

Surface Treatment Technician Level 4

QP Code: ASC/Q3801

NSQF Level: 4

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Qualification Pack

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ASC/Q3801: Surface Treatment Technician Level 4

Brief Job Description

The surface treatment technician is responsible for conducting electroplating , powder coating and Anodizing operations as per the product and the customer requirement to ensure that the surface of the metallic body becomes resistant to chemicals, moisture and other wear & tear.

Personal Attributes

The person should have the following attributes Correct Vision, , No Colour Blindness, Non Allergic to Chemicals and Paints and Thinner, Dexterity, Good hand-eye Co-ordination, ability to work in difficult environment.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [ASC/N0006: Maintain a safe and healthy working environment](#)
2. [ASC/N0021: Maintain 5S at the work premises](#)
3. [ASC/N3801: Understand process and equipment requirement for surface treatment](#)
4. [ASC/N3802: Prepare the machines, auxiliaries and work pieces for the surface treatment process](#)
5. [ASC/N3803: Perform different types of surface treatment operation](#)

Qualification Pack (QP) Parameters

Sector	Automotive
Sub-Sector	Manufacturing
Occupation	Surface Treatment
Country	India
NSQF Level	4
Aligned to NCO/ISCO/ISIC Code	NCO-2015/8122.0100

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Minimum Educational Qualification & Experience	10th Class with 3-5 years of experience In mechanical/painting process OR 10th Class OR 10th Class
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	Different Plating techniques used in organizations 5S and Safety Problem solving Quality Management
Minimum Job Entry Age	18 Years
Last Reviewed On	20/10/2013
Next Review Date	31/03/2020
NSQC Approval Date	20/07/2015
Version	1.0

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ASC/N0006: Maintain a safe and healthy working environment

Description

This NOS 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 and training team members on health and safety related issues

Scope

The role holder will be responsible for

- 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

Elements and Performance Criteria

Identify and report the risks identified

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

- PC1..** Identify activities which can cause potential injury through sharp objects, burns, fall, electricity, gas leakages, radiation, poisonous fumes, chemicals, loud noise
- PC2.** Inform the concerned authorities about the potential risks identified in the processes, workplace area/ layout, materials used etc
- PC3.** Inform the concerned authorities about machine breakdowns, damages which can potentially harm man/ machine during operations
- PC4.** Create awareness amongst other by sharing information on the identified risks

Create and sustain a Safe, clean and environment friendly work place

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

- PC5..** Follow the instructions given on the equipment manual describing the operating process of the equipments
- PC6..** Follow the Safety, Health and Environment related practices developed by the organization
- PC7.** Operate the machine using the recommended Personal Protective Equipments (PPE)
- PC8. .** Maintain a clean and safe working environment near the work place and ensure there is no spillage of chemicals, production waste, oil, solvents etc
- PC9.** Maintain high standards of personal hygiene at the work place
- PC10.** Ensure that the waste disposal is done in the designated area and manner as per organization SOP.
- PC11.** Inform appropriately the medical officer/ HR in case of self or an employees illness of contagious nature so that preventive actions can be planned for others

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

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- KU1.** relevant standards, procedures and policies related to Health, Safety and Environment followed in the company
- KU2.** basic knowledge of Safety procedures(fire fighting, first aid) within the organization
- KU3.** knowledge of various types of PPEs and their usage
- KU4.** basic knowledge of risks/hazards associated with each occupation in the organization
- KU5.** how to safely operate various tools and machines and risks associated with the tools/ equipment
- KU6.** knowledge of personal hygiene and how an individual can contribute towards creating a highly safe and clean working environment

Generic Skills (GS)

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

- GS1.** write basic level notes and observations
- GS2.** read safety instructions put up across the plant premises
- GS3.** read safety precautions mentioned in equipment manuals and panels to understand the potential risks associated
- GS4.** effectively communicate information to team members
- GS5.** inform employees in the plant and concerned functions about events, incidents & potential risks observed related to Safety, Health and Environment.
- GS6.** question operator/ supervisor in order to understand the safety related issues
- GS7.** attentively listen with full attention and comprehend the information given by the speaker during safety drills and training programs
- GS8.** use common sense and make judgments during day to day basis
- GS9.** use reasoning skills to identify and resolve basic problems
- GS10.** use common sense and make judgments during day to day basis
- GS11.** use reasoning skills to identify and resolve basic problems

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Identify and report the risks identified</i>	8	23	-	-
PC1.. Identify activities which can cause potential injury through sharp objects, burns, fall, electricity, gas leakages, radiation, poisonous fumes, chemicals ,loud noise	3	6	-	-
PC2. Inform the concerned authorities about the potential risks identified in the processes, workplace area/ layout, materials used etc	2	6	-	-
PC3. Inform the concerned authorities about machine breakdowns, damages which can potentially harm man/ machine during operations	2	6	-	-
PC4. Create awareness amongst other by sharing information on the identified risks	1	5	-	-
<i>Create and sustain a Safe, clean and environment friendly work place</i>	17	52	-	-
PC5.. Follow the instructions given on the equipment manual describing the operating process of the equipments	3	7	-	-
PC6.. Follow the Safety, Health and Environment related practices developed by the organization	3	8	-	-
PC7. Operate the machine using the recommended Personal Protective Equipments (PPE)	3	8	-	-
PC8. . Maintain a clean and safe working environment near the work place and ensure there is no spillage of chemicals, production waste, oil, solvents etc	2	8	-	-
PC9. Maintain high standards of personal hygiene at the work place	2	7	-	-
PC10. Ensure that the waste disposal is done in the designated area and manner as per organization SOP.	3	8	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. Inform appropriately the medical officer/ HR in case of self or an employees illness of contagious nature so that preventive actions can be planned for others	1	6	-	-
NOS Total	25	75	-	-

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National Occupational Standards (NOS) Parameters

NOS Code	ASC/N0006
NOS Name	Maintain a safe and healthy working environment
Sector	Automotive
Sub-Sector	Manufacturing
Occupation	Maintenance
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	15/09/2013
Next Review Date	15/09/2015
NSQC Clearance Date	20/07/2015

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ASC/N0021: Maintain 5S at 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

Elements and Performance Criteria

Ensure sorting

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

- 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.
- PC2..** ensure segregation of waste in hazardous/ non hazardous waste as per the sorting work instructions
- PC3..** follow the technique of waste disposal and waste storage in the proper bins as per sop
- PC4..** segregate the items which are labelled as red tag items for the process area and keep them in the correct places
- 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
- PC6. .** ensure that areas of material storage areas are not overflowing
- 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
- 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
- PC9.** follow the floor markings/ area markings used for demarcating the various sections in the plant as per the prescribed instructions and standards
- PC10.** follow the proper labeling mechanism of instruments/ boxes/ containers and maintaining reference files/ documents with the codes and the lists

Ensure proper documentation and storage (organizing , streamlining)

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

- PC11.** check that the items in the respective areas have been identified as broken or damaged
- 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
- PC13.** make sure that all material and tools are stored in the designated places and in the manner indicated in the 5s instructions

Ensure cleaning of self and the work place

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

- 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

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- 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

Ensure sustenance

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

- PC22.** follow the daily cleaning standards and schedules to create a clean working environment
- PC23.** attend all training programs for employees on 5 s
- PC24.** support the team during the audit of 5 s
- PC25.** participate actively in employee work groups on 5s and encourage team members for active participation
- 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

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** relevant standards, procedures and policies related to 5S followed in the company
- KU2.** have basic knowledge of 5S procedures
- KU3.** know various types 5s practices followed in various areas
- KU4.** understand the 5S checklists provided in the department/ team
- KU5.** have skills to identify useful & non useful items
- KU6.** have knowledge of labels , signs & colours used as indicators
- KU7.** knowledge on how to sort and store various types of tools, equipment, material etc.
- KU8.** know , how to identify various types of waste products
- KU9.** understand the impact of waste/ dirt/ dust/unwanted substances on the process/ environment/ machinery/ human body
- KU10.** have knowledge of best ways of cleaning & waste disposal
- KU11.** understand the importance of standardization in processes
- KU12.** understand the importance of sustainability in 5S
- KU13.** have knowledge of TQM process
- KU14.** have knowledge of various materials and storage norms
- KU15.** understand visual controls, symbols, graphs etc.

Generic Skills (GS)

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

- GS1.** write basic level notes and observations

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- GS2.** note down observations (if any) related to the process
- GS3.** read 5S instructions put up across the plant premises
- GS4.** effectively communicate information to team members inform employees in the plant and concerned functions about 5S
- GS5.** question the process head in order to understand the 5S related issues
- GS6.** attentively listen with full attention and comprehend the information given by the speaker during 5S training programs
- GS7.** use common sense and make judgments during day to day basis
- GS8.** use reasoning skills to identify and resolve basic problems using 5S
- GS9.** persuade co team members to follow 5 S
- GS10.** ensure that the co team members understand the importance of using 5 S tool
- GS11.** use innovative skills to perform and manage 5 S activities at the work desk and the shop floor
- GS12.** exhibit inquisitive behaviour to seek feedback and question on the existing set patterns of work
- GS13.** do what is right, not what is a popular practices
- GS14.** follow shop floor rules& regulations and avoid deviations; make 5S an integral way of life
- GS15.** ensure self-cleanliness on a daily basis
- GS16.** demonstrate the will to keep the work area in a clean and orderly manner

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Ensure sorting</i>	10	30	-	-
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.	1	3	-	-
PC2.. ensure segregation of waste in hazardous/ non hazardous waste as per the sorting work instructions	1	3	-	-
PC3.. follow the technique of waste disposal and waste storage in the proper bins as per sop	1	3	-	-
PC4.. segregate the items which are labelled as red tag items for the process area and keep them in the correct places	1	3	-	-
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	1	3	-	-
PC6. . ensure that areas of material storage areas are not overflowing	1	3	-	-
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	1	3	-	-
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	1	3	-	-
PC9. follow the floor markings/ area markings used for demarcating the various sections in the plant as per the prescribed instructions and standards	1	3	-	-
PC10. follow the proper labeling mechanism of instruments/ boxes/ containers and maintaining reference files/ documents with the codes and the lists	1	3	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Ensure proper documentation and storage (organizing , streamlining)</i>	3	9	-	-
PC11. check that the items in the respective areas have been identified as broken or damaged	1	3	-	-
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	1	3	-	-
PC13. make sure that all material and tools are stored in the designated places and in the manner indicated in the 5s instructions	1	3	-	-
<i>Ensure cleaning of self and the work place</i>	8	24	-	-
PC14. check whether safety glasses are clean and in good condition	1	3	-	-
PC15. keep all outside surfaces of recycling containers are clean	1	3	-	-
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	1	3	-	-
PC17.. check whether all hoses, cabling & wires are clean, in good condition and clamped to avoid any mishap or mix up	1	3	-	-
PC18.. ensure workbenches and work surfaces are clean and in good condition	1	3	-	-
PC19. follow the cleaning schedule for the lighting system to ensure proper illumination	1	3	-	-
PC20. store the cleaning material and equipment in the correct location and in good condition	1	3	-	-
PC21. ensure self-cleanliness - clean uniform, clean shoes, clean gloves, clean helmets, personal hygiene	1	3	-	-
<i>Ensure sustenance</i>	4	12	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC22. follow the daily cleaning standards and schedules to create a clean working environment	1	3	-	-
PC23. attend all training programs for employees on 5 s	0.5	2	-	-
PC24. support the team during the audit of 5 s	1	3	-	-
PC25. participate actively in employee work groups on 5s and encourage team members for active participation	0.5	2	-	-
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	1	2	-	-
NOS Total	25	75	-	-

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National Occupational Standards (NOS) Parameters

NOS Code	ASC/N0021
NOS Name	Maintain 5S at the work premises
Sector	Automotive
Sub-Sector	Generic
Occupation	Generic
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	15/03/2014
Next Review Date	15/03/2016
NSQC Clearance Date	

Qualification Pack

ASC/N3801: Understand process and equipment requirement for surface treatment

Description

This OS unit is about understanding the job requirement, what processes need to be executed, what equipments will be used for the project and what is the required output considering the standards specified

Scope

The Surface Treatment Technician will be responsible for Understanding the equipment and material needed for the process escalations of any queries regarding the job The job holder will cover anodizing, electroplating and powder coating methods for surface treatment. The role holder will interact with the paint shop, maintenance team and material management team

- Understanding the equipment and material needed for the process
- escalations of any queries regarding the job

Elements and Performance Criteria

Understand the requirements, equipment and parameters to be set for the process

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

- PC1.** . understand the right methodology and process to be adopted for completing the work order through discussions with the supervisor/ master technician and reading the process manuals/ work instructions/standard operating procedures
- PC2.** . understand the various surface treatment parameters like temperature, air pressure, current, process cycle time etc. before starting the process, as mentioned in the work instructions/ sop manual
- PC3.** . understand the material required and the equipment availability for executing the activity
- PC4.** . understand the utilization and upkeep of various tanks, feed carriages, coating machines
- PC5..** understand chemical properties of the material to be used
- PC6.** . understand the various hazards related to the process
- PC7.** . clearly understanding the does and donts of the manufacturing process as defined in SOPs/ work instructions or defined by supervisors

Escalations of queries on the given job

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

- PC8.** . refer the queries to a competent internal specialist if they cannot be resolved by the painter on own
- PC9.** . obtain help or advice from specialist if the problem is outside his/her area of competence or experience
- PC10..** confirm self understanding to the specialist once the query is resolved so that all doubts & queries can be resolved before the actual process execution

Knowledge and Understanding (KU)

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The individual on the job needs to know and understand:

- KU1.** relevant standards and procedures followed in the company
- KU2.** different types of products manufactured by the company
- KU3.** functional processes like Procurement, Store management, inventory management, quality management and key contact points for query resolution
- KU4.** different types of surface treatment processes and associated equipments
- KU5.** upkeep and maintenance of the tools and equipment required
- KU6.** the method of reading and interpreting the various gauges, equipment and indicators
- KU7.** chemical properties of the chemicals used
- KU8.** how to visualize the final product output
- KU9.** the impact of various physical parameters like temperature, pressure, electric current, voltage on the properties of final output product like durability, surface finish etc
- KU10.** hazards and safety aspects involved in surface treatment activities and usage of relevant PPEs

Generic Skills (GS)

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

- GS1.** document information
- GS2.** note down observations & readings (if any) related to the surface treatment process
- GS3.** write information documents to internal departments/ internal teams or enter the information in online ERP systems under guidance of the supervisor
- GS4.** read and interpret technical specifications of the specimen
- GS5.** read equipment manuals and process documents to understand the equipments and processes better
- GS6.** read measurement equipment & computer displays
- GS7.** read internal information documents sent by internal teams
- GS8.** discuss task lists, schedules and activities with the supervisor
- GS9.** effectively communicate with the team members
- GS10.** question the shop supervisor in order to understand the nature of the problem and to clarify queries
- GS11.** attentively listen with full attention and comprehend the information given by the speaker
- GS12.** plan and organize the work order and jobs received from the Operator
- GS13.** organize all process/ equipment manuals so that sorting/ accessing information is easy
- GS14.** support the supervisor in scheduling tasks for helper and assistant supervisor
- GS15.** use common sense and make judgments during day to day basis
- GS16.** use reasoning skills to identify and resolve basic problems
- GS17.** use intuition to detect any potential problems which could arise during operations
- GS18.** follow instructions and work on areas of improvement identified
- GS19.** complete the assigned tasks with minimum supervision

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- GS20.** detect problems in day to day tasks
- GS21.** support supervisor in using specific problem solving techniques and detailing out the problems
- GS22.** discuss possible solution with the supervisor for problem solving
- GS23.** make decisions in emergency conditions in case the supervisor is not available(as per the authority matrix defined by the organization)

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Understand the requirements, equipment and parameters to be set for the process</i>	21	49	-	-
PC1. . understand the right methodology and process to be adopted for completing the work order through discussions with the supervisor/ master technician and reading the process manuals/ work instructions/standard operating procedures	3	7	-	-
PC2. . understand the various surface treatment parameters like temperature, air pressure, current, process cycle time etc. before starting the process, as mentioned in the work instructions/ sop manual	3	7	-	-
PC3. . understand the material required and the equipment availability for executing the activity	3	7	-	-
PC4. . understand the utilization and upkeep of various tanks, feed carriages, coating machines	3	7	-	-
PC5.. understand chemical properties of the material to be used	3	7	-	-
PC6. . understand the various hazards related to the process	3	7	-	-
PC7. . clearly understanding the does and donts of the manufacturing process as defined in SOPs/ work instructions or defined by supervisors	3	7	-	-
<i>Escalations of queries on the given job</i>	9	21	-	-
PC8. . refer the queries to a competent internal specialist if they cannot be resolved by the painter on own	3	7	-	-
PC9. . obtain help or advice from specialist if the problem is outside his/her area of competence or experience	3	7	-	-
PC10.. confirm self understanding to the specialist once the query is resolved so that all doubts & queries can be resolved before the actual process execution	3	7	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
NOS Total	30	70	-	-

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National Occupational Standards (NOS) Parameters

NOS Code	ASC/N3801
NOS Name	Understand process and equipment requirement for surface treatment
Sector	Automotive
Sub-Sector	Manufacturing
Occupation	Surface Treatment
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	20/10/2013
Next Review Date	20/10/2015
NSQC Clearance Date	

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ASC/N3802: Prepare the machines, auxiliaries and work pieces for the surface treatment process

Description

This OS unit is about preparing the surface of the metal parts by removing dust, moistures etc, cleaning the coating apparatus and installing the metal parts and electrodes on the coating machine/ assembly block

Scope

The Surface Treatment Technician will be responsible for arranging the equipment and material required for surface treatment process cleaning the equipment used in surface treatment activities escalations for queries The job holder will cover anodizing, electroplating and powder coating methods for surface treatment. The role holder will interact with the paint shop, maintenance team and material management team

- arranging the equipment and material required for surface treatment process
- cleaning the equipment used in surface treatment activities
- escalations for queries

Elements and Performance Criteria

Arrange for availability of equipment and material as per the requirement of the coating process

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

- PC1.** . understand the material required and the equipment availability for executing the activity
- PC2.** . ensure that the required material is procured from the store before starting the surface treatment process
- PC3.** . ensure the quality and quantity of material as per sop/work instructions
- PC4.** . ensure that the helper/ assistant technician brings the required material and tools before the start of the coating operations

Clean the coating guns, electroplating equipment, tanks and the feeding carriages

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

- PC5.** . ensure that the helper/ assistant operator cleans the surface of the guns, carriage and tanks to remove dust and any other impurities
- PC6.** . setup the apparatus as per the selected process and the internal sops/ work instructions and set the standards for the machine

Prepare the surface of the part (work pieces) on which coating needs to be conducted

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

- PC7.** . ensure that the helper/ assistant operator clean the surface to the metal parts (work pieces) which need to be surface treated

Escalations of queries for the given job

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

- PC8.** . immediately refer the queries to the supervisor to avoid any delay in the actual process

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- PC9.** . confirm self- understanding to the supervisor/ master technician once the query is resolved so that all doubts & queries can be resolved before the actual process execution

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** relevant standards and procedures followed in the company
- KU2.** different types of products manufactured by the company
- KU3.** functional processes like Procurement, Store management, inventory management, quality management and key contact points for query resolution
- KU4.** different types of surface treatment processes and associated equipment
- KU5.** upkeep and maintenance of the tools and equipment required
- KU6.** the method of reading and interpreting the various gauges, equipment and indicators
- KU7.** chemical properties of the chemicals used
- KU8.** how to visualize the final product output
- KU9.** the impact of various physical parameters like temperature, pressure, electric current, voltage on the properties of final output product like durability, surface finish etc.
- KU10.** hazards and safety aspects involved in surface treatment activities and usage of relevant PPEs

Generic Skills (GS)

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

- GS1.** document information
- GS2.** note down observations & readings(if any) related to the surface treatment process
- GS3.** write information documents to internal departments/ internal teams or enter the information in online ERP systems under guidance of the supervisor
- GS4.** read and interpret technical specifications of the specimen
- GS5.** read equipment manuals and process documents to understand the equipment and processes better
- GS6.** read measurement equipment & computer displays
- GS7.** read internal information documents sent by internal teams
- GS8.** discuss task lists, schedules and activities with the supervisor
- GS9.** effectively communicate with the team members
- GS10.** question the shop supervisor in order to understand the nature of the problem and to clarify queries
- GS11.** attentively listen with full attention and comprehend the information given by the speaker
- GS12.** plan and organize the work order and jobs received from the Operator
- GS13.** organize all process/ equipment manuals so that sorting/ accessing information is easy
- GS14.** visualize the final job product after understanding the given drawing/sketches
- GS15.** co relate the type of job output required with the painting methodology to be used

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- GS16.** identify the strengths and weakness of various painting process
- GS17.** use common sense and make judgments during day to day basis
- GS18.** use reasoning skills to identify and resolve basic problems
- GS19.** follow instructions and work on areas of improvement identified complete the assigned tasks with minimum supervision
- GS20.** complete the job defined by the supervisor within the timelines and quality norms
- GS21.** take self initiatives in driving small projects with the supervisor like operation improvement, training of helpers and assistant operators, 5S, Kaizen etc

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Arrange for availability of equipment and material as per the requirement of the coating process</i>	12	28	-	-
PC1. . understand the material required and the equipment availability for executing the activity	3	7	-	-
PC2. . ensure that the required material is procured from the store before starting the surface treatment process	3	7	-	-
PC3. . ensure the quality and quality of material as per sop/work instructions	4	8	-	-
PC4.. ensure that the helper/ assistant technician brings the required material and tools before the start of the coating operations	2	6	-	-
<i>Clean the coating guns, electroplating equipment, tanks and the feeding carriages</i>	8	18	-	-
PC5. . ensure that the helper/ assistant operator cleans the surface of the guns, carriage and tanks to remove dust and any other impurities	3	8	-	-
PC6. . setup the apparatus as per the selected process and the internal sops/ work instructions and set the standards for the machine	5	10	-	-
<i>Prepare the surface of the part (work pieces) on which coating needs to be conducted</i>	4	8	-	-
PC7. . ensure that the helper/ assistant operator clean the surface to the metal parts (work pieces) which need to be surface treated	4	8	-	-
<i>Escalations of queries for the given job</i>	6	16	-	-
PC8. . immediately refer the queries to the supervisor to avoid any delay in the actual process	3	8	-	-
PC9. . confirm self- understanding to the supervisor/ master technician once the query is resolved so that all doubts & queries can be resolved before the actual process execution	3	8	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
NOS Total	30	70	-	-

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	ASC/N3802
NOS Name	Prepare the machines, auxiliaries and work pieces for the surface treatment process
Sector	Automotive
Sub-Sector	Manufacturing
Occupation	Surface Treatment
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	20/10/2013
Next Review Date	20/10/2015
NSQC Clearance Date	

Qualification Pack

ASC/N3803: Perform different types of surface treatment operation

Description

This unit is about Body Coating-Electroplating, Anodizing and Powder coating

Scope

The Surface Treatment Technician will be responsible for loading the material into the machine conducting the pre-treatment processes like degreasing, de rusting and rinsing conducting the actual plating process (Nickel plating, chrome plating, anodizing, powder coating The job holder will cover anodizing, electroplating and powder coating methods for surface treatment. The role holder will interact with the paint shop, maintenance team and material management team

- loading the material into the machine
- conducting the pre-treatment processes like degreasing, de rusting and rinsing
- conducting the actual plating process (Nickel plating, chrome plating, anodizing, powder coating)

Elements and Performance Criteria

Load the material into the machine

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

- PC1.** . through the use of hoists(if large)/manually pick up and feed the metal to be surface coated on the spindle or the feed carriage
- PC2.** . feed the material into the processing machines either by hand or automatically

Conduct the Pretreatment(Degreasing, Derusting, Water rinses)

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

- PC3.** . clean the body from all dust and dirt particles through prewash and hot water rinse
- PC4.** . conduct degreasing to remove the oil content from the metal surface
- PC5.** . conduct water rinse as per the sop
- PC6.** . perform anodic cleaning by passing the requisite current to further remove oil & grease
- PC7.** . conduct water rinse as per sop
- PC8.** . perform acidic cleaning with sulphuric acid to remove rust and perform surface itching
- PC9.** . ensure proper equipment operation to check for heating/cooling as per the sop
- PC10..** ensure frequency of checks, bath concentrations, relevant jigs and fixtures as per the control plan
- PC11.** . follow up with the demineralised water rinse

Conduct the Nickel Plating(semi nickel, dry nickel and wet nickel plating) or Zinc Plating process

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

- PC12..** prepare the electrolyte solution(NiSO_4 , NiCl_2 , boric acid, additives)or (ZnCl_2 , ZnSO_4 ,additives) required for electroplating
- PC13..** maintain the ph, temperature & concentration of the tanks as per the sop
- PC14..** suspend the plating metal/lead at the anode which acts as a circuit completer
- PC15.** . suspend the bare metal at the cathode which has to be electroplated

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- PC16..** in case of smaller parts keep them in a rotating tray at the cathode , with the tray having enough hole size to allow the electrolyte to flow in and out the parts
- PC17..** measure , mark and mask areas to be excluded from plating
- PC18..** ensure all electrical connections are close and safety parameters are taken into account
- PC19..** wear proper ppes before starting the operation on machine
- PC20..** start the process and continuously monitor the thickness of electroplating
- PC21..** observe the parameters on the computer
- PC22..** adjust controls to set temperatures of coating substances and speeds of machines and equipment
- PC23..** adjust dials to regulate the flow of current and voltage supplied to terminals to control plating processes
- PC24..** listen and attend to the abnormalities/alarms/leakages
- PC25..** monitor the operation of the auto dozing dump for fume suppressant operations
- PC26..** monitor the operations of the air blower fans, aerators, tranporters(if automatic processes) and conveyors
- PC27..** ensure frequency of checks, bath concentrations, relevant jigs and fixtures as per the control plan
- PC28. .** in case of any deviation immediately inform the supervisor
- PC29. .** follow the above process by passivation(chromatizing)

Conduct the Chrome Plating process

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

- PC30..** prepare the electrolyte solution required for chromotization which has salts of heavy cations(cr+++) in the processing tank
- PC31. .** suspend the plating metal at the anode which acts as a circuit completer
- PC32. .** suspend the bare metal at the cathode which has to be electroplated
- PC33. .** follow the electroplating with chrome neutralization process top convert hexavalent ions to trivalent ions
- PC34..** in case of smaller parts keep them in a rotating tray at the cathode , with the tray having enough hole size to allow the electrolyte to flow in and out the parts
- PC35..** measure , mark and mask areas to be excluded from plating
- PC36..** ensure all electrical connections are close and safety parameters are taken into account
- PC37..** wear proper ppes before starting the operation on machine
- PC38..** start the process and continuously monitor the thickness of electroplating
- PC39..** observe the parameters on the computer
- PC40..** adjust controls to set temperatures of coating substances and speeds of machines and equipment
- PC41..** adjust dials to regulate the flow of current and voltage supplied to terminals to control plating processes
- PC42..** monitor the operations of the air blower fans, aerators, tranporters(if automatic processes) and conveyors
- PC43..** listen and attend to the abnormalities/alarms/leakages
- PC44..** monitor the operation of the auto dozing dump for fume suppressant operations

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- PC45..** ensure frequency of checks, bath concentrations, relevant jigs and fixtures as per the control plan
- PC46..** in case of any deviation immediately inform the supervisor
- PC47..** follow the above process with a demineralized water rinsing to clean the product of all ions as per the sop

Conduct the Anodising process

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

- PC48. .** prepare the electrolyte solution required for anodizing
- PC49..** suspend the bare metal(aluminium) at the anode as per the tank depth mentioned in the sops/ work instructions
- PC50..** ensure all electrical connections are close and safety parameters are taken into account
- PC51..** wear proper ppes before starting the operation on machine
- PC52..** measure , mark and mask areas to be excluded from plating
- PC53..** start the process and continuously monitor the thickness of anodizing film
- PC54..** observe the parameters on the computer display and taken necessary actions
- PC55..** adjust controls to set temperatures of coating substances and speeds of machines and equipment
- PC56..** adjust dials to regulate the flow of current and voltage supplied to terminals to control anodizing processes
- PC57..** monitor the operations of the air blower fans, aerators, tranporters(if automatic processes) and conveyors
- PC58..** ensure frequency of checks, bath concentrations, relevant jigs and fixtures as per the control plan
- PC59..** listen and attend to the abnormalities/alarms/leakages
- PC60. .** in case of any deviation immediately inform the supervisor

Conduct the Powder Coating process

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

- PC61..** do sandblasting to further roughen the metal surface as well as further cleanup of the metal surface
- PC62..** preheat the metal in oven as per work instructions/sop
- PC63..** weigh or measure chemicals, coatings, or paints before adding them to the machines
- PC64..** properly mix the dry paints with the use of reciprocating machine to ensure flow and viscosity as per the specifications. viscosity should be as per the internal sops
- PC65..** ensure proper functioning of the spray gun to be used for spray. spray gun operations should be as per the process manual provided by the supplier/ internal sops
- PC66..** ensure the booth parameters like air draft, electrostatic charge on the gun , conveyor speed are as per specifications mentioned in wi/sop
- PC67..** monitor the operations of the air blower fans, aerators, tranporters(if automatic processes) and conveyors
- PC68..** wear proper ppe like rubber gloves, goggles, face mask and apron to avoid injury and powder overspray
- PC69..** spray the powder over the metal part as per the specification to ensure uniform flow and spread across the surface

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PC70.. spray uniformly across the surface of metal to cover all nooks and corners

PC71. . ensure that the film thickness is above the minimum specification

Unload the treated material using proper mechanism

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

PC72.. unload the material in containers and position them correctly in the unloading bins using hand tools or the hoists

PC73. . place the coated or the plated material on the racks for drying in the ovens for a specific time period

PC74.. rinse the coated objects in cleansing liquids and dry them with cloths before super finishing

Inspect the final product as per guidelines

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

PC75.. compare texture, color, surface properties, hardness, dry film thickness and strength with the given product specifications

PC76.. ensure coverage of all areas of the metal with the coating

PC77.. check for water marks and check for surface roughness in case of power failure in midst of a cycle

PC78.. note down the observations of the basic inspection process and identify pieces which are ok and also the others which are not meeting the specified standards

PC79.. discard the pieces which are beyond repair and repair the ones which need minor modifications/ rework

PC80.. maintain records of each category of work outputs

PC81.. rectify defects like over coating , low sheen by super finishing operations

PC82.. escalate all issues related to change in color, surface properties, hardness etc. so that the manufacturing equipment can be reset to achieve the specified output

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. relevant standards and procedures followed in the company

KU2. different types of products manufactured by the company

KU3. knowledge of functional processes like store management, inventory management, quality management and key contact points for query resolution

KU4. knowledge of raw materials , various chemicals and additives used in the process and the potential hazards attached to them

KU5. knowledge about the norms to handle and discharge the chrome

KU6. knowledge about the electrolyte solution and its various properties

KU7. knowledge about tools, jigs and fixtures , their usage and maintenance

KU8. knowledge on how to operate both in automatic and manual mode

KU9. knowledge about the various hazards related to chrome, zinc, nickel, powder paint and how to carefully handle them

KU10. knowledge about the hazards involved in the process operations

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- KU11.** knowledge about handling of electrical equipment and circuits, rectifiers and control panel etc.
- KU12.** knowledge to measure the correct specifications of the output in the terms of thickness, hardness, durability etc.
- KU13.** ability to visualize the final product output and hence decide on the parameters of temperature, pressure, current and voltage

Generic Skills (GS)

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

- GS1.** document information
- GS2.** note measurements, equipment panel readings for various process parameters in the required reporting formats
- GS3.** read equipment manuals and process documents to understand the equipment and processes better
- GS4.** read internal information memos send by internal customers (other functions within the organization)
- GS5.** discuss task lists, schedules, and work-loads with co-workers
- GS6.** question internal customers/ paint shop supervisor appropriately in order to understand the nature of the problem and make a diagnosis
- GS7.** plan and organize the work order and jobs received from the internal customers
- GS8.** plan and organize the design documents received from internal customers
- GS9.** organize all process/ equipment manuals so that sorting out information is fast
- GS10.** carefully analyze the body part for various painting defects at every tank level
- GS11.** carefully run the production line if some delay happens

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Load the material into the machine</i>	0.5	1.5	-	-
PC1. . through the use of hoists(if large)/manually pick up and feed the metal to be surface coated on the spindle or the feed carriage	0.5	0.5	-	-
PC2. . feed the material into the processing machines either by hand or automatically	-	1	-	-
<i>Conduct the Pretreatment(Degreasing, Derusting, Water rinses)</i>	3	6	-	-
PC3. . clean the body from all dust and dirt particles through prewash and hot water rinse	-	0.5	-	-
PC4. . conduct degreasing to remove the oil content from the metal surface	0.5	0.5	-	-
PC5. . conduct water rinse as per the sop	-	0.5	-	-
PC6. . perform anodic cleaning by passing the requisite current to further remove oil & grease	0.5	1	-	-
PC7. . conduct water rinse as per sop	-	0.5	-	-
PC8. . perform acidic cleaning with sulphuric acid to remove rust and perform surface itching	0.5	1	-	-
PC9. . ensure proper equipment operation to check for heating/cooling as per the sop	0.5	0.5	-	-
PC10. . ensure frequency of checks, bath concentrations, relevant jigs and fixtures as per the control plan	0.5	1	-	-
PC11. . follow up with the demineralised water rinse	0.5	0.5	-	-
<i>Conduct the Nickel Plating(semi nickel, dry nickel and wet nickel plating) or Zinc Plating process</i>	6.5	15	-	-
PC12. . prepare the electrolyte solution(niso4, nicl, boric acid, additives)or (zncl2, znso4,additives) required for electroplating	1	1	-	-
PC13. . maintain the ph, temperature & concentration of the tanks as per the sop	0.5	1	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC14.. suspend the plating metal/lead at the anode which acts as a circuit completer	-	0.5	-	-
PC15. . suspend the bare metal at the cathode which has to be electroplated	-	0.5	-	-
PC16.. in case of smaller parts keep them in a rotating tray at the cathode , with the tray having enough hole size to allow the electrolyte to flow in and out the parts	-	0.5	-	-
PC17.. measure , mark and mask areas to be excluded from plating	-	1	-	-
PC18.. ensure all electrical connections are close and safety parameters are taken into account	-	0.5	-	-
PC19.. wear proper ppes before starting the operation on machine	-	0.5	-	-
PC20.. start the process and continuously monitor the thickness of electroplating	0.5	1	-	-
PC21.. observe the parameters on the computer	0.5	1	-	-
PC22.. adjust controls to set temperatures of coating substances and speeds of machines and equipment	0.5	1	-	-
PC23.. adjust dials to regulate the flow of current and voltage supplied to terminals to control plating processes	0.5	1	-	-
PC24.. listen and attend to the abnormalities/alarms/leakages	0.5	0.5	-	-
PC25.. monitor the operation of the auto dozing dump for fume suppressant operations	0.5	1	-	-
PC26.. monitor the operations of the air blower fans, aerators, tranporters(if automatic processes) and conveyors	0.5	1	-	-
PC27.. ensure frequency of checks, bath concentrations, relevant jigs and fixtures as per the control plan	0.5	1	-	-
PC28. . in case of any deviation immediately inform the supervisor	0.5	1	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC29. . follow the above process by passivation(chromatizing)	0.5	1	-	-
<i>Conduct the Chrome Plating process</i>	8	17	-	-
PC30.. prepare the electrolyte solution required for chromatization which has salts of heavy cations(cr+++) in the processing tank	0.5	1	-	-
PC31. . suspend the plating metal at the anode which acts as a circuit completer	0.5	1	-	-
PC32. . suspend the bare metal at the cathode which has to be electroplated	0.5	1	-	-
PC33. . follow the electroplating with chrome neutralization process top convert hexavalent ions to trivalent ions	0.5	1	-	-
PC34.. in case of smaller parts keep them in a rotating tray at the cathode , with the tray having enough hole size to allow the electrolyte to flow in and out the parts	0.5	1	-	-
PC35.. measure , mark and mask areas to be excluded from plating	0.5	1	-	-
PC36.. ensure all electrical connections are close and safety parameters are taken into account	0.5	1	-	-
PC37.. wear proper ppes before starting the operation on machine	-	0.5	-	-
PC38.. start the process and continuously monitor the thickness of electroplating	0.5	1	-	-
PC39.. observe the parameters on the computer	0.5	1	-	-
PC40.. adjust controls to set temperatures of coating substances and speeds of machines and equipment	0.5	1	-	-
PC41.. adjust dials to regulate the flow of current and voltage supplied to terminals to control plating processes	0.5	1	-	-
PC42.. monitor the operations of the air blower fans, aerators, tranporters(if automatic processes) and conveyors	0.5	1	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC43.. listen and attend to the abnormalities/alarms/leakages	-	0.5	-	-
PC44.. monitor the operation of the auto dozing dump for fume suppressant operations	0.5	1	-	-
PC45.. ensure frequency of checks, bath concentrations, relevant jigs and fixtures as per the control plan	0.5	1	-	-
PC46.. in case of any deviation immediately inform the supervisor	0.5	1	-	-
PC47.. follow the above process with a demineralized water rinsing to clean the product of all ions as per the sop	0.5	1	-	-
<i>Conduct the Anodising process</i>	5	11.5	-	-
PC48. . prepare the electrolyte solution required for anodizing	0.5	1	-	-
PC49.. suspend the bare metal(aluminium) at the anode as per the tank depth mentioned in the sops/ work instructions	0.5	1	-	-
PC50.. ensure all electrical connections are close and safety parameters are taken into account	0.5	1	-	-
PC51.. wear proper ppes before starting the operation on machine	-	0.5	-	-
PC52.. measure , mark and mask areas to be excluded from plating	0.5	1	-	-
PC53.. start the process and continuously monitor the thickness of anodizing film	0.5	1	-	-
PC54.. observe the parameters on the computer display and taken necessary actions	0.5	1	-	-
PC55.. adjust controls to set temperatures of coating substances and speeds of machines and equipment	0.5	1	-	-
PC56.. adjust dials to regulate the flow of current and voltage supplied to terminals to control anodizing processes	0.5	1	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC57.. monitor the operations of the air blower fans, aerators, transporters(if automatic processes) and conveyors	0.5	1	-	-
PC58.. ensure frequency of checks, bath concentrations, relevant jigs and fixtures as per the control plan	0.5	1	-	-
PC59.. listen and attend to the abnormalities/alarms/leakages	-	0.5	-	-
PC60. . in case of any deviation immediately inform the supervisor	-	0.5	-	-
<i>Conduct the Powder Coating process</i>	3.5	9.5	-	-
PC61.. do sandblasting to further roughen the metal surface as well as further cleanup of the metal surface	0.5	1	-	-
PC62.. preheat the metal in oven as per work instructions/sop	0.5	1	-	-
PC63.. weigh or measure chemicals, coatings, or paints before adding them to the machines	-	0.5	-	-
PC64.. properly mix the dry paints with the use of reciprocating machine to ensure flow and viscosity as per the specifications. viscosity should be as per the internal sops	0.5	1	-	-
PC65.. ensure proper functioning of the spray gun to be used for spray. spray gun operations should be as per the process manual provided by the supplier/ internal sops	0.5	1	-	-
PC66.. ensure the booth parameters like air draft, electrostatic charge on the gun , conveyor speed are as per specifications mentioned in wi/sop	0.5	1	-	-
PC67.. monitor the operations of the air blower fans, aerators, transporters(if automatic processes) and conveyors	0.5	1	-	-
PC68.. wear proper ppe like rubber gloves, goggles, face mask and apron to avoid injury and powder overspray	-	0.5	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC69.. spray the powder over the metal part as per the specification to ensure uniform flow and spread across the surface	0.5	1	-	-
PC70.. spray uniformly across the surface of metal to cover all nooks and corners	-	1	-	-
PC71. ensure that the film thickness is above the minimum specification	-	0.5	-	-
<i>Unload the treated material using proper mechanism</i>	1	3	-	-
PC72.. unload the material in containers and position them correctly in the unloading bins using hand tools or the hoists	-	1	-	-
PC73. place the coated or the plated material on the racks for drying in the ovens for a specific time period	0.5	1	-	-
PC74.. rinse the coated objects in cleansing liquids and dry them with cloths before super finishing	0.5	1	-	-
<i>Inspect the final product as per guidelines</i>	2.5	6.5	-	-
PC75.. compare texture, color, surface properties, hardness, dry film thickness and strength with the given product specifications	0.5	1	-	-
PC76.. ensure coverage of all areas of the metal with the coating	-	0.5	-	-
PC77.. check for water marks and check for surface roughness in case of power failure in midst of a cycle	0.5	1	-	-
PC78.. note down the observations of the basic inspection process and identify pieces which are ok and also the others which are not meeting the specified standards	0.5	1	-	-
PC79.. discard the pieces which are beyond repair and repair the ones which need minor modifications/ rework	-	0.5	-	-
PC80.. maintain records of each category of work outputs	0.5	1	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC81.. rectify defects like over coating , low sheen by super finishing operations	0.5	1	-	-
PC82.. escalate all issues related to change in color, surface properties, hardness etc. so that the manufacturing equipment can be reset to achieve the specified output	-	0.5	-	-
NOS Total	30	70	-	-

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	ASC/N3803
NOS Name	Perform different types of surface treatment operation
Sector	Automotive
Sub-Sector	Manufacturing
Occupation	Surface Treatment
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	20/10/2013
Next Review Date	20/10/2015
NSQC Clearance Date	

Qualification Pack

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

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

Recommended Pass % aggregate for QP : 70

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
ASC/N0006.Maintain a safe and healthy working environment	25	75	-	-	100	20
ASC/N0021.Maintain 5S at the work premises	25	75	-	-	100	10
ASC/N3801.Understand process and equipment requirement for surface treatment	30	70	-	-	100	25

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National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
ASC/N3802.Prepare the machines, auxiliaries and work pieces for the surface treatment process	30	70	-	-	100	25
ASC/N3803.Perform different types of surface treatment operation	30	70	-	-	100	20
Total	140	360	-	-	500	100

Qualification Pack

Acronyms

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

Qualification Pack

Glossary

Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Scope	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.

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Knowledge and Understanding (KU)	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.
Organisational Context	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills/ Generic Skills (GS)	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
Electives	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
Options	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.