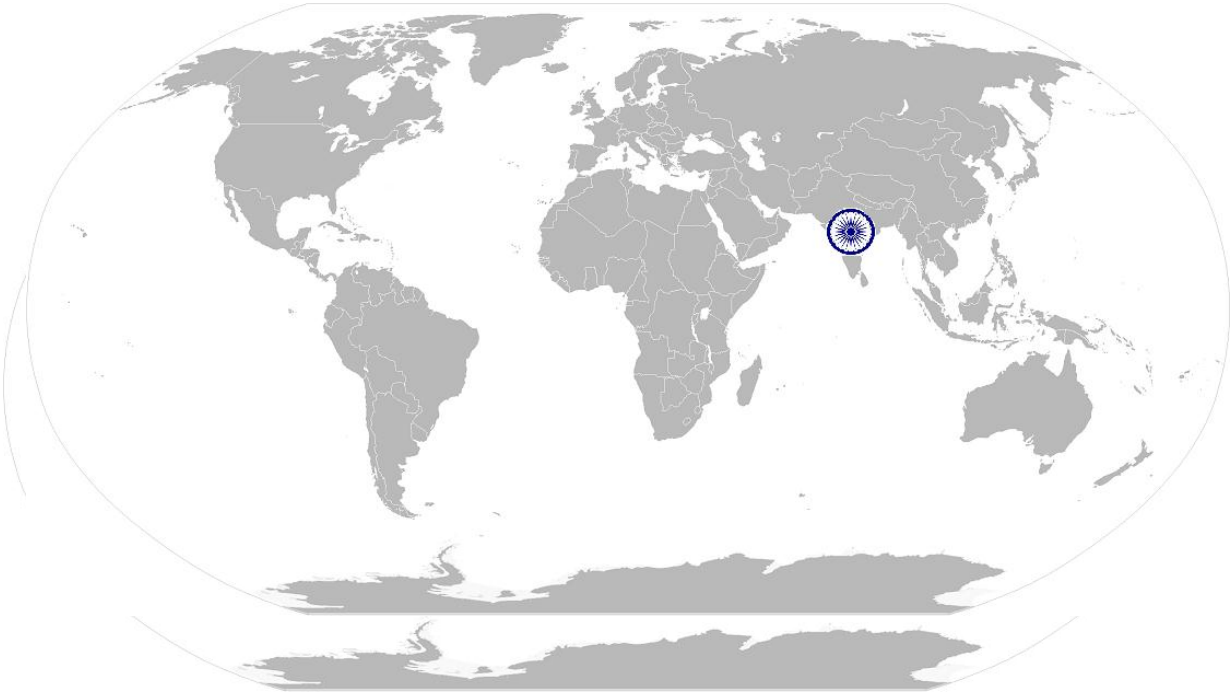
NOS Version Control

NOS Code	**RSC/N4101 (CPC/N0411)**		
Credits (NSQF)	**4.4**	**Version number**	**1.0**
Sector	**Rubber**	**Drafted on**	**18/05/2016**
Sub Sector	**Plastics Processing**	**Last reviewed on**	**26/12/2016**
Occupation	**Plastics Processing**	**Next review date**	**31/12/2021**



RSC/N4825 (CPC/N 1108) Entrepreneurship in plastics processing

National Occupational Standards



Overview

This unit is about Entrepreneurship in Plastics Processing

RSC/N4825 (CPC/N 1108) Entrepreneurship in plastics processing

National Occupational Standard

Unit Code	**RSC/N4825 (CPC/N 1108)**
Unit Title (Task)	**Entrepreneurship in Plastics Processing**
Description	This OS unit is about entrepreneurship in Plastics Processing
Scope	This unit/task covers the following: • Market Information Management • Client Relation Management • Marketing

Performance criteria (PC) w.r.t. the Scope	
Element	**Performance criteria**
Injection moulding Economics and Finances	To be competent, the individual on the job must be able to: PC1. Plan and Budgeting with reference to various components of Injection Moulding PC2. Maintain books of accounts and various transactions PC3. Arrange for financial assistance from various quarters in the light of various schemes available in setup for Injection Moulding.
Market Information Management	PC4. Ascertain the prices of various inputs and products from the market PC5. Assess the influence of various quality parameters of products on the product pricing
Client Relation Management	PC6. Establish cordial relations with various clients for the benefit of industry PC7. Assess the needs and requirement of the clients and assess one's own unique selling proposition PC8. Extract critical market information that is otherwise not in the public domain
Marketing	PC9. Choose appropriate buyer in a given situation of market parameters PC10. Identify best ways of attracting market price for one's produce PC11. Ensure quality before & during the sale activity to ensure good returns.

Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and it process)	**Injection Moulding Economics and Finances**
	The individual on the job needs to know and understand: KA1. Basic steps of Injection Moulding planning and budgeting KA2. Basic principles of keeping books of accounts KA3. Various Government and other schemes / products / offers available for startup and support of Injection Moulding.
B. Technology	**Market Information Management**

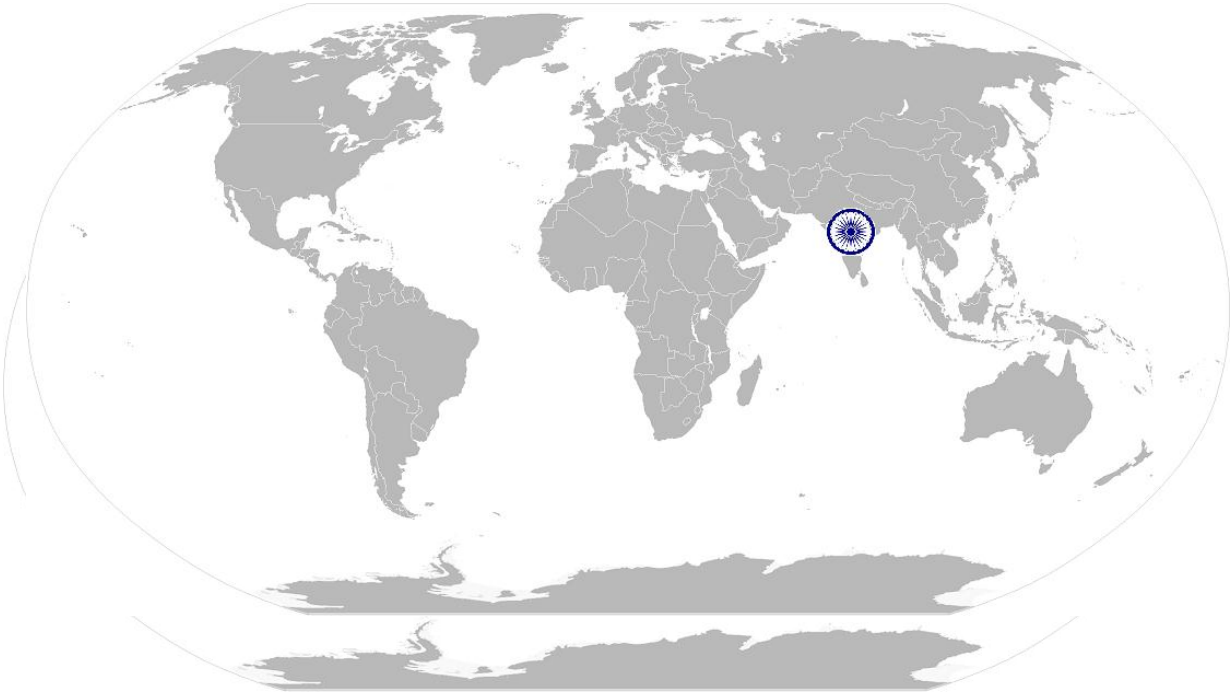
RSC/N4825 (CPC/N 1108) Entrepreneurship in plastics processing

Knowledge	The user/individual on the job needs to know and understand: KB1. Different players selling various injection moulded products and their prices KB2. Different players buying injection moulded products & their prices KB3. Various methods of updating oneself with market information such as mobile, Internet etc. KB4. Usage, contact with key informants, tie up government agencies etc.
	Client Relation Management
	The user/individual on the job needs to know and understand: KB5 Needs and options available with various clients KB6. Advantages and disadvantages of doing business with each one of the clients
	Marketing
	The user/individual on the job needs to know and understand: KB7. The quality parameters of injection moulded products and their market prices KB8. Pricing mechanism of various buyers of injection moulded products KB9. Costing of various logistic arrangements towards the sale injection moulded products at different markets and consumer points.
Skills (S) [Optional]	
A. Core Skills/ Generic Skills	**Writing Skills**
	The user/ individual on the job needs to know and understand how to: SA1. Mention the data which are required for record keeping purpose SA2. Report problems to the appropriate personnel in a timely manner SA3. Write descriptions and details about incidents in reports
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA4. Keep abreast with the latest knowledge by reading brochures, pamphlets and product information sheets SA5. Read instruction manuals for hand tool and equipments SA6. Read instructions on work orders and procedures
	Oral Communication (Listening and Speaking skills)

	The user/individual on the job needs to know and understand how to: SA7. Discuss task lists, schedules, and work-loads with co-workers SA8. Question customers appropriately in order to understand the nature of the problem and make a DiagLOis SA9. Give clear instructions to customers SA10. Keep customers informed about progress SA11. Avoid using jargon, slang or acronyms when communicating with a customer, unless it is required
B. Professional Skills	**Decision Making**
	The user/individual on the job needs to know and understand how to: SB1. Make decisions pertaining to the concerned area of work
	Plan and Organize
	The user/individual on the job needs to know and understand: SB2. Plan and organize service feedback files/documents
	Customer Centricity
	The user/individual on the job needs to know and understand how to: SB3. manage relationships with customers who may be stressed, frustrated, confused, or angry SB4. build customer relationships and use customer centric approach
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB5. Think through the problem, evaluate the possible solution(s) and suggest an optimum /best possible solution(s) SB6. Deal with clients lacking the technical background to solve the problem on their own SB7. Identify immediate or temporary solutions to resolve delays
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB8. Use the existing data to arrive at specific data points SB9. Use the existing data points for improving the defect resolution time SB10. Use the existing data points to generate required reports for business

RSC/N4825 (CPC/N 1108) Entrepreneurship in plastics processing

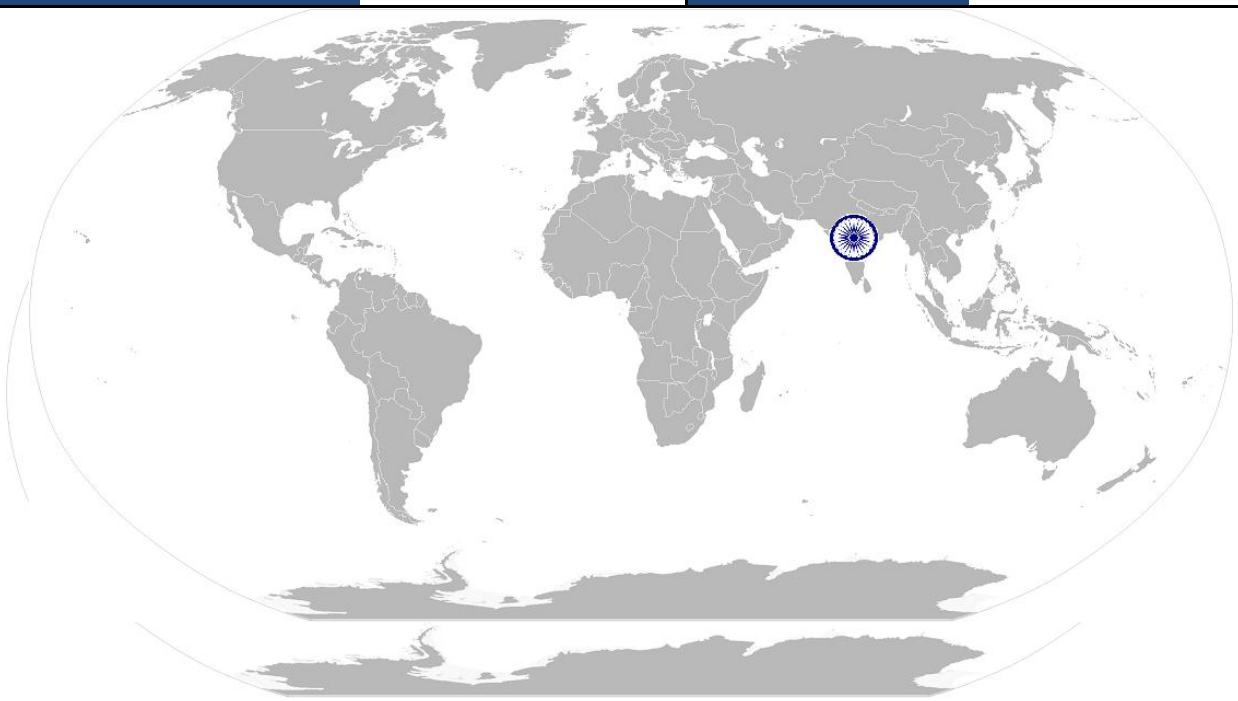
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB11. Apply, analyze, and evaluate the information gathered from observation, experience, reasoning, or communication, as a guide to thought and action



RSC/N4825 (CPC/N 1108) Entrepreneurship in plastics processing

NOS Version Control

NOS Code	**RSC/N4825 (CPC/N 1108)**		
Credits (NSQF)	**5.95**	**Version number**	**1.0**
Sector	**Rubber**	**Drafted on**	**18/05/2016**
Sub Sector	**Plastics Processing**	**Last reviewed on**	**26/12/2016**
Occupation	**Injection molding**	**Next review date**	**31/12/2021**



CRITERIA FOR ASSESSMENT OF TRAINEES
Job Role: Machine Operator –Plastics Processing **Qualification Pack Code:RSC/Q4803 (CPC/Q0105)** **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 laydown 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. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training centre (as per assessment criteria below) 4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training centre based on this criteria. 5. To pass the Qualification Pack, every trainee should score a minimum of 70% in every NOS. 6. In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack.

Assessable outcome		**Marks Allocation**		
NOS	**Performance criteria**	**Total**	**Theory**	**Practical**
RSC/N4104 (CPC/N0414) Basics of Plastics Processing methods	PC1. Learn the all plastics processing machineries	3	1	2
	PC2. Identify merits and demerits of Blow Moulding to over the all others plastic Process.	3	1	2
	PC3. Ensure definition and terminology related to Plastic Processing.	3	1	2
	PC4. Ensure finishing operation including surface treatment of the fabricated product if required as per SOP.	4	1	3
	PC5. Follow the Primary Processing Methods as per company's SOP.	3	1	2
	PC6. Follow the Secondary Processing Methods as per company's SOP.	3	1	2
	PC7. Follow the fundamentals of Processing methods	3	1	2
	PC8. Adhere the type of process to be used depends on a variety of factors, including product shape and size, plastic type, quantity to be produced, quality and accuracy (Tolerances) required, design load performance, cost limitation, and time schedule.	3	1	2
	PC9. Follow the Machine Operation Terminology: as per manual, semiautomatic, fully automatic.	5	1	4

	PC10. Learn the Type of Conversion Techniques: Injection, Blow, Compression, Transfer, Rotational and Other processes.	5	1	4
	PC11. Identify Material to be processed	5	1	4
	PC12. Ensure the Product design / configuration, Tolerance.	5	1	4
	PC13. Ensure the Process Limitations	5	1	4
	PC14. Ensure the Quality	5	1	4
	PC15. Ensure the Cost / Performance balance.	5	1	4
	Sub total	**60**	**15**	**45**
2. RSC/N4802 (CPC/N0110) :Basic Knowledge about different plastic material	PC1. Discuss about the type of raw material being used in the industry & for work Order required for the process and with the supervisor	3	1	2
	PC2. Refer all material related documents to understand properties of the required work output and able to identify the material	8	2	6
	PC3. Follow the process requirements for the Plastics material in terms of temperature of the heater, rotating speed of the Screw, pressure, injection as mentioned in the Work Instruction / SOP / Control Diagrams	10	2	8
	PC4. Study the melting temperature, processing temperature etc. for plastic raw material	10	2	8
	PC5. Identify the processing characteristics of the plastics material being used for conversion procedure and process to be adopted for completing the work order from the supervisor by referring the Work Instruction document / SOP manual	10	2	8
	PC6. Ensure that the required material is available before starting the process	10	2	8
	PC7. Ensure that the plastics material is blended with requisite additives	9	1	8
	PC8. Ensure that machine / mould / Die are cleaned properly & no foreign material is entrapped in parts of machine / mould / die.	9	1	8
	PC9. Ensure cleaning of the materials spilled around the machine	7	1	6
	PC10. Ensure cleaning of the area around the machine for any oil, grease, water etc	4	1	3
	Sub total	**80**	**15**	**65**
3. RSC/N4807 (CPC/N0115): Operate the	PC1. Plan work schedule in concurrence with Superior	2.5	0.5	2
	PC2. Obtain and check the data on the job card and carry out functions in line with the responsibilities of	2.5	0.5	2

Injection moulding machine & its trouble shooting	job role			
	PC3. Ensure availability of data sheet, manual, work instructions	3	1	2
	PC4.Ensure power supply, hydraulic oil level, water connections	3	1	2
	PC5. Ensure availability of the tools ,materials & ancillary equipment's for the work	3	1	2
	PC6. Setup the equipment & machineries as per the job requirement	3	1	2
	PC7. Update and develop knowledge of the products	3	1	2
	PC8. Plan for Minimum wastage & its safe disposal	3	1	2
	PC9. Work in conformance to legal requirements, organizational policies and procedures	5	1	4
	PC10. Ensure that the mould is ready & having no problem in dry run	5	1	4
	PC11. Check material is available for production. If required arrange for pre drying	5	1	4
	PC12. Check the availability & readiness of ancillary equipment's like chiller, mould Temperature controller, hopper loader, Cooling towers etc.	5	1	4
	PC13. Load the material and pigment (if required) in the hopper	5	1	4
	PC14. Set the parameters of the machine i.e. temperature, pressure, speed etc.	5	1	4
	PC15. Check the temperature on the barrel with respect to set temperature	5	1	4
	PC16. Conduct trial run to get sample piece once machine is set	3	1	2
	PC17. Adjust parameters unless getting final product	3	1	2
	PC18. Ensure the Visual check of final product	3	1	2
	PC19. Define accepted products and defective products as per approved plan	3	1	2
	PC20. Carry out post molding operation during the cycle time run such as. trimming, apply protective tapes, putting labels on each product for identification	3	1	2
	PC21. Store the final product in specified area	3	1	2
	PC22. Clean the machine & equipment's at regular interval	3	1	2
	PC23. Work in compliance with specified health and safety standards	3	1	2
	PC24. Keep Preventive maintenance of machines & ancillary equipment's	3	1	2

	PC25. Keep Coordination with maintenance department for resolving breakdown maintenance in minimum possible time.	3	1	2
	PC26. Find the Root cause analysis of moulding defects	3	1	2
	PC27. Analysis of data sheets available in department	3	1	2
	PC28. Take all corrective & preventive action	3	1	2
	PC29. Report the problems caused by machines to superior, when not resolved by operator.	3	1	2
	PC30. Report defects in the moulds that one do not have the authority to repair	3	1	2
	PC31. Report major processing defects beyond control of operator	3	1	2
	PC32. Keep records of machine log book, data sheet of machine parameter	3	1	2
	PC33. Keep the Documents related to incoming & outgoing material	3	1	2
	PC34. Meet targets & goals for production	3	1	2
	PC35. Minimize defects in final product	2.5	0.5	2
	PC36. Follow quality system to get better product	2.5	0.5	2
	PC37. Keep work area clean & systematic	2.5	0.5	2
	PC38. Comply to safety & health guidelines & rules	2.5	0.5	2
	Sub total	**125**	**35**	**90**
4. RSC/N4808 (CPC/N0116): Operate the extrusion machine & its trouble shooting	PC1. Plan work schedule in concurrence with Superior	2.5	0.5	2
	PC2.Obtain and check the data on the job card and carry out functions in line with the responsibilities of job role	2.5	0.5	2
	PC3. Ensure availability of data sheet, manual, work instructions	2.5	0.5	2
	PC4. Check for power supply, oil level in gear box, water connections	2.5	0.5	2
	PC5. Ensure availability & functioning of the tools ,materials & ancillary equipment's l like Air Compressor, Cooling Tower, High Speed Mixer etc for the work	2.5	0.5	2
	PC6. Setup the equipment & machineries as per the job requirement	2.5	0.5	2
	PC7. Update and develop knowledge of the products to be produced	2.5	0.5	2
	PC8. Planning for Minimum rejection & its safe reuse/disposal	2.5	0.5	2
	PC9. Safety aspects of machine operation	2.5	0.5	2
	PC10. Work in conformance to legal requirements, organizational policies and procedures	3	1	2

	PC11. Check material is available for production. Compounding / Color blending	3	1	2
	PC12. Check the availability & readiness of ancillary equipment's like air compressor, hopper loader, dehumidifier, Cooling towers etc.	5	1	4
	PC13. Load the material in the hopper	5	1	4
	PC14. Set the parameters of the machine i.e. temperatures, speeds etc.	5	1	4
	PC15. Check the temperature on the barrel with respect to set temperature	5	1	4
	PC16. Conduct trial run to get extruded sample once machine is set	5	1	4
	PC17. Adjust parameters unless getting final product	5	1	4
	PC18. Ensure the Visual check of final product	5	1	4
	PC19. Define accepted products and defective products as per approved plan	5	1	4
	PC20. Do the Corona treatment & printing, if required	5	1	4
	PC21. Store the final product in specified area	5	1	4
	PC22. Clean the machine & equipment's at regular interval Work in compliance with specified health and safety standards	4.5	0.5	4
	PC23. Preventive maintenance of machines & ancillary equipment's	4.5	0.5	4
	PC24. Keep Coordination with maintenance department for resolving breakdown maintenance in minimum possible time.	4.5	0.5	4
	PC25. Find the Root cause analysis of extrusion defects	4.5	0.5	4
	PC26. Analysis of data sheets available in department	5	1	4
	PC27. Take all corrective & preventive action	4.5	0.5	4
	PC28. Report the problems caused by machines to superior, when not resolved by operator.	4.5	0.5	4
	PC29. Report defects in the moulds that one do not have the authority to repair	4.5	0.5	4
	PC30. Report major processing defects beyond control of operator	2.5	0.5	2
	PC31. Keep records of machine log book, data sheet of machine parameter	2.5	0.5	2
	PC32. Keep the Documents related to incoming & outgoing material	2.5	0.5	2
	PC33. Meet targets & goals for production	2.5	0.5	2
	PC34. Minimize defects in final product	2.5	0.5	2
	PC35. Follow quality system to get better product	2.5	0.5	2

	PC36. Keep work area clean & systematic	2.5	0.5	2
	PC37. Comply to safety & health guidelines & rules	2.5	0.5	2
	Sub total	**135**	**25**	**110**
5. RSC/N4809 (CPC/N0117): Operate the Blow moulding machine & its trouble shooting	PC1. Learn the process, their types, operations involved	6	2	4
	PC2. Discuss the work requirements for the process and with the supervisor	6	2	4
	PC3. Refer all components / process related documents to understand dimensions and properties of the required work output	6	2	4
	PC4. Follow the process requirements in terms of tools / mould / die required, temperature of the heater according to plastics material being used, Hydraulic / pneumatic pressure / rotating speed of the screw, Parison formation, Parison Programming, Blowing time etc. as mentioned in the Work Instruction / SOP / Control Diagrams Clearly understanding the do's and don'ts of the blow molding process as defined in SOPs / Work Instructions or as defined by supervisors.	6	2	4
	PC5. Follow the conversion procedure and process to be adopted for completing the work order from the supervisor by referring the Work Instruction document / SOP manual	6	2	4
	PC5. Follow the conversion procedure and process to be adopted for completing the work order from the supervisor by referring the Work Instruction document / SOP manual	6	2	4
	PC7. Ensure the raw material like plastics granules, bonding additives etc. required for production	6	2	4
	PC8. Ensure that the required material with enough stock is available before starting the process	6	2	4
	PC9. Ensure the type of Mould / Die required to complete the conversion operation and ensure that the same is available for moulding operations	6	2	4
	PC10. Ensure the availability of spare parts for continuous operation of machine	6	2	4
	PC11. Ensure the troubleshooting of the blow molding process. Knows the quality defects observed in blow molding, their causes and remedies	5	1	4
	PC12. Set the parameters to ensure manufacturing of good product.	5	1	4
	PC13. Ensure that mould / Die are cleaned properly & no foreign material is trapped in parts of mould/die.	5	1	4
	PC14. Ensure cleaning of the other moulding machine	5	1	4

	tools, auxiliaries (if any)			
	PC15. Ensure cleaning of the area around the machine for any oil, grease, water etc	5	1	4
	PC15. Ensure cleaning of the area around the machine for any oil, grease, water etc	5	1	4
	PC15. Ensure cleaning of the area around the machine for any oil, grease, water etc	5	1	4
	PC18. Report major processing defects beyond control of operator	5	1	4
	PC19. Keep records of machine log book, data sheet of machine parameter	5	1	4
	PC20. Keep the Documents related to incoming & outgoing material	5	1	4
	PC21. Meet targets & goals for production	5	1	4
	PC22. Minimize defects in final product	5	1	4
	PC23. Follow quality system to get better product	4	1	3
	PC24. Keep work area clean & systematic	3	1	2
	PC25. Comply to safety & health guidelines & rules	3	1	2
	Sub total	**130**	**35**	**95**
6. RSC/N4101 (CPC/N0411): Maintain basic health and safety practices at the workplace, 5S	PC1. Wear protective clothing/equipment for specific tasks and work conditions	2.5	0.5	2
	PC2. Carry out safe working practices while dealing with hazards to ensure the safety of self and others.	2.5	0.5	2
	PC3. Apply good housekeeping practices at all times	2.5	0.5	2
	PC4. Use the various appropriate fire extinguishers on different types of fires correctly	2.5	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.	2.5	0.5	2
	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.	2.5	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.	2.5	0.5	2
	PC8. Create awareness amongst other by sharing information on the identified risks.	2.5	0.5	2
	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.	2.5	0.5	2
	PC10. Ensure segregation of waste in hazardous/ non Hazardous waste as per the sorting work instructions	2.5	0.5	2
	PC11. Follow the technique of waste disposal and waste storage in the proper bins as per SOP	1.5	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	1.5	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	1.5	0.5	1
	PC14. Ensure that areas of material storage areas are not overflowing PC15. 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	1.5	0.5	1
	PC16. Return the extra material and tools to the designated sections and make sure that no additional material/ tool is lying near the work area	1.5	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.	1.5	0.5	1
	PC18. Follow the proper labelling mechanism of instruments/ boxes/ containers and maintaining reference files/ documents with the codes and the lists	1.5	0.5	1
	PC19. Check that the items in the respective areas have been identified as broken or damaged	1.5	0.5	1

	PC20. Follow the given instructions and check for levelling of fluids, oils, lubricants, solvents, chemicals etc. and proper storage of the same To avoid spillage, leakage, fire etc.	1.5	0.5	1
	PC21. Make sure that all material and tools are stored in the designated places and in the manner indicated in the 5S instructions.	1.5	0.5	1
	Sub total	**40**	**10**	**30**
5. RSC/N4825 (CPC/N1108) Entrepreneurship in Plastics Processing	PC1. Plan and Budgeting with reference to various components of Injection Moulding.	4	2	2
	PC2. Keep books of accounts and various transactions.	4	2	2
	PC3. Arrange for financial assistance from various quarters in the light of various schemes available in setup for Injection Moulding.	4	2	2
	PC4. Ascertain the prices of various inputs and products from the market.	4	2	2
	PC5. Assess the influence of various quality parameters of products on the product pricing.	2	1	1
	PC6. Establish cordial relations with various clients for the benefit of industry.	2	1	1
	PC7. Assess the needs and requirement of the clients and assess one's own unique selling proposition.	2	1	1
	PC8. Extract critical market information that is otherwise not in the public domain.	2	1	1
	PC9. Choose appropriate buyer in a given situation of market parameters	2	1	1
	PC10. Identify best ways of attracting market price for one's produce	2	1	1
	PC11. Ensure quality before and during the sale activity to ensure good returns.	2	1	1
	Sub total	**30**	**15**	**15**
	Total	**600**	**150**	**450**