

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- Plastic Moulding Technician or Operator

SECTOR: AUTOMOTIVE

SUB-SECTOR: MANUFACTURING

OCCUPATION: MOULDING

JOB ROLE: PLASTIC MOULDING OPERATOR/TECHNICIAN

REFERENCE ID: ASC/Q4401

ALIGNED TO: NCO-2004/8232.25

Moulding Operator : This role is similar for all types of plastic mouldings and can be performed both manually and through automated processes

Brief Job Description: This role primarily involves managing the specifications of the plastic and its granules, setting up and operating the moulding machinery and forming & finishing the output

Personal Attributes:

Reading, writing and communication skills, ability to plan and prioritize, quality consciousness, safety orientation, Physique to sustain strenuous conditions, Dexterity, Ability to use fingers, hands and feet with ease to complete the assigned task (Dexterity), high precision and sensitivity to problem solving and sensitivity towards safety for self and equipment.

Job Details	Qualifications Pack Code	ASC/Q4401		
	Job Role	Plastic Moulding Operator/ Technician		
	Credits(NSQF)	TBD	Version number	1.1
	Industry	Automotive	Drafted on	1/08/2013
	Sub-sector	Manufacturing	Last reviewed on	20/08/2013
	Occupation	Plastic Moulding	Next review date	20/08/2015

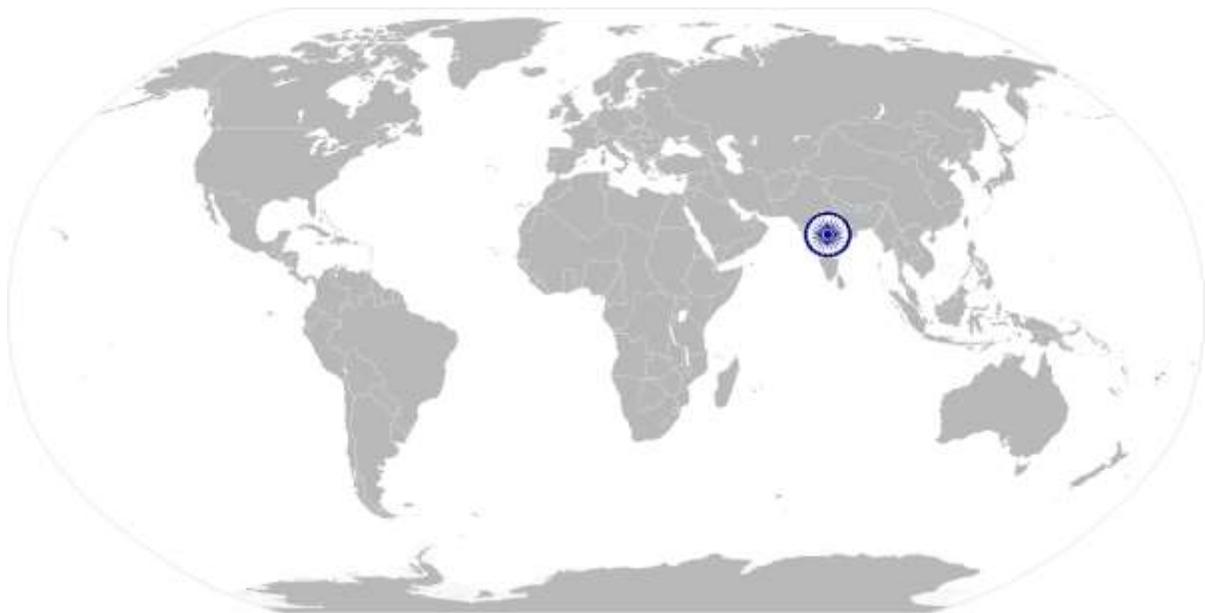
Job Role	Plastic Moulding Operator/ Technician
Role Description	Responsible for pre& post moulding operations & process documentation during the moulding operations
NSQF level	4
Minimum Educational Qualifications	ITI – Mechanical
Maximum Educational Qualifications	Higher Secondary
Training (Suggested but not mandatory)	<ul style="list-style-type: none"> • Latest Moulding techniques and methodologies • Properties of different plastic materials • Reading and writing skills • Safety and 5S
Experience	2-3 years of experience in Moulding OR L3 Moulding Technician
Occupational Standards (OS)	<ol style="list-style-type: none"> 1. ASC/N4401: Understand job requirements and related processes 2. ASC/N4402: Perform the moulding related operations and monitor process parameters 3. ASC/N4403: Conduct quality checks and inspection of the finished products 4. ASC/N0006A: Maintain a safe and healthy working environment at the workplace 5. ASC/N0021: Maintaining 5S at the work premises
Performance Criteria	As described in the relevant NOS 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 NOS, 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 NOS 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 NOS.
	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.
	National Occupational Standards (NOS)	NOS 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.
	Organisational Context	Organisational 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.
Unit Code	Unit Code is a unique identifier for a NOS 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.
Keywords /Terms	Description
NOS	National 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

Acronyms

National Occupational Standard



Overview

This unit is about understanding the job requirement and the activities & equipment associated with the process to complete the job requirement

ASC/N4401:Understanding job requirements and related processes

National Occupational Standard	Unit Code	ASC / N4401
	Unit Title (Task)	Understand job requirements and related processes
	Description	This NOS unit is about understanding the job requirement, what processes need to be executed, what equipment will be used and what is the required output considering the standards specified
	Scope	The Moulding Operator will be responsible for <ul style="list-style-type: none"> • understanding the work order and the process requirement • arranging the required raw material and tools for the moulding process • cleaning the equipment and the moulding die • escalations of any queries regarding the job The role holder will interact with maintenance team and material management team
	Performance Criteria(PC) w.r.t. the Scope	
	Element	Performance Criteria
	Understand the work order and the process requirements	<p>PC1. Understand the work order (work output) required from the process and discuss the same with the supervisor</p> <p>PC2. Refer all sketches/ work orders/ process related documents to understand dimensions and properties of the required work output</p> <p>PC3. Understand the process requirements in terms of temperature of the heater, hydraulic pressure/ air pressure/ vacuum pressure, rotating speed of the screw pressure, regulating current, injection time, refilling time etc. as mentioned in the Work Instruction/ SOP/ Control Diagrams</p> <p>PC4. Clearly understanding the does and don'ts of the manufacturing process as defined in SOPs/ Work Instructions or defined by supervisors</p>
	Arrange for the material to be moulded and apparatus required for the same	<p>PC5. Understand the moulding procedure and process to be adopted for completing the work order from the supervisor by referring the Work Instruction document/ SOP manual</p> <p>PC6. Set the various moulding parameters like temperature of the heaters, hydraulic pressure/ air pressure/ vacuum pressure, rotating speed of the screw, screw pressure, regulating current, flow of coolant/ water etc. before starting the process. Moulding parameters are mentioned in the Work Instructions/ SOP manual</p> <p>PC7. Understand the raw material like plastics granules, bonding additives etc. required for executing the activity</p> <p>PC8. Ensure that the required material is procured from the store before starting the process</p> <p>PC9. Understand the type of Die required for executing the required moulding operation and ensure that the same is available for moulding operations</p> <p>PC10. Understand the number of heaters required for the moulding operations, heater temperature and current required for the heating operations as mentioned in the Work Instructions/ SOP manual</p>
	Clean the apparatus and the components	PC11. Ensure cleaning of dies and machine runners by spraying or brushing surfaces with parting agents to ensure smoothness and prevent clogging of plastic in

ASC/N4401:Understanding job requirements and related processes

<p>before executing the process</p>	<p>the machine parts/ dies</p> <p>PC12. Ensure cleaning of the other moulding machine tools, auxiliaries(if any) before the initiation of the moulding and trimming process</p> <p>PC13. Ensure cleaning of the area around the apparatus for any oil, grease, combustible substances etc. so as to prevent any accident</p>
<p>Check materials and apparatus for Operations</p>	<p>PC14. Use weighing machines to measure the quantity of granules and ensure that the correct quantity of granules are put in the hopper</p> <p>PC15. Check the parameters – Temperature, pressure, current, screw speed etc. in line with the work instructions/ SOPs</p> <p>PC16. Setup the moulding apparatus as per the selected moulding process and the moulding standards used in the automobile industry</p> <p>PC17. Adjust the temperature and other parameters of the moulding apparatus as per the values given in Work Instructions/ SOPs</p> <p>PC18. Ensure availability of the coolant and working of valves to circulate the coolant to cool and solidify plastic</p>
<p>Escalations of queries on the given job</p>	<p>PC19. Refer the queries to supervisor if they cannot be resolved by the operator</p> <p>PC20. Confirm self - understanding to the supervisor once the query is resolved so that all doubts & queries can be resolved before the actual process execution</p>
<p>Knowledge and Understanding (K)</p>	
<p>A. Organizational Context (Knowledge of the company / organization and its processes)</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. relevant standards and procedures followed in the company</p> <p>KA2. different types of products manufactured by the company</p> <p>KA3. functional processes like Procurement, Store management, inventory management, quality management and key contact points for query resolution</p>
<p>B. Technical Knowledge</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. different parameters pertinent to moulding process like heater temperature, hydraulic pressure/ air pressure/ vacuum pressure, rotating speed of the screw, operating current and voltage, injection time, refilling time etc. and the impact of these parameters on the process output</p> <p>KB2. various types of plastics like thermoplastics/ thermosetting plastics and the additives to be used</p> <p>KB3. different types of tools and machinery to mould the plastic and trim the output</p> <p>KB4. various types of coolants and their properties</p> <p>KB5. geometry and dimension measurement of the product output</p> <p>KB6. sketches and engineering drawings</p> <p>KB7. how to visualize final product output and hence decide on the key steps to be followed</p> <p>KB8. different types of cleaning techniques, moulding processes and associated equipments</p> <p>KB9. measuring instruments like vernier callipers, micrometres</p> <p>KB10. hazards and safety aspects involved in moulding activities and usage of relevant PPEs</p>

ASC/N4401:Understanding job requirements and related processes

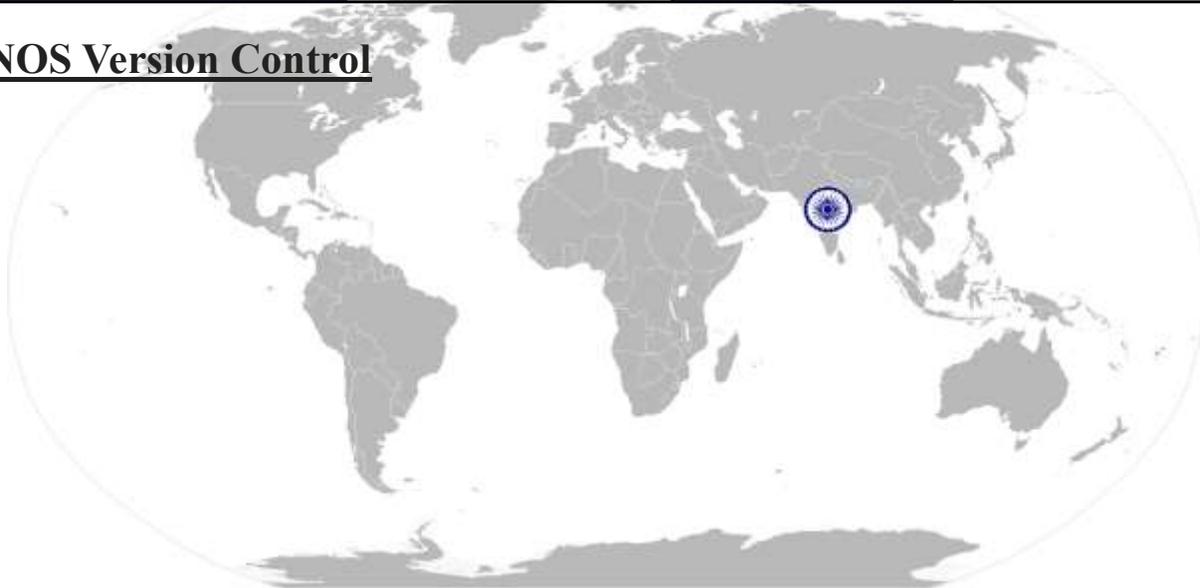
Skills (S) [Optional]	
A. Core Skills/ Generic Skills	Writing Skills
	The user/ individual on the job needs to know and understand how to: SA1. document information from the sketches and engineering drawings SA2. prepare draft drawings for the final output product SA3. write information documents to internal departments/ internal teams or enter the information in online ERP systems under guidance of the supervisor
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA4. read and interpret engineering drawing and sketches SA5. read equipment manuals and process documents to understand the equipment and processes better SA6. read instructions especially safety instructions especially symbols while using the equipment in the plant area SA7. read internal drawings send by internal customers (other functions within the organization)
	Oral Communication (Listening and Speaking skills)
The user/individual on the job needs to know and understand how to: SA8. discuss task lists, schedules, and work-loads with co-workers SA9. question internal customers/ Moulding shop supervisor appropriately in order to understand the nature of the problem and make a diagnosis SA10. avoid using jargon, slang or acronyms when communicating with a customer, unless it is required	
B. Professional Skills	Plan and Organize
	The user/individual on the job needs to know and understand how to: SB1. plan and organize the work order and jobs received from the internal customers SB2. plan and organize the design documents received from internal customers SB3. organize all process/ equipment manuals so that sorting out information is fast
	Judgment and 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 reasoning skills to identify and resolve basic problems SB6. use intuition to detect any potential problems which could arise during operations
	Desire to learn and take initiatives
	The user/individual on the job needs to know and understand how to: SB7. follow instructions and work on areas of improvement identified SB8. complete the assigned tasks with minimum supervision SB9. complete the job defined by the supervisor within the timelines and quality norms
Problem Solving and Decision making	

ASC/N4401: Understanding job requirements and related processes

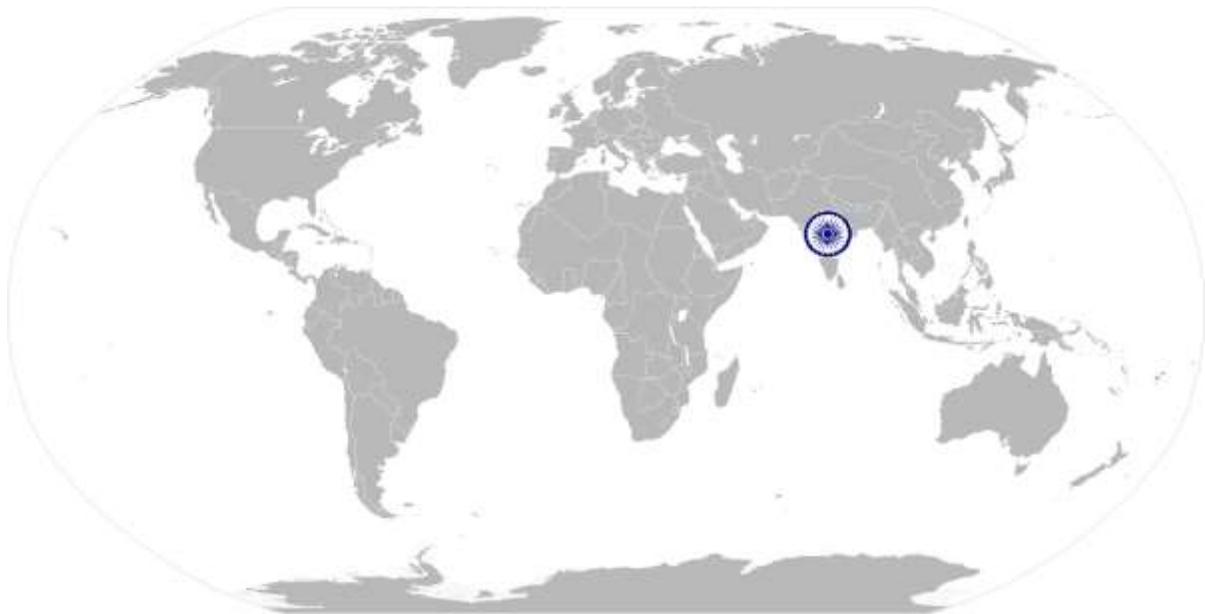
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB10. detect problems in day to day tasks</p> <p>SB11. support supervisor in using specific problem solving techniques and detailing out the problems</p> <p>SB12. discuss possible solution with the supervisor for problem solving</p> <p>SB13. make decisions in emergency conditions in case the supervisor is not available(as per the authority matrix defined by the organization)</p>
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NOS Code	ASC/N4401		
Credits(NSQF)	TBD	Version number	1
Industry	Automotive	Drafted on	1/08/2013
Industry Sub-sector	Manufacturing	Last reviewed on	20/08/2013
Occupation	Plastic Moulding	Next review date	20/08/2015

NOS Version Control



National Occupational Standard



Overview

This unit is about moulding the plastic in the desired mouldings as per the final output specifications and the standards specified by the organization

ASC/N4402 Perform the moulding related operations and monitor process parameters

National Occupational Standard

Unit Code	ASC/N4402
Unit Title (Task)	Perform the moulding related operations and monitor process parameters
Description	This NOS unit is about moulding the plastic into the desired shape and ensure finishing of the output in line with the required specifications and industry standards
Scope	<p>The moulding operator will be responsible for</p> <ul style="list-style-type: none"> • checking the operations of the equipment • feeding the granules as per requirement • operating the moulding machine to produce the required output products • perform visual inspection of the output products <p>The role holder will interact with maintenance team and material management team</p>
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Check the operations of the equipment used in the moulding process	<p>PC1. Check for operation of molding apparatus like hopper, pouring nozzles, heaters, reciprocating screws, plungers etc. as per the checklist provided</p> <p>PC2. Fix the desired die to the extrusion apparatus in order to achieve the desired shape as per the Work Instructions/ SOPs</p> <p>PC3. Make modifications in the molding parameters (by selecting the right program from the machine control system) if required and ensure alignment with the prescribed standards</p>
Feed the plastic granules in the hopper and conduct a test process	<p>PC4. Perform preheating of plastic granules to improve their tensile strength</p> <p>PC5. Ensure that the plastic granules are mixed with additives (if any) before being fed into the hopper</p> <p>PC6. Turn valves of machines to regulate speed and quantity of the plastic coming out of the hopper</p> <p>PC7. Ensure pouring in line with the defined standards and specifications</p> <p>PC8. Record the feeding observations like parting leak, interrupted pouring or any abnormality</p> <p>PC9. Conduct a test process and produce a sample output as per the sketches/ engineering drawing shared with the operator</p> <p>PC10. Check the first piece for geometry, material & dimensional parameters as per the Control Plan before starting the production</p> <p>PC11. Ensure that the dimensions of the output product are measured as per the process given in the Work Instructions/ SOP</p> <p>PC12. In case the test product matches the dimensions and quality of the final output, start the production process</p>
Conduct the actual moulding process	<p>PC13. Feed the required operation code in the apparatus for heaters to melt the plastic granules at the predefined temperature</p> <p>PC14. Adjust the screw speed and the screw pressure to force the molten plastic into the die to create the desired output shape</p> <p>PC15. Turn valves of machines to regulate speed and quantity of the plastic coming out of the hopper</p> <p>PC16. Ensure feeding in line with the defined standards and specifications</p> <p>PC17. Record the feeding observations like parting leak, interrupted pouring or any abnormality</p> <p>PC18. Ensure the proper functioning of screen pack for uniform melting of plastic</p>

ASC/N4402 Perform the moulding related operations and monitor process parameters

	<p>and removal of the contaminants (if any)</p> <p>PC19. Monitor the molding process (parameters like temperature, pressure etc.) by observing and analyzing the readings on various panels/ meters to prevent machine breakdown and deviations of the output from desired specifications</p> <p>PC20. Observe and analyze any irregularity in the process and take preventive steps</p> <p>PC21. Remove the output from the machine once the cycle is complete using proper clamps and other handling tools to carefully pick the product from the machine area</p> <p>PC22. In case the output has to be separately cooled, ensure that the helper cools it using the cooling process as mentioned in the Work Instructions/ SOPs</p> <p>PC23. Clean the plastic molding to remove runners/ gates or extra materials through de-gating and de -flashing processes</p> <p>PC24. Ensure stamping of the molding with the identifying information (wherever required) and send the same for further processing</p> <p>PC25. Instruct the helper to cut the output molding as per the desired geometric specifications (removal of runners)</p>
<p>Perform the visual inspection of the output to further finish the moulding</p>	<p>PC26. Measure the final plastic product and compare the dimensions as prescribed in the work order/ engineering drawing</p> <p>PC27. In case the parts are not as per the given measurements, send the same for further processing in terms of cutting, finishing etc.</p>
<p>Knowledge and Understanding (K)</p>	
<p>A. Organizational Context (Knowledge of the company / organization and its processes)</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. relevant standards and procedures followed in the company</p> <p>KA2. different types of products manufactured by the company</p> <p>KA3. functional processes like Procurement, Store management, inventory management, quality management and key contact points for query resolution</p> <p>KA4. quality norms prescribed by the organization for moulding jobs</p>
<p>B. Technical Knowledge</p>	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. how to read panels, meters, indicators etc. to monitor the process</p> <p>KB2. different types of moulding processes, associated equipment like dies, screw/ reciprocating screw/ plunger, heaters etc. and their working</p> <p>KB3. number of heaters required to generate the given temperature/ current requirements</p> <p>KB4. different parameters pertinent to moulding process like heater temperature, hydraulic pressure/ air pressure/ vacuum pressure, rotating speed of the screw, operating current and voltage, injection time, refilling time etc. and the impact of these parameters on the process</p> <p>KB5. various types of plastics like thermoplastics/ thermosetting plastics and their properties</p> <p>KB6. various types of coolants. and their properties</p> <p>KB7. moulding defects and how they are generated, how they can be prevented, different consumables used in the melt shop</p> <p>KB8. extruder operation, melting process, and safety process of handling hot molten plastic and control mechanisms for the extrusion machine</p> <p>KB9. measuring instruments like vernier callipers, micrometers and other tools</p> <p>KB10. impact of operator's work on moulding quality at in house and at customers, how to improve customers satisfaction</p>

ASC/N4402 Perform the moulding related operations and monitor process parameters

	KB11. geometry and dimension measurement KB12. sketches and engineering drawings KB13. how to visualize final product output and hence decide on the key steps to be followed KB14. safety precautions to be taken for all types of moulding activities
Skills (S) [Optional]	
A. Core Skills/ Generic Skills	Writing Skills
	The user/ individual on the job needs to know and understand how to: SA1. document information from the sketches and engineering drawings SA2. write log book in terms of output quantity, set up parameters, machine setting parameters and loss details etc. SA3. prepare draft drawings for the final output product SA4. write drawings to internal customers on the requirement of moulding plastic, moulding apparatus etc. SA5. note measurements, equipment panel readings for various process parameters in the required reporting formats
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA6. read and interpret engineering drawing and sketches SA7. read equipment manuals and process documents to understand the equipment and processes better SA8. read instructions especially safety instructions especially symbols while using the equipment in the plant area SA9. read internal drawings send by internal customers (other functions within the organization)
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA10. discuss task lists, schedules, and work-loads with co-workers SA11. question internal customers/ Moulding shop 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 and organize the work order and jobs received from the internal customers SB2. plan and organize the design documents received from internal customers SB3. organize all process/ equipment manuals so that sorting out information is fast SB4. organize apparatus etc. in an orderly manner at proper designated areas
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB5. visualize the final job product after understanding the given drawing/ sketches SB6. carefully measure the moulding so in terms of the geometrical dimensions so that the final output is as pre the given drawing SB7. finalize the optimum levels of physical parameters so that the job output

ASC/N4402 Perform the moulding related operations and monitor process parameters

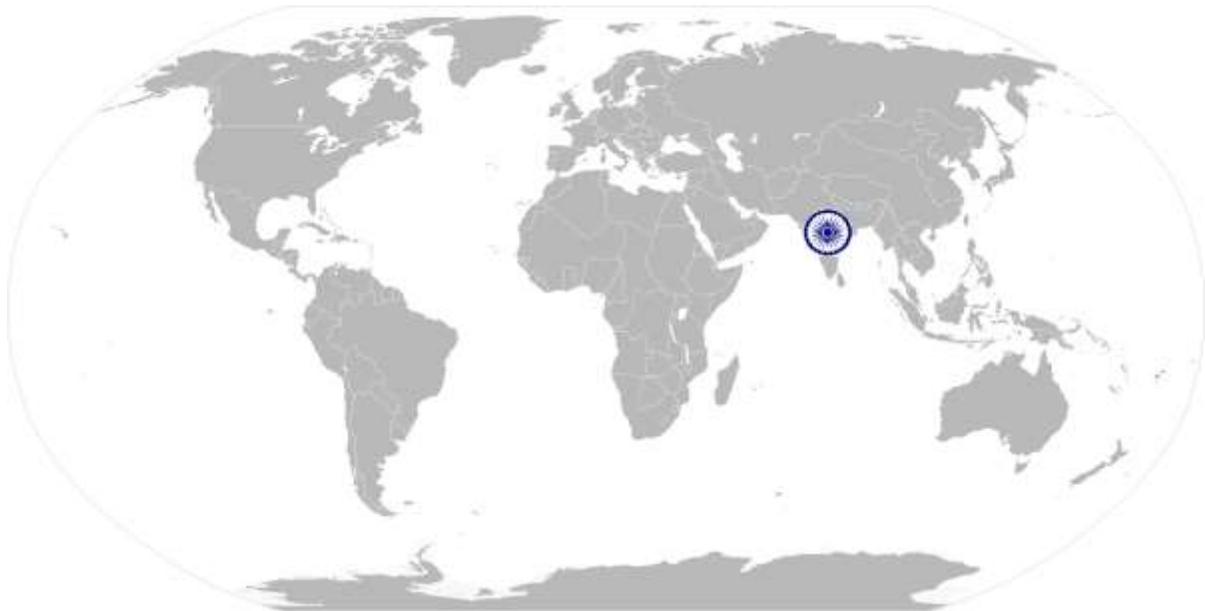
	meets the prescribed job standards
	Problem solving and decision making
	The user/individual on the job needs to know and understand how to: SB8. detect problems in day to day tasks SB9. support supervisor in using specific problem solving techniques and detailing out the problems SB10. discuss possible solution with the supervisor for problem solving SB11. make decisions in emergency conditions in case the supervisor is not available(as per the authority matrix defined by the organization)
	Desire to learn and take initiatives
	The user/individual on the job needs to know and understand how to: SB12. follow instructions and work on areas of improvement identified SB13. complete the assigned tasks with minimum supervision SB14. complete the job defined by the supervisor within timelines and quality norms

NOS Version Control

NOS Code	ASC/N4402		
Credits(NSQF)	TBD	Version number	1
Industry	Automotive	Drafted on	1/08/2013
Industry Sub-sector	Manufacturing	Last reviewed on	20/08/2013
Occupation	Plastic Moulding	Next review date	20/08/2015

ASC/N4403: Conduct quality checks and inspection of the finished products

National Occupational Standard



Overview

This unit is about conducting Quality Checks and inspection of the finished products produced and repair the bad quality items produced in the manufacturing process

ASC/N4403: Conduct quality checks and inspection of the finished products

National Occupational Standard

Unit Code	ASC/N4403
Unit Title (Task)	Conduct quality checks and inspection of the finished products
Description	This NOS unit is about inspecting 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 moulding operator will be responsible for <ul style="list-style-type: none"> inspecting the finished goods keeping records of production and defects conducting minor repair on output parts which can be reworked The role holder will interact with maintenance team and material management team
Performance Criteria(PC) w.r.t. the Scope	
Element	Performance Criteria
Inspection of finished goods to detect any deviations from the product design	PC1. Measure the specifications of the finished product using devices like micrometers, Vernier calipers, gauges, rulers, weighing scales and any other inspection equipment and compare with the parameters given in the work order PC2. Compare texture, surface properties, hardness and strength with the given product specifications
Record log of defective products and discard defective pieces	PC3. Note down the observations of the basic inspection process and identify pieces which are OK and also not meeting the specified standards PC4. Separate the defective pieces into two categories – pieces which can be repaired/ modified and pieces which are beyond repair PC5. Discard the pieces which are beyond repair and repair the ones which need minor modifications/ rework PC6. Maintain records of each category of work outputs as per the batch/ cavity etc. so that correction can be organized. PC7. Establish linkage between rejection of output and the pertinent causes for the same (process/ material etc.); Recommend the means for rejection control
Repair the pieces with minor defects	PC8. Rectify minor defects like shape deformation, grooves, holes etc. by cutting, finishing etc. PC9. Escalate all issues related to change in surface properties, hardness etc. so that the manufacturing equipment can be reset to achieve the specified output
Perform Batch Quality Procedure	PC10. Provide first and last moulding from each batch to the lab for quality check on its composition, properties etc. PC11. Obtain clearance for the entire batch from the lab
Knowledge and Understanding (K)	

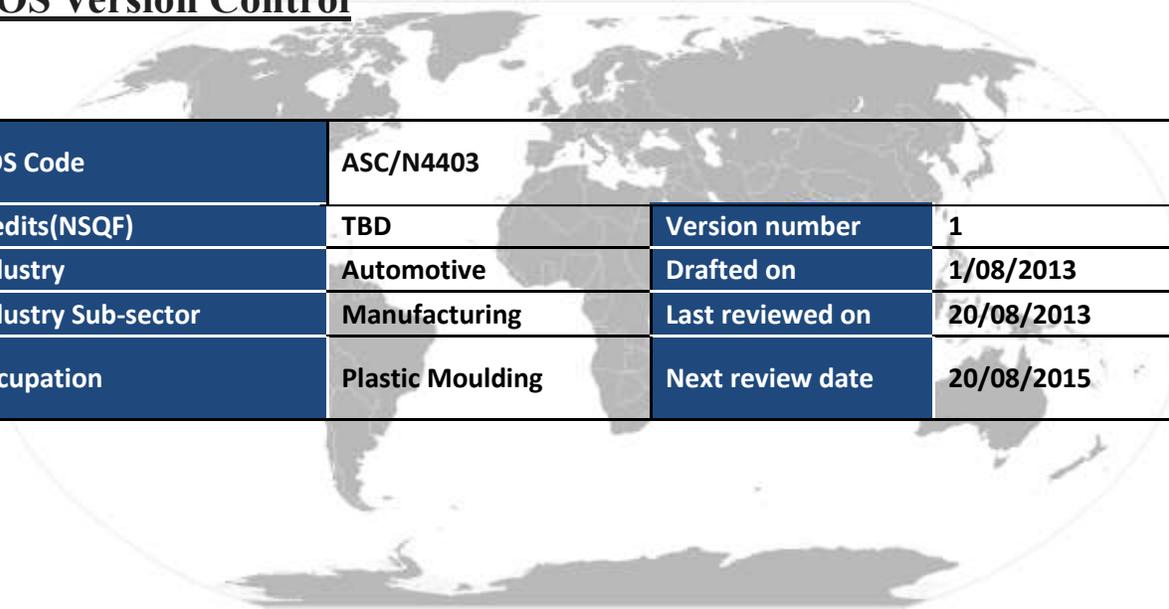
ASC/N4403: Conduct quality checks and inspection of the finished products

<p>A. Organizational Context (Knowledge of the company / organization and its processes)</p>	<p>The user/individual on the job needs to know and understand:</p> <ul style="list-style-type: none"> KA1. relevant standards specified for the manufacturing process KA2. basic process followed for inspection of the pieces KA3. quality Management policy of the organization
<p>B. Technical Knowledge</p>	<p>The user/individual on the job needs to know and understand:</p> <ul style="list-style-type: none"> KB1. processes and procedures followed for manufacturing the components/ prices/ products KB2. techniques of using measurement instruments like rulers, Vernier calipers, micrometers, weighing scales etc. KB3. methods to identify quality defects in work pieces KB4. impact of defects on the overall working of the component KB5. methods used for cutting, finishing which can repair pieces with minor defects KB6. various quality standards in India (ISO) used by the organization
<p>Skills (S) [Optional]</p>	
<p>A. Core Skills/ Generic Skills</p>	<p>Writing Skills</p>
	<p>The user/ individual on the job needs to know and understand how to:</p> <ul style="list-style-type: none"> SA1. note the number of pieces with defects which can be repaired to number of pieces which will be discarded
	<p>Reading Skills</p>
	<p>The user/individual on the job needs to know and understand how to:</p> <ul style="list-style-type: none"> 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
	<p>Oral Communication (Listening and Speaking skills)</p>
<p>The user/individual on the job needs to know and understand how to:</p> <ul style="list-style-type: none"> 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 	
<p>B. Professional Skills</p>	<p>Plan and Organize</p>
	<p>The user/individual on the job needs to know and understand how to:</p> <ul style="list-style-type: none"> SB1. plan and organize the work order and jobs received from the supervisor SB2. organize all process/ equipment manuals so that sorting/ accessing 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
	<p>Critical Thinking and Judgment</p>

ASC/N4403: Conduct quality checks and inspection of the finished products

	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB4. use common sense and make judgments during day to day basis use reasoning skills to identify and resolve basic problems</p> <p>SB5. carefully analyse the body part for various assembling defects at every station</p> <p>SB6. carefully analyse each defect observed during inspection and try to find solution for the defect along with the assembly line operator</p>
	Quality Consciousness
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB7. identify defective parts in the manufacturing line by comparing manufactured pieces with the work standard</p> <p>SB8. link the defect observed with the overall impact on the performance of the component</p>

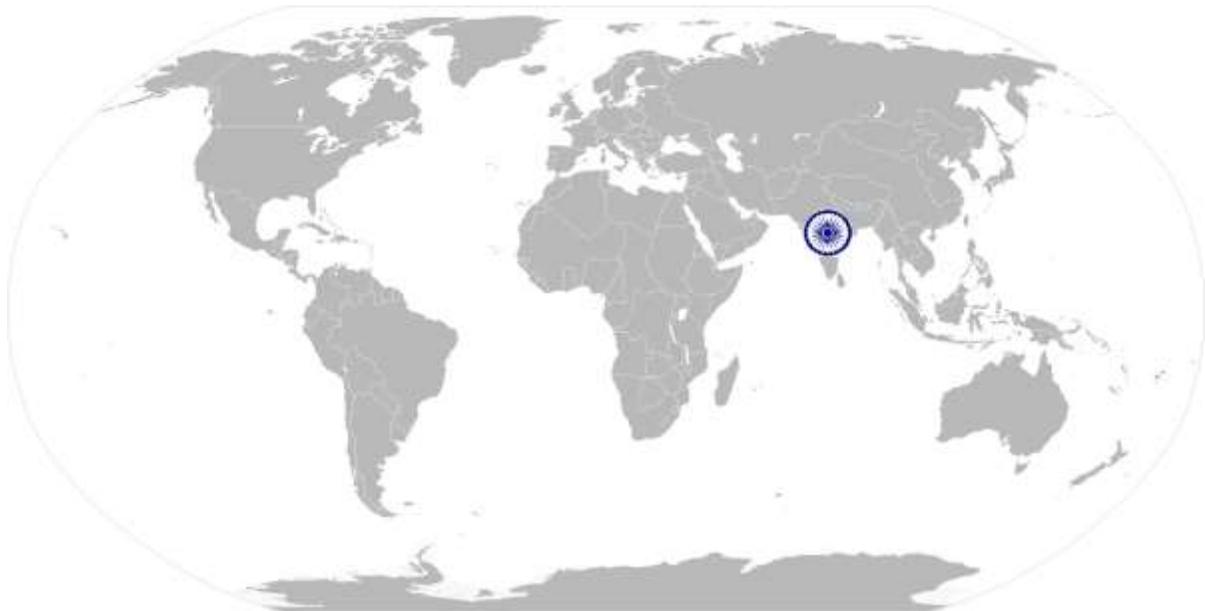
NOS Version Control



NOS Code	ASC/N4403		
Credits(NSQF)	TBD	Version number	1
Industry	Automotive	Drafted on	1/08/2013
Industry Sub-sector	Manufacturing	Last reviewed on	20/08/2013
Occupation	Plastic Moulding	Next review date	20/08/2015

ASC/N0006A: Maintain a safe and healthy working environment at the workplace

National Occupational Standards



Overview

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

ASC/N0006A: Maintain a safe and healthy working environment at the workplace

National Occupational Standard	Unit Code	ASC/N0006A
	Unit Title (Task)	Maintain a safe and healthy working environment at the work place
	Description	This NOS unit is about creating a Safe and Healthy work place, adhering to the safety guidelines in the working area, following practices which are not impacting the environment in a negative manner
	Scope	The role holder will be responsible for <ul style="list-style-type: none"> identifying and reporting of risks creating and sustaining a safe, clean and environment friendly work place This NOS will be applicable to all Automotive sector manufacturing job roles
	Performance Criteria (PC) w.r.t. the Scope	
	Element	Performance Criteria
	Identify and report the risks identified	PC1. Identify activities which can cause potential injury through sharp objects, burns, fall, electricity, gas leakages, radiation, poisonous fumes, chemicals ,loud noise PC2. Identify areas in the plant which are potentially hazardous/ unhygienic in nature PC3. Conduct regular checks with support of the maintenance team on machine health to identify potential hazards due to wear and tear of machine PC4. Inform the concerned authorities about the potential risks identified in the processes, workplace area/ layout, materials used etc PC5. Inform the concerned authorities about machine breakdowns, damages which can potentially harm man/ machine during operations PC6. Create awareness amongst other by sharing information on the identified risks
	Create and sustain a Safe, clean and environment friendly work place	PC7. Support the Safety team and the supervisor in creating the risk mitigation plan PC8. Follow the instructions given on the equipment manual describing the operating process of the equipment PC9. Follow the Safety, Health and Environment related practices developed by the organization PC10. Ensure relevant safety boards/ signs are placed on the shop floor PC11. Operate the machine using the recommended Personal Protective Equipment (PPE) and ensure team members also use the related PPEs at the workplace PC12. Maintain a clean and safe working environment near the work place and ensure there is no spillage of chemicals, production waste, oil, solvents etc. PC13. Attend all safety and fire drills to be self-aware of safety hazards and preventive techniques PC14. Maintain high standards of personal hygiene at the work place PC15. Ensure that the waste disposal is done in the designated area

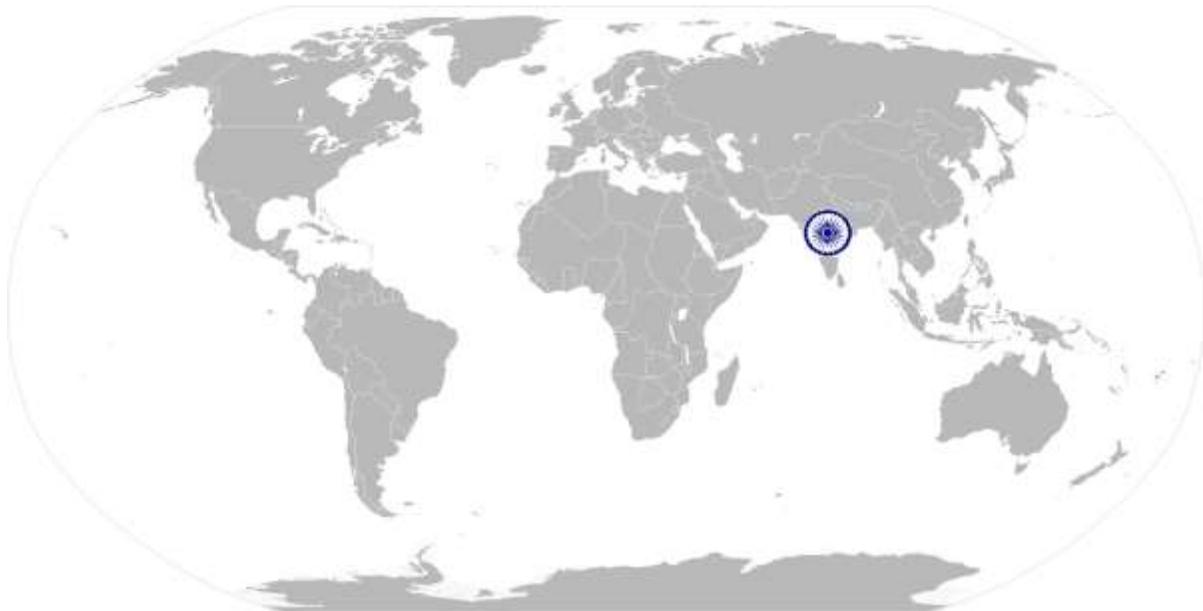
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	<p>and manner as per organization SOP.</p> <p>PC16. Inform appropriately the medical officer/ HR in case of self or an employee's illness of contagious nature so that preventive actions can be planned for others</p>
Knowledge and Understanding (K)w.r.t. the scope	
Element	Knowledge and Understanding
A. Organizational Context (Knowledge of the company / organization and its processes)	<p>The user/individual on the job needs to know and understand:</p> <p>KA1. relevant standards, procedures and policies related to Health, Safety and Environment followed in the company</p> <p>KA2. emergency handling procedures & hierarchy for escalation</p>
B. Technical Knowledge	<p>The user/individual on the job needs to know and understand:</p> <p>KB1. basic knowledge of Safety procedures(fire fighting, first aid) within the organization</p> <p>KB2. basic knowledge of various types of PPEs and their usage</p> <p>KB3. basic knowledge of risks/hazards associated with each occupation in the organization</p> <p>KB4. knowledge of personal hygiene and how an individual can contribute towards creating a highly safe and clean working environment</p>
Skills (S)w.r.t. the scope	
Element	Skills
A. Core Skills/ Generic Skills	Writing Skills
	The user/ individual on the job needs to know and understand how to:
	SA1. write basic level notes and observations
	Reading Skills
	The user/individual on the job needs to know and understand how to:
SA2. read safety instructions put up across the plant premises	
SA3. read safety precautions mentioned in equipment manuals and panels to understand the potential risks associated	
A. Core Skills/ Generic Skills	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to:
	SA4. effectively communicate information to team members
	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	
B. Professional Skills	Judgmental Thinking
	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB1. use common sense and make judgments during day to day basis</p> <p>SB2. use reasoning skills to identify and resolve basic problems</p>

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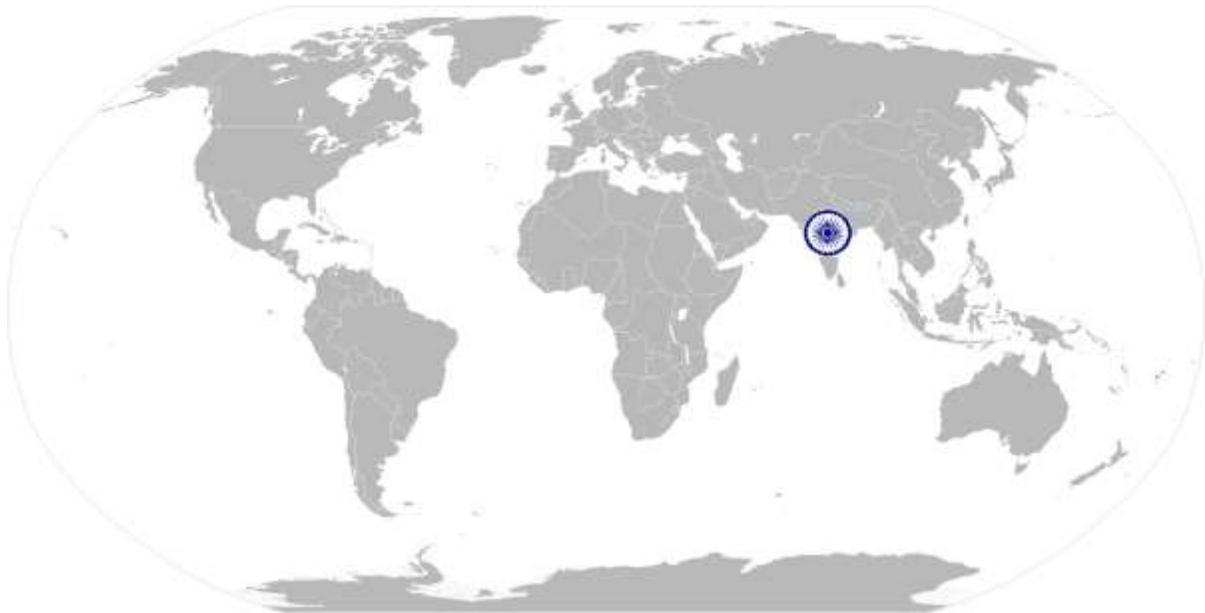
NOS Version Control

NOS Code	ASC/ N0006A		
Credits(NSQF)	TBD	Version number	1
Industry	Automotive	Drafted on	15/8/2013
Industry Sub-sector	Manufacturing	Last reviewed on	25/8/2013
Occupation	All	Next review date	25/8/2015



ASC/N0021: Maintaining 5S at the work premises

National Occupational Standard



Overview

This unit is about the understanding all principles of 5S and follow the given guidelines to ensure a clean and efficient working environment in the organization

ASC/N0021: Maintaining 5S at the work premises

National Occupational Standard	Unit Code	ASC/N0021
	Unit Title (Task)	Maintaining 5S in the work premises
	Description	This NOS is about ensuring all 5 S activities both at the shop floor and the office area to facilitate increase in work productivity
	Scope	The individual needs to <ul style="list-style-type: none"> Ensure sorting, streamlining & organizing, storage and documentation, cleaning, standardization and sustenance across the plant and office premises of the organization
	Performance Criteria (PC) w.r.t. the Scope	
	Element	Performance Criteria
	Ensure sorting	<p>PC1. Follow the sorting process and check that the tools, fixtures & jigs that are lying on workstations are the ones in use and unnecessary items are not cluttering the workbenches or work surfaces.</p> <p>PC2. Ensure segregation of waste in hazardous/ non Hazardous waste as per the sorting work instructions</p> <p>PC3. Follow the technique of waste disposal and waste storage in the proper bins as per SOP</p> <p>PC4. Segregate the items which are labelled as red tag items for the process area and keep them in the correct places</p> <p>PC5. Sort the tools/ equipment/ fasteners/ spare parts as per specifications/ utility into proper trays, cabinets, lockers as mentioned in the 5S guidelines/ work instructions</p> <p>PC6. Ensure that areas of material storage areas are not overflowing</p> <p>PC7. 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</p> <p>PC8. Return the extra material and tools to the designated sections and make sure that no additional material/ tool is lying near the work area</p> <p>PC9. Follow the floor markings/ area markings used for demarcating the various sections in the plant as per the prescribed instructions and standards</p>
	Ensure proper documentation and storage (organizing, streamlining)	<p>PC10. Follow the proper labeling mechanism of instruments/ boxes/ containers and maintaining reference files/ documents with the codes and the lists</p> <p>PC11. Check that the items in the respective areas have been identified as broken or damaged</p> <p>PC12. 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.</p> <p>PC13. Make sure that all material and tools are stored in the designated places and in the manner indicated in the 5S instructions</p>

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<p>Ensure cleaning of self and the work place</p>	<p>PC14. Check whether safety glasses are clean and in good condition PC15. Keep all outside surfaces of recycling containers are clean PC16. Ensure that the area has floors swept, machinery clean and generally clean. In case of cleaning, ensure that proper displays are maintained on the floor which indicate potential safety hazards PC17. Check whether all hoses, cabling & wires are clean, in good condition and clamped to avoid any mishap or mix up PC18. Ensure workbenches and work surfaces are clean and in good condition PC19. Follow the cleaning schedule for the lighting system to ensure proper illumination PC20. Store the cleaning material and equipment in the correct location and in good condition PC21. Ensure self-cleanliness - clean uniform, clean shoes, clean gloves, clean helmets, personal hygiene</p>
<p>Ensure sustenance</p>	<p>PC1. Follow the daily cleaning standards and schedules to create a clean working environment PC2. Attend all training programs for employees on 5 S PC3. Support the team during the audit of 5 S PC4. Participate actively in employee work groups on 5S and encourage team members for active participation PC5. Follow the guidelines for What to do and What not to do to build sustainability in 5S as mentioned in the 5S check lists/ work instructions</p>
<p>Knowledge and Understanding (K) w.r.t. the scope</p>	
<p>Element</p>	<p>Knowledge and Understanding</p>
<p>A. Organizational Context (Knowledge of the company / organization and its processes)</p>	<p>The user/individual on the job needs to know and understand: KA3. relevant standards, procedures and policies related to 5S followed in the company</p>
<p>B. Technical Knowledge</p>	<p>The user/individual on the job needs to :</p> <p>KB5. have basic knowledge of 5S procedures KB6. know various types 5s practices followed in various areas KB7. understand the 5S checklists provided in the department/ team KB8. have skills to identify useful & non useful items KB9. have knowledge of labels , signs & colours used as indicators KB10. Have knowledge on how to sort and store various types of tools, equipment, material etc. KB11. know , how to identify various types of waste products KB12. understand the impact of waste/ dirt/ dust/unwanted substances on the process/ environment/ machinery/ human body KB13. have knowledge of best ways of cleaning & waste disposal KB14. understand the importance of standardization in processes KB15. understand the importance of sustainability in 5S</p>

ASC/N0021: Maintaining 5S at the work premises

	<p>KB16. have knowledge of TQM process KB17. have knowledge of various materials and storage norms KB18. understand visual controls, symbols, graphs etc.</p>
Skills (S)w.r.t. the scope	
Element	Skills
A. Core Skills/ Generic Skills	Writing Skills
	The user/ individual on the job needs to know and understand how to: SA8. write basic level notes and observations SA9. note down observations (if any) related to the process SA10. write information documents to internal departments/ internal teams
	Reading Skills
	The user/individual on the job needs to know and understand how to: SA11. read 5S instructions put up across the plant premises
	Oral Communication (Listening and Speaking skills)
The user/individual on the job needs to know and understand how to: SA12. effectively communicate information to team members inform employees in the plant and concerned functions about 5S SA13. question the process head in order to understand the 5S related issues SA14. attentively listen with full attention and comprehend the information given by the speaker during 5S training programs	
B. Professional Skills	Judgmental Thinking
	The user/individual on the job needs to know and understand how to: SB3. use common sense and make judgments during day to day basis SB4. use reasoning skills to identify and resolve basic problems using 5S
	Persuasion
	The user/ individual on the jobs needs to know and understand how to: SB5. persuade co team members to follow 5 S SB6. ensure that the co team members understand the importance of using 5 S tool
	Creativity
The user/individual on the job needs to know and understand how to : SB7. use innovative skills to perform and manage 5 S activities at the work desk and the shop floor SB8. exhibit inquisitive behaviour to seek feedback and question on the existing set patterns of work	
	Self –Discipline

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	<p>The user/individual on the job needs to know and understand how to:</p> <p>SB9. do what is right, not what is a popular practices</p> <p>SB10. follow shop floor rules& regulations and avoid deviations; make 5S an integral way of life</p> <p>SB11. ensure self-cleanliness on a daily basis</p> <p>SB12. demonstrate the will to keep the work area in a clean and orderly manner</p>
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NOS Version Control

NOS Code	ASC/N0021		
Credits(NSQF)	TBD	Version number	1
Industry	Automotive	Drafted on	1/03/2014
Industry Sub-sector	Manufacturing/ R&D	Last reviewed on	15/03/2014
Occupation	All	Next review date	15/03/2016



Qualification Pack for Plastic Moulding Operator /Technician

Criteria for assessment of Trainees

JOB ROLE	PLASTIC MOULDING TECHNICIAN /OPERATOR L4
Qualification Pack	ASC/Q 4401
No. Of NOS	3 Role specific , 2 generic

NOS Title/ NOS Elements	NOS & Performance Criterion Description	Marks allocation	
		Viva	Practical
ASC/N4401	Understand the job requirements & related processes		
Understand the work order and the process requirements	PC1. Understand the work order (work output) required from the process and discuss the same with the supervisor PC2. Refer all sketches/ work orders/ process related documents to understand dimensions and properties of the required work output PC3. Understand the process requirements in terms of temperature of the heater, hydraulic pressure/ air pressure/ vacuum pressure, rotating speed of the screw pressure, regulating current, injection time, refilling time etc. as mentioned in the Work Instruction/ SOP/ Control Diagrams PC4. Clearly understanding the does and don'ts of the manufacturing process as defined in SOPs/ Work Instructions or defined by supervisors PC5. Understand the moulding procedure and process to be adopted for completing the work order from the supervisor by referring the Work Instruction document/ SOP manual	10	20
Arrange for the material to be moulded and apparatus required for the same	PC6. Set the various moulding parameters like temperature of the heaters, hydraulic pressure/ air pressure/ vacuum pressure, rotating speed of the screw, screw pressure, regulating current, flow of coolant/ water etc. before starting the process. Moulding parameters are mentioned in the Work Instructions/ SOP manual PC7. Understand the raw material like plastics granules, bonding additives etc. required for executing the activity PC8. Ensure that the required material is procured from the store before starting the process PC9. Understand the type of Die required for executing the required moulding operation and ensure that the same is available for moulding operations	10	20

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Clean the apparatus and the components before executing the process	<p>PC10. Understand the number of heaters required for the moulding operations, heater temperature and current required for the heating operations as mentioned in the Work Instructions/ SOP manual</p> <p>PC11. Ensure cleaning of dies and machine runners by spraying or brushing surfaces with parting agents to ensure smoothness and prevent clogging of plastic in the machine parts/ dies</p> <p>PC12. Ensure cleaning of the other moulding machine tools, auxiliaries(if any) before the initiation of the moulding and trimming process</p> <p>PC13. Ensure cleaning of the area around the apparatus for any oil, grease, combustible substances etc. so as to prevent any accident</p>	10	20
Check materials and apparatus for Operations	<p>PC14. Use weighing machines to measure the quantity of granules and ensure that the correct quantity of granules are put in the hopper</p> <p>PC15. Check the parameters – Temperature, pressure, current, screw speed etc. in line with the work instructions/ SOPs</p> <p>PC16. Setup the moulding apparatus as per the selected moulding process and the moulding standards used in the automobile industry</p> <p>PC17. Adjust the temperature and other parameters of the moulding apparatus as per the values given in Work Instructions/ SOPs</p> <p>PC18. Ensure availability of the coolant and working of valves to circulate the coolant to cool and solidify plastic</p>	20	50
Escalations of queries on the given job	<p>PC19. Refer the queries to supervisor if they cannot be resolved by the operator</p> <p>PC20. Confirm self - understanding to the supervisor once the query is resolved so that all doubts & queries can be resolved before the actual process execution</p>	10	10
	Sub total	60	120
ASC /N4402	Perform the Moulding related operations & monitor the process parameters	Viva	Practical
Check the operations of the	PC1. Check for operation of molding apparatus like hopper,		

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	<p>machine breakdown and deviations of the output from desired specifications</p> <p>PC20. Observe and analyze any irregularity in the process and take preventive steps</p>		
<p>Perform the visual inspection of the output to further finish the moulding</p>	<p>PC21. Remove the output from the machine once the cycle is complete using proper clamps and other handling tools to carefully pick the product from the machine area</p> <p>PC22. In case the output has to be separately cooled, ensure that the helper cools it using the cooling process as mentioned in the Work Instructions/ SOPs</p> <p>PC23. Clean the plastic moulding to remove runners/ gates or extra materials through de-gating and de -flashing processes</p> <p>PC24. Ensure stamping of the molding with the identifying information (wherever required) and send the same for further processing</p> <p>PC25. Instruct the helper to cut the output molding as per the desired geometric specifications (removal of runners)</p> <p>PC26. Measure the final plastic product and compare the dimensions as prescribed in the work order/ engineering drawing</p> <p>PC27. In case the parts are not as per the given measurements, send the same for further processing in terms of cutting, finishing etc.</p>	<p>10</p>	<p>20</p>
	<p>Sub total</p>	<p>60</p>	<p>120</p>
<p>ASC /N4403</p>	<p>Conduct quality checks & inspection of the finished products</p>	<p>Viva</p>	<p>Practical</p>
<p>Inspection of finished goods to detect any deviations from the product design</p>	<p>PC1. Measure the specifications of the finished product using devices like micrometers, verniercalipers, gauges, rulers, weighing scales and any other inspection equipment and compare with the parameters given in the work order</p> <p>PC2. Compare texture, surface properties, hardness and strength with the given product specifications</p>	<p>10</p>	<p>-</p>
<p>Record log of defective products and discard defective pieces</p>	<p>PC3. Note down the observations of the basic inspection process and identify pieces which are OK and also not meeting the specified standards</p> <p>PC4. Separate the defective pieces into two categories – pieces which can be repaired/ modified and pieces which are beyond repair</p> <p>PC5. Discard the pieces which are beyond repair and repair the ones which need minor modifications/ rework</p> <p>PC6. Maintain records of each category of work outputs as per the batch/ cavity etc. so that correction can be organized.</p>	<p>10</p>	<p>30</p>

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	employee's illness of contagious nature so that preventive actions can be planned for others		
	Sub total	80	50
ASC / N 0021	Maintain 5 S activities at the workplace	Viva	practical
Ensure sorting	<p>PC1. 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.</p> <p>PC2. Ensure segregation of waste in hazardous/ non Hazardous waste as per the sorting work instructions</p> <p>PC3. Follow the technique of waste disposal and waste storage in the proper bins as per SOP</p> <p>PC4. Segregate the items which are labelled as red tag items for the process area and keep them in the correct places</p> <p>PC5. Sort the tools/ equipment/ fasteners/ spare parts as per specifications/ utility into proper trays, cabinets, lockers as mentioned in the 5S guidelines/ work instructions</p> <p>PC6. Ensure that areas of material storage areas are not overflowing</p> <p>PC7. 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</p> <p>PC8. Return the extra material and tools to the designated sections and make sure that no additional material/ tool is lying near the work area</p> <p>PC9. Follow the floor markings/ area markings used for demarcating the various sections in the plant as per the prescribed instructions and standards</p>	10	10
Ensure proper documentation and storage (organizing , streamlining)	<p>PC10. Follow the proper labeling mechanism of instruments/ boxes/ containers and maintaining reference files/ documents with the codes and the lists</p> <p>PC11. Check that the items in the respective areas have been identified as broken or damaged</p> <p>PC12. 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.</p> <p>PC13. Make sure that all material and tools are stored in the designated places and in the manner indicated in the 5S instructions</p>	10	10
Ensure cleaning of self and the work place	<p>PC14. Check whether safety glasses are clean and in good condition</p> <p>PC15. Keep all outside surfaces of recycling containers are clean</p> <p>PC16. Ensure that the area has floors swept, machinery clean and generally clean. In case of cleaning, ensure that proper displays are maintained on the floor which indicate potential safety hazards</p> <p>PC17. Check whether all hoses, cabling & wires are clean, in good condition and clamped to avoid any mishap or mix up</p>	10	10

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	<p>PC18. Ensure workbenches and work surfaces are clean and in good condition</p> <p>PC19. Follow the cleaning schedule for the lighting system to ensure proper illumination</p> <p>PC20. Store the cleaning material and equipment in the correct location and in good condition</p> <p>PC21. Ensure self-cleanliness - clean uniform, clean shoes, clean gloves, clean helmets, personal hygiene</p>		
Ensure sustenance	<p>PC22. Follow the daily cleaning standards and schedules to create a clean working environment</p> <p>PC23. Attend all training programs for employees on 5 S</p> <p>PC24. Support the team during the audit of 5 S</p> <p>PC25. Participate actively in employee work groups on 5S and encourage team members for active participation</p> <p>PC26. Follow the guidelines for What to do and What not to do to build sustainability in 5S as mentioned in the 5S check lists/ work instructions</p>		10
	Sub total	40	50
	Total	280	400

