QUALIFICATIONS PACK - OCCUPATIONAL STANDARDS FOR LOGISTICS SECTOR

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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Contents

Introduction

Qualifications Pack: Refrigeration and Maintenance Equipment Specialist

SECTOR: LOGISTICS

SUB-SECTOR: Cold Chain Logistics

OCCUPATION: Maintenance

REFERENCE ID: LSC/Q9101

ALIGNED TO: NCO-2015/ NIL

Brief Job Description: The individual at work prepares refrigeration equipment maintenance schedule checklist and monitors its preventive maintenance. The person is also responsible to oversee service and repair of cold chain equipment like condenser, compressor and evaporators, provide manpower and material resources to maintenance technicians, train plant engineers on handling and maintenance of refrigeration equipment.

Personal Attributes: The job requires the individual to have good eye sight, good physical fitness, be vigilant, have ability to work in low temperature environment for long duration and willingness to work by wearing protective gear.

Job Details

Qualifications Pack Code	**LSC/Q9101**		
Job Role	**Refrigeration and Maintenance Equipment Specialist**		
Credits(NSQF)	**TBD**	**Version number**	**1.0**
Sector	**Logistics**	**Drafted on**	**10/08/16**
Sub-sector	**Cold Chain Logistics**	**Last reviewed on**	**04/05/19**
Occupation	**Maintenance**	**Next review date**	**04/05/22**
NSQC Clearance on	**NA**		

Job Role	**Refrigeration and Maintenance Equipment Specialist Also known as 'Maintenance Head or Officer'**
Role Description	The Refrigeration Maintenance and Equipment Specialist is responsible for planning and monitoring maintenance of refrigeration equipment, handling its service and repair and training plant engineers to perform maintenance tasks.
NSQF **Minimum Educational Qualifications** **Maximum Educational Qualifications**	5 Diploma in Mechanical / Electrical / Electronical / Refrigeration engineering with relevant experience; candidate should have completed 18 years of age
Prerequisite License or Training	Not Applicable for License. Should be proficient and cleared Level 4
Minimum Job Entry Age	21 years
Experience	Diploma, post to the completion of Level 4, with 2 years of experience in cold storage/ refrigeration/ air conditioning equipment maintenance operations as an apprentice or in regular employment
Applicable National Occupational Standards (NOS)	**Compulsory:** 1. LSC/N9101 Plan the maintenance of refrigeration equipment 2. LSC/N9102 Monitor the maintenance of refrigeration equipment 3. LSC/N9103 Oversee service and repair refrigeration equipment 4. LSC/N9104 Undertake training for plant engineers 5. LSC/N9901 Maintain food and personnel safety, health and hygiene in cold storage plant 6. LSC/N9902 Communicate effectively with colleagues and clients

Performance Criteria	As described in the relevant OS units

Definitions

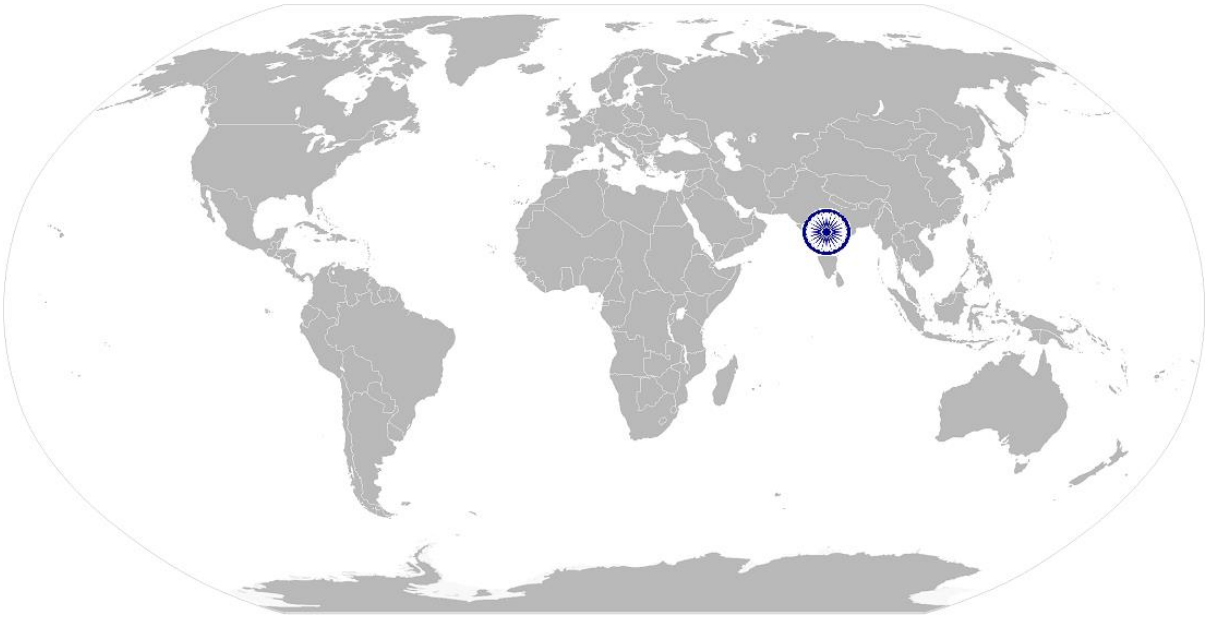
Keywords /Terms	Description
Core Skills/Generic Skills	Core Skills or Generic Skills are a group of skills that are key to learning and working in today's world. These skills are typically needed in any work environment. In the context of the NOS, these include communication related skills that are applicable to most job roles.
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.

Acronyms

Keywords /Terms	Description
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
OS	Occupational Standards
OH&S	Occupational Health and Safety
PPE	Personal Protective Equipment
HR	Human Resources

National Occupational Standard



Overview

This unit is about planning and preparing maintenance schedules as per requirements, and manage resources accordingly.

LSC/N9101 **Plan the maintenance of refrigeration equipment**

National Occupational Standard

Unit Code	**LSC /N9101**
Unit Title (Task)	**Plan the maintenance of refrigeration equipment**
Description	This OS unit is about planning and preparing maintenance schedules as per requirements, and manage resources accordingly
Scope	This unit/task covers the following: • Prepare preventive maintenance schedule checklist for main refrigeration equipment components • Manage manpower resources for maintenance • Handle supply of materials to the maintenance technicians **Range:** compressor, condenser, evaporator, temperature and humidity sensor

Performance Criteria(PC) w.r.t. the Scope	
Element	**Performance Criteria**
Preparing preventive maintenance schedule checklist	To be competent, the user/ individual must be able to: PC1. prepare work programme and schedules for maintenance of evaporator, condenser and compressor PC2. prioritize maintenance as per legislative laws, organization requirements, resources, and environment PC3. plan electrical system maintenance at least once in five years as per the Institute of Electrical and Electronics Engineers Code of Practice PC4. plan to check evaporators for defrosting and coil surface for dust accumulation PC5. ensure to check electrical connections for corroded terminals PC6. ensure that the maintenance plan checks oil safety and high pressure controls of compressor units PC7. record the schedules for preventive maintenance PC8. plan activities so as to minimize disruption to normal working PC9. ensure to schedule seasonal maintenance PC10. make contingency plans for emergency situations regarding working of the equipment
Managing manpower resources for maintenance	To be competent, the user/ individual must be able to: PC11. identify resources for maintenance based on the skills required PC12. allocate resources for each maintenance activity PC13. make contingency plans for variations in labour availability
Handling supply of materials to the maintenance technicians	To be competent, the user/ individual must be able to: PC14. provide checklists for maintenance activities PC15. provide information on priority and deadlines for the tasks, so that losses are minimized PC16. provide necessary tools, components and protective gear to carry out maintenance activities
Knowledge and Understanding (K)	

LSC/N9101 Plan the maintenance of refrigeration equipment

A. Organizational Context (Knowledge of the company / organization and its processes)	The individual on the job needs to know and understand: KA1. organizational policies and guidelines KA2. reporting structure KA3. communication with relevant people in the organization to take their buy-in for maintenance schedule KA4. organization safety and security procedures of refrigerant uage KA5. procedures to follow during emergency maintenance issues KA6. formats for maintenance checklists used in the organization KA7. roles and responsibilities of labourers in the cold storage area KA8. problems that may arise to different departments in the organization due to maintenance activities and their solutions
B. Technical Knowledge	The individual on the job needs to know and understand: KB1. importance of prior planning for maintenance of refrigeration equipment KB2. finalization requirements for maintenance KB3. Preparation of preventive maintenance schedules and checklists KB4. optimal temperature and humidity conditions required for various products handled by cold chain, for example, Marine products: -18 to -21 degrees Fruits and vegetables: -1 to 15 degrees; 95% to 98% RH; 65% to 75% RH for onion and garlic; 40% to 50% RH for beans, dry fruits and vegetables Dairy: -20 to +4 degrees Dry fruits: 4 to 10 degrees Pharma - chemicals and vaccines: – 4 to 10 degrees KB5. product specific hygiene requirements KB6. extent of ethylene production by each product and sensitivity of ethylene exposure to products KB7. how to prioritize activities in maintenance scheduling KB8. necessary resources for each activity KB9. safety standards and precautions to be ensured KB10. procedures for isolating electrical systems (wiring to the equipment) safely KB11. bonding of electrical system to the components after repair KB12. selection of accessories and tools required for maintenance
Skills (S)	
A. Core Skills/ Generic Skills	**Reading Skills** The user/individual on the job needs to know and understand how to: SA1. read equipment manual and understand its working SA2. read safety instructions SA3. read legistative laws concerning equipment maintenance SA4. read and understand equipment manufacturer's maintenance instructions
	Writing Skills The user/individual on the job needs to know and understand how to: SA5. prepare maintenance schedules in the format followed by the organization

LSC/N9101 Plan the maintenance of refrigeration equipment

	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA6. communicate to workers clearly about the requirements in maintenance activities SA7. communicate to other departments like operations, packing and dispatch, quality check, admin and finance which get impacted due to equipment maintenance activities
B. Professional Skills	**Decision Making**
	The user/individual on the job needs to know and understand how to: SB1. decide on priorities of activities planned SB2. consider relative costs and benefits of multiple solutions SB3. resolve emergency situations in equipment functioning
	Plan and Organize
	The user/individual on the job needs to know and understand how to: SB4. plan maintenance activities as per standard requirements and manufacturer's instructions SB5. plan equipment service based on its working condition SB6. plan resources by selecting, training, and ensuring discipline amongst them
	Customer Centricity
	Not Applicable
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB7. re-schedule tasks in case of delays or requirements by other departments in the organization SB8. handle allotment of tasks to workers in case of staff shortage or delays in activities
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB9. interpret equipment diagram and information to identity which components need maintenance SB10. assess working condition of refrigeration equipment SB11. plan activities to minimize effects on normal working of the organization SB12. interpret electrical system diagrams
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB13. identify faults in the refrigerant equipment working SB14. use reasoning to identify alternative solutions SB15. assign criticality to the equipment problem, to plan and prioritize maintenance or repair tasks

LSC/N9101 Plan the maintenance of refrigeration equipment

NOS Version Control

NOS Code	LSC/N9101		
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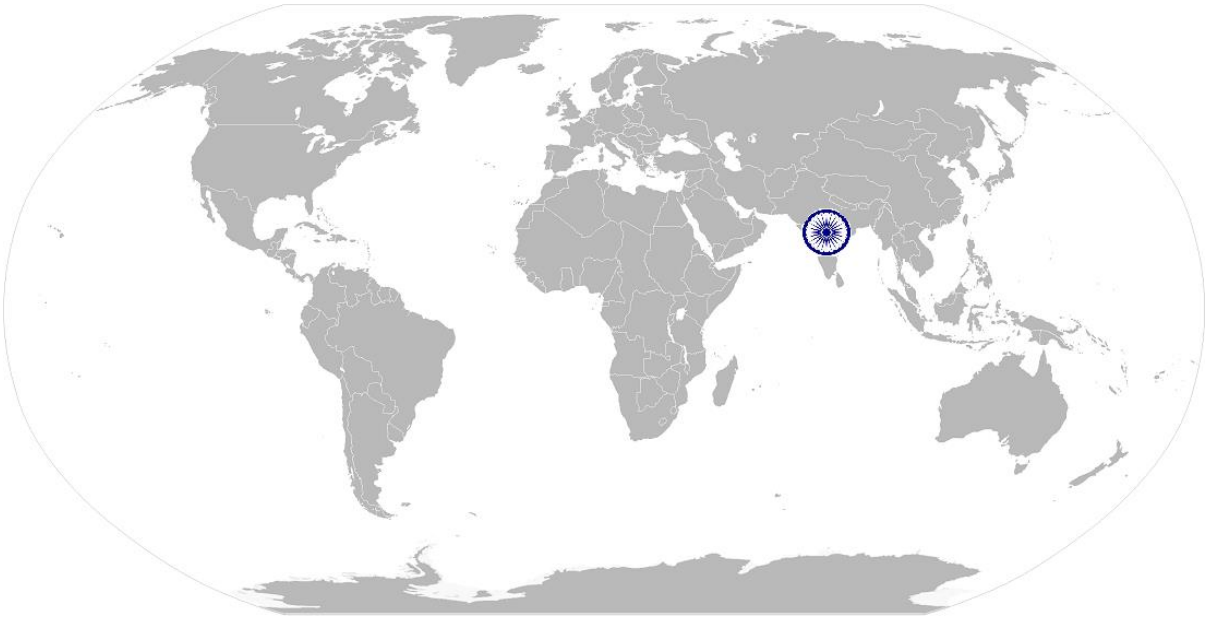
Industry	Logistics	Drafted on	10/08/16
Industry Sub-sector	Cold chain logistics	Last reviewed on	04/03/19
Occupation	Maintenance	Next review date	04/03/22

National Occupational Standard



Overview

This unit is about monitoring maintenance activities of refrigeration equipment to ensure that they are completed as per the plan.

LSC/N9102 Monitor maintenance of refrigeration equipment

National Occupational Standard

Unit Code	LSC /N9102
Unit Title (Task)	Monitor maintenance of refrigeration equipment
Description	This OS unit is about monitoring maintenance activities of refrigeration equipment to ensure that they are completed as per the plan
Scope	This unit/task covers the following: • Ensure maintenance activities are completed as per time, budget and quality • Ensure maintenance records are up-to-date • Co-ordinate regularly with the workforce **Range:** compressor, condenser, evaporator, temperature and humidity sensor
Performance Criteria(PC) w.r.t. the Scope	
Element	**Performance Criteria**
Ensuring maintenance activities are completed as per time, budget and quality	To be competent, the user/ individual must be able to: PC1. inspect regularly to ensure maintenance activities are done as per quality requirements PC2. inspect regularly to ensure maintenance activities are completed timely PC3. inspect regularly to ensure maintenance activities are done within the costs planned PC4. ensure that the quality of the products stored under refrigeration is not harmed while equipment components are being checked PC5. ensure that there is safe discharge of ammonia, so that excess refrigerant is discharged safely (not inside cold room and away from work area) PC6. ensure to keep drains in the cold area free of debris PC7. ensure to check operations of door seals regularly PC8. monitor the sequence of activities as per the schedule PC9. ensure workers are using protective gear during maintenance or repair PC10. ensure workers leave the area safe and clean after performing maintenance activities PC11. ensure that the equipment is calibrated correctly before use
Ensuring maintenance records are up-to-date	To be competent, the user/ individual must be able to: PC12. assign a resource to maintain records of refrigeration equipment maintenance activities regularly PC13. conduct regular checks on maintenance log to see if it is current PC14. instruct concerned person to update records if it is not latest PC15. report to all concerned people in the organization in case the schedule cannot be met
Co-ordinating regularly with the workforce	To be competent, the user/ individual must be able to: PC16. carry out walk around inspection regularly to monitor activities of subordinates PC17. communicate with workers as often as needed to ensure maintenance schedule is followed PC18. allocate parallel tasks to handle different components of refrigeration equipment like evaporator, compressor and condenser, wherever possible

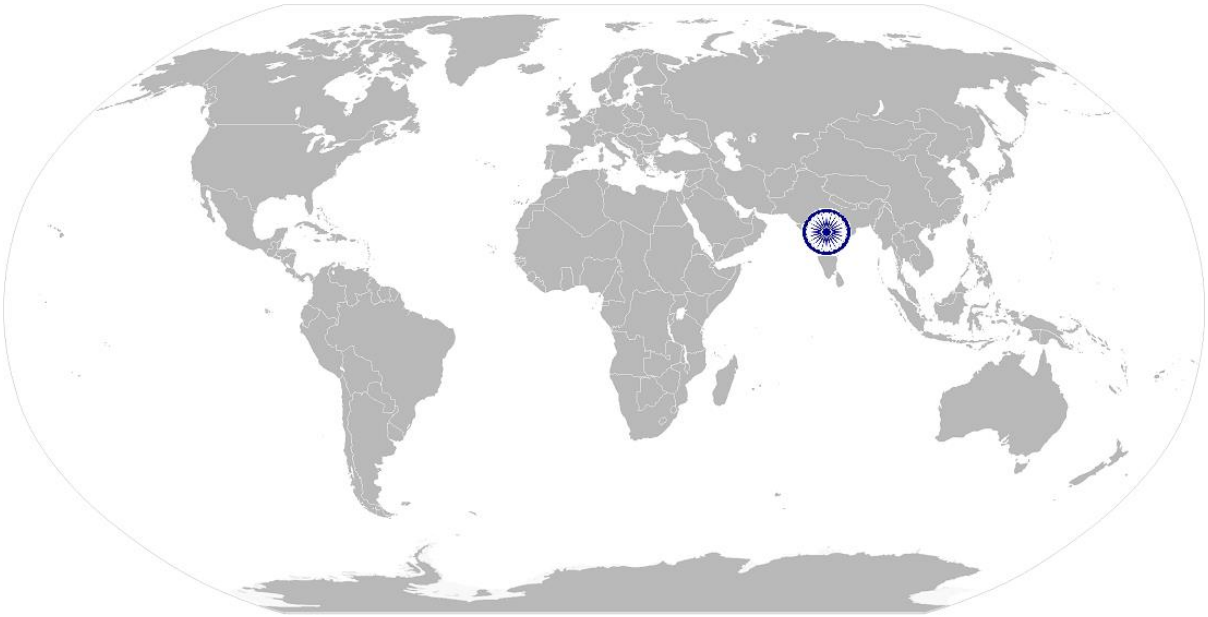
	PC19. observe the work efficiency of the workforce and identify training needs wherever necessary
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	The individual on the job needs to know and understand: KA1. organizational policies and guidelines KA2. reporting structure KA3. organization safety and security procedures of refrigerant uage KA4. procedures to follow during emergency maintenance issues KA5. roles and responsibilities of labourers in the cold storage area problems that may arise to different departments in the organization due to maintenance activities and their solutions
B. Technical Knowledge	The individual on the job needs to know and understand: KB1. Recording and documenting maintenance activities and data KB2. legal requirements involved in preparing relevant documents KB3. optimal temperature and humidity conditions required for various products handled by cold chain, for example, Marine products: -18 to -21 degrees Fruits and vegetables: -1 to 15 degrees; 95% to 98% RH; 65% to 75% RH for onion and garlic; 40% to 50% RH for beans, dry fruits and vegetables Dairy: -20 to +4 degrees Dry fruits: 4 to 10 degrees Pharma - chemicals and vaccines: – 4 to 10 degrees KB4. product specific hygiene requirements KB5. extent of ethylene production by each product and sensitivity of ethylene exposure to products KB6. checking leaks of ammonia KB7. different types of refrigerant leak detectors, like Halide leak detector, Electronic leak detector and soap and water test KB8. monitoring refrigerants used KB9. how to prioritize activities in maintenance scheduling KB10. necessary resources for each activity KB11. safety standards and precautions to be ensured KB12. applications and effects of different refrigerants KB13. methods for safe usage of refrigerants KB14. relation between refrigeration gas pressure present and the temperature maintained KB15. methods for safe disposal of obsolete equipment or its components KB16. calculation of machine productivity KB17. calculation of expenditures, monitoring variances in the budget for meeting financial standards KB18. how to review maintenance activities
Skills (S)	

LSC/N9102 **Monitor maintenance of refrigeration equipment**

A. Core Skills/ Generic Skills	**Reading Skills**
	The user/individual on the job needs to know and understand how to: SA1. read equipment manual and understand its working SA2. read maintenance budgeting records SA3. read safety instructions
	Writing Skills
	The user/individual on the job needs to know and understand how to: SA4. fill maintenance checklists as per completion of activities SA5. do documentation regarding maintenance log SA6. prepare document or report regarding finance, workforce or equipment performance as required by the Management
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA7. communicate to workers clearly about the requirements in maintenance activities SA8. communicate any delays or changes in maintenance schedule with workers amd other concerned departments like Operations, Packing and Dispatch, Quality Check, Admin and Finance which get impacted due to equipment maintenance activities SA9. communicate with workers to ensure discipline in completing maintenance activities
B. Professional Skills	**Decision Making**
	The user/individual on the job needs to know and understand how to: SB1. decide how to resolve emergency situations in equipment functioning SB2. plan routine checks to ensure maintenance schedule is on track
	Plan and Organize
	The user/individual on the job needs to know and understand how to: SB3. plan equipment service based on its working condition SB4. organize activities based on budgeting constraints
	Customer Centricity
	The user/individual on the job needs to know and understand how to: SB5. enforce storage and hygiene conditions as per the products handled for the organization or for its customers
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB6. re-schedule tasks in case of delays or requirements by other departments in the organization SB7. handle allotment of tasks to workers in case of staff shortage or delays in activities SB8. ability to resolve any conflicts that may arise between workers
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB9. interpret equipment diagram and information to identity which components

LSC/N9102 Monitor maintenance of refrigeration equipment

	need maintenance SB10. assess working condition of refrigeration equipment SB11. take initiatives to improve work process in equipment maintenance by taking feedback from the workers
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB12. identify faults in the refirgerant equipment working SB13. assess criticality of the equipment problem, to prioritize maintenance or repair tasks SB14. keep track of verifiable sources for maintenance schedules and records made,



LSC/N9102 **Monitor maintenance of refrigeration equipment**

NOS Version Control

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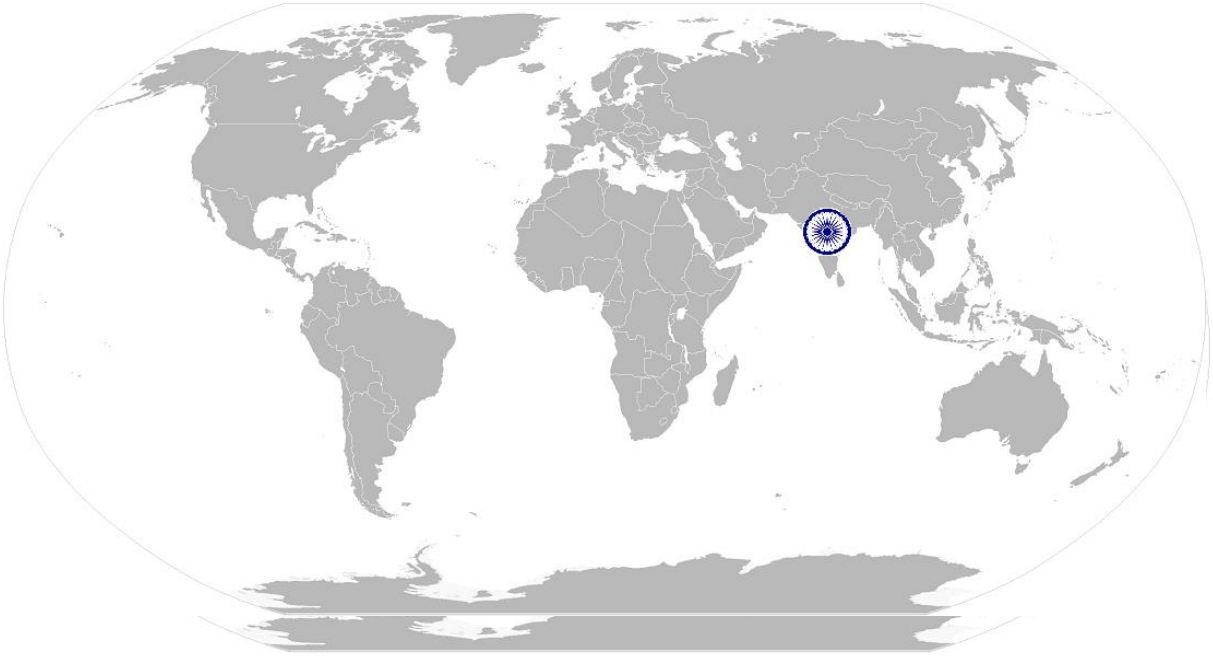
Credits(NSQF)	TBD	Version number	1.0
Industry	Logistics	Drafted on	10/08/16
Industry Sub-sector	Cold chain logistics	Last reviewed on	04/03/19
Occupation	Maintenance	Next review date	04/03/22

National Occupational Standard



Overview

This unit is about overseeing service and repair needs of the refrigeration equipment and ensuring that it is working as required.

National Occupational Standard

Unit Code	LSC/N9103
Unit Title (Task)	Oversee service and repair of refrigeration equipment
Description	This OS unit is about overseeing service and repair needs of the refrigeration equipment and ensuring that it is working as required
Scope	This unit/task covers the following: • Identify servicing as per refrigeration equipment manufaturer's instructions • Troubleshoot the refrigeration equipment used • Record performance of refrigeration equipment **Range:** compressor, condenser, evaporator, temperature and humidity sensor
Performance Criteria(PC) w.r.t. the Scope	
Element	**Performance Criteria**
Identifying servicing as per equipment manufaturer's instructions	To be competent, the user/ individual must be able to: PC1. plan types of maintenance activities based on manufacturer's instructions PC2. plan the frequency of maintenance activities PC3. consider industry level standard practices while planning maintenance PC4. understand procedures while removing or replacing an evaporator or a compressor
Troubleshooting the refrigeration equipment used	To be competent, the user/ individual must be able to: PC5. carry out tests or checks regularly to ensure system is working as required PC6. check for freezer insulation degradation by observing compressor duty cycle, condensation or presence of ice PC7. check operation of defrost system and thermostat PC8. plan repairs limited to thermostats, electrical systems, start relays and defrost timers as much as possible PC9. avoid repairs to the cooling system, if they are uneconomical, and consider replacement of components PC10. inspect cold store ceiling panel suspension rods and also their attachments at least once a year PC11. check discharge pressure and suction pressure in control system and make adjustments if necessary PC12. ensure that service or repair activities follow hygiene procedures PC13. trace faults in the components of refrigeration system when it arises PC14. test the working of the equipment, after service or repair PC15. ensure that the equipment is calibrated correctly before using
Recording performance of refrigeration equipment	To be competent, the user/ individual must be able to: PC16. maintain records of service and repair of refrigeration, electrical system, equipment components PC17. analyze the records to arrive at the performance of refrigerated equipment in terms of operating efficiency, downtime and conformity to the requirements
Knowledge and Understanding (K)	

LSC/N9103 Oversee service and repair of refrigeration equipment

A. Organizational Context (Knowledge of the company / organization and its processes)	The user/individual on the job needs to know and understand: KA1. organizational policies and guidelines KA2. reporting structure KA3. refrigerant usage with its relevant safety and security procedures KA4. procedures to follow during emergency maintenance and repair issues KA5. problems that may arise to different departments in the organization due to maintenance activities and their solutions
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. operating priciples of refrigeration equipment used based on the product type KB2. working of refrigeration equipment components KB3. industry standards or regulations related to servicing of refrigeration equipments KB4. how to rectify faulty equipment. Faults can include compressor failure, improper temperature controls for the products or restricted refrigerant KB5. checking leaks of ammonia KB6. monitoring refrigerants used KB7. relation between refrigeration gas pressure present and the temperature maintained KB8. recording maintenance activities performed so that it can help in analysis later KB9. type of hazards that can be encountered while performing service or repair activities KB10. bonding of electrical system to the components after repair KB11. analysing performance results to recommend and implement changes KB12. managing process for bringing in new equipment or its components
Skills (S)	
A. Core Skills/ Generic Skills	**Reading Skills**
	The user/ individual on the job needs to know and understand how to: SA1. read and understand work related documents SA2. read equipment manual and understand its working SA3. read safety instructions
	Writing Skills
	The user/ individual on the job needs to know and understand: SA4. filling of maintenance checklists as per completion of activities SA5. documentation regarding maintenance log SA6. preparation of reports for management regarding machine performance SA7. documenting details regarding faulty components
	Oral Communication (Listening and Speaking skills)

LSC/N9103 Oversee service and repair of refrigeration equipment

	The user/ individual on the job needs to know and understand how to: SA8. communicate to workers clearly about the requirements in maintenance activities SA9. communicate to other departments like Operations, Packing and Dispatch, Quality Check, Admin and Finance which get impacted due to equipment maintenance activities SA10. mentor all the workers under supervision to increase operational effectiveness
B. Professional Skills	**Decision Making**
	The user/ individual on the job needs to know and understand how to: SB1. consider relative costs and benefits of repair and replacement of a refrigeration equipment component SB2. resolve emergency situations in equipment functioning SB3. decide between repair or replacement of equipment or its components
	Plan and Organize
	The user/ individual on the job needs to know and understand how to: SB4. plan maintenance activities as per standard requirements and manufacturer's instructions SB5. plan equipment service based on its working condition
	Customer Centricity
	The user/ individual on the job needs to know and understand how to: SB6. enforce storage and hygiene conditions as per the products handled for the organization or for its customers
	Problem Solving
	The user/ individual on the job needs to know and understand how to: SB7. re-schedule tasks in case of delays or requirements by other departments in the organization SB8. resolve problems in equipment's working by deciding appropriate repair needs
	Analytical Thinking
	The user/ individual on the job needs to know and understand how to: SB9. interpret equipment diagram and information to identity which components need maintenance SB10. assess working condition of refrigeration equipment SB11. evaluate reliability of the refrigeration equipment
	Critical Thinking
	The user/ individual on the job needs to know and understand how to: SB12. identify faults in the refrigerant equipment working SB13. assess criticality of the equipment problem, to prioritize maintenance or repair tasks

LSC/N9103 Oversee service and repair of refrigeration equipment

NOS Version Control

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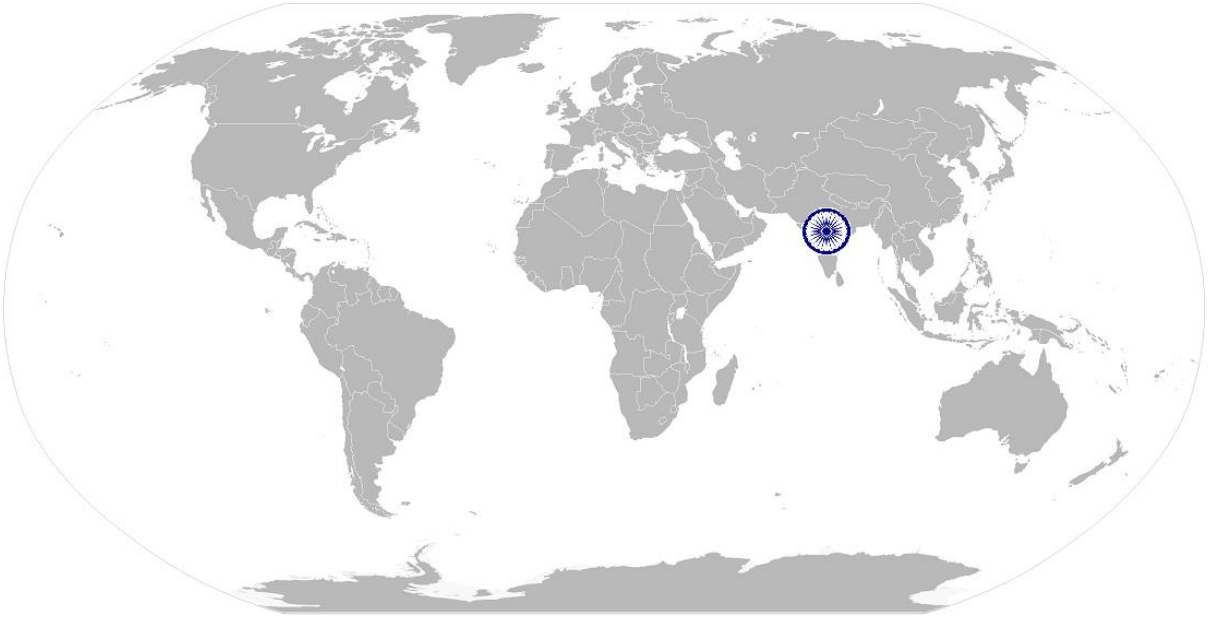
Industry	Logistics	Drafted on	10/08/16
Industry Sub-sector	Cold chain logistics	Last reviewed on	04/03/19
Occupation	Maintenance	Next review date	04/03/22

National Occupational Standard



Overview

This unit is about undertaking training activities for plant engineers.

National Occupational Standard

LSC/N9104 Undertake training for plant engineers

Unit Code	**LSC/N9104**
Unit Title (Task)	**Undertake training for plant engineers**
Description	This OS unit is about undertaking training activities for plant engineers.
Scope	This unit/task covers the following: • Train on handling refrigerant fluids safely • Train on maintenance of refrigeration equipment (for plant engineers as well as reefer vehicle operators) **Range:** compressor, condenser, evaporator, temperature and humidity sensor

Performance Criteria(PC) w.r.t. the Scope	
Element	**Performance Criteria**
Training on handling refrigerant fluids safely	To be competent, the user/ individual must be able to: PC1. train plant engineers to follow safety procedures while handling refrigerants PC2. provide information on hazardous effects of refrigerants to the environment PC3. train them to ensure refrigerant leaks do not enter work areas or closed room
Training on maintenance of refrigeration equipment (for plant engineers as well as reefer vehicle operators)	To be competent, the user/ individual must be able to: PC4. train plant engineers on complying with procedures and practices to maintain refrigeration equipment PC5. teach them procedures while removing or replacing an evaporator, condenser or compressor PC6. provide maintenance history details of the refrigeration equipment, to help in familiarizing with the routine requirements PC7. sensitize plant engineers on energy consumption of refrigeration equipment PC8. provide information on dismantling refrigeration components to trace faults PC9. train plant engineers to inspect the components in need of repair or service PC10. teach plant engineers to reinstate components into the refrigeration equipment PC11. train plant engineers to understand control circuit diagrams of the refrigeration system PC12. train plant engineers on usage of appropriate tools and techniques while handling repairs of evaporators, consenders or compressors PC13. train plant engineers on undertaking numerical calculations or data entry mechanisms required for the activities PC14. train them on emergency responses in case of malfunctioning of refrigeration equipment as a whole or its components like evaporator, condenser or compressor
Knowledge and Understanding (K)	

LSC/N9104 **Undertake training for plant engineers**

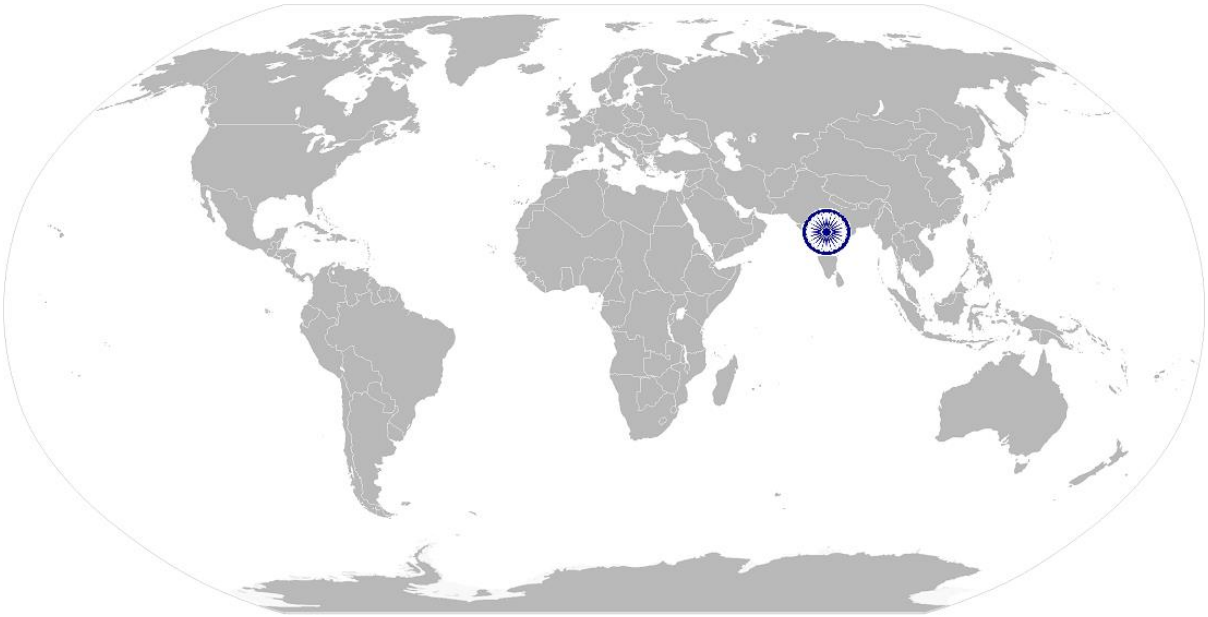
A. Organizational Context (Knowledge of the company / organization and its processes)	KA1. organizational policies and guidelines KA2. reporting structure KA3. organization safety and security procedures of refrigerant usage KA4. procedures to follow during emergency maintenance issues KA5. roles and responsibilities of labourers in the cold storage area KA6. knowledge of transport department procedures KA7. understand procedures for safe transport and disposal of waste materials after maintenance KA8. costs and energy consumption of refrigeration equipment used in the organization
B. Technical Knowledge	The user/individual on the job needs to know and understand: KB1. operating principles of refrigeration equipment used based on the product type KB2. working of refrigeration equipment components KB3. mechanics and hydraulics KB4. techniques to dismantle equipment and analyse defects KB5. recording maintenance activities performed so that it can help in analysis later KB6. type of hazards that can be encountered while performing maintenance activities KB7. optimal temperature and humidity conditions required for various products handled by cold chain, for example, Marine products: -18 to -21 degrees Fruits and vegetables: -1 to 15 degrees; 95% to 98% RH; 65% to 75% RH for onion and garlic; 40% to 50% RH for beans, dry fruits and vegetables Dairy: -20 to +4 degrees Dry fruits: 4 to 10 degrees Pharma - chemicals and vaccines: – 4 to 10 degrees KB8. product specific hygiene requirements KB9. extent of ethylene production by each product and sensitivity of ethylene exposure to products KB10. relation between refrigeration gas pressure present and the temperature maintained KB11. activities involved in loading and unloading from reefer vehicles KB12. importance of maintaining temperatures for products in reefer vehicles even after docking KB13. monitoring temperature and humidity conditions inside reefer vehicles during driving KB14. different types of refrigerant leak detectors, like Halide leak detector, Electronic leak detector and soap and water test

LSC/N9104 Undertake training for plant engineers

	KB15. hygiene requirements to ensure one product does not affect another product in terms of smell, or ethylene emission
Skills (S)	
A. Core Skills/ Generic Skills	**Reading Skills**
	The user/ individual on the job needs to know and understand how to: SA1. read technical documents regarding refrigeration equipment and update job role knowledge SA2. read equipment manual and understand its working SA3. read safety instructions
	Writing Skills
	The user/ individual on the job needs to know and understand: SA4. filling of maintenance checklists as per completion of activities SA5. documentation regarding maintenance log SA6. documenting details regarding faulty components
	Oral Communication (Listening and Speaking skills)
	The user/ individual on the job needs to know and understand how to: SA7. communicate to trainees clearly about the requirements in maintenance activities SA8. communicate clearly the expectations from the plant engineer's job role SA9. communicate technical knowledge regarding equipment functioning SA10. listen and understand all queries or doubts the trainees have during the training
B. Professional Skills	**Decision Making**
	The user/ individual on the job needs to know and understand how to: SB1. decide training modules combined with practical exposure SB2. resolve emergency situations in equipment functioning
	Plan and Organize
	The user/ individual on the job needs to know and understand how to: SB3. plan training activities SB4. organize practical learning techniques SB5. plan to train plant engineers all maintenance activities as per standard requirements and equipment manufacturer's instructions
	Customer Centricity
	Not Applicable
	Problem Solving
	The user/ individual on the job needs to know and understand how to: SB6. help solve all queries or difficulties faced by trainees SB7. re-schedule tasks in case of delays or requirements by other departments in the organization SB8. handle allotment of tasks to workers in case of staff shortage or delays in activities

LSC/N9104 Undertake training for plant engineers

	Analytical Thinking
	The user/ individual on the job needs to know and understand how to: SB9. interpret equipment diagram and information to identity which components need maintenance SB10. assess working condition of refrigeration equipment SB11. plan activities to minimize effects on normal working of the organization
	Critical Thinking
	The user/ individual on the job needs to know and understand how to: SB12. identify faults in the refrigerant equipment working SB13. plan training modules as per the criticality of the maintenance activities and experience of the plant engineer

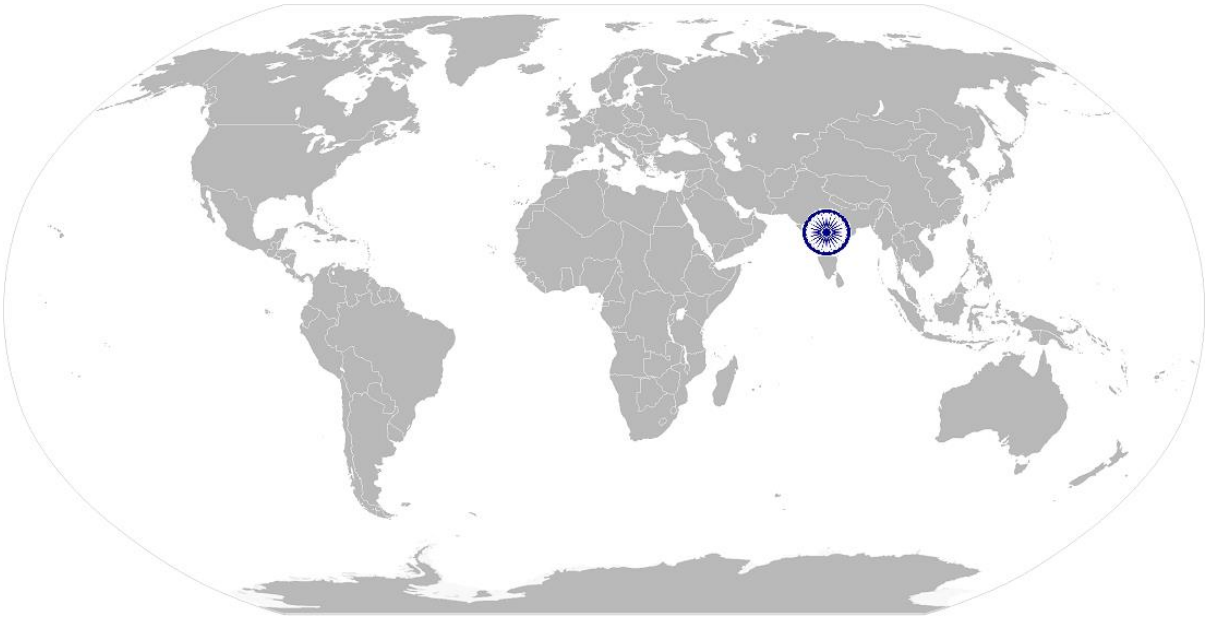


LSC/N9104 **Undertake training for plant engineers**

NOS Version Control

NOS Code	LSC/N9104		
Credits(NSQF)	TBD	Version number	1.0
Industry	Logistics	Drafted on	10/08/16
Industry Sub-sector	Cold chain logistics	Last reviewed on	04/03/19
Occupation	Maintenance	Next review date	04/03/22

National Occupational Standard



Overview

This unit is about complying with safety, health and hygiene at the workplace to have a hazard-free environment and avoid downtime.

LSC/N9901 Maintain food and personnel safety, health and hygiene in cold storage plant

National Occupational Standard

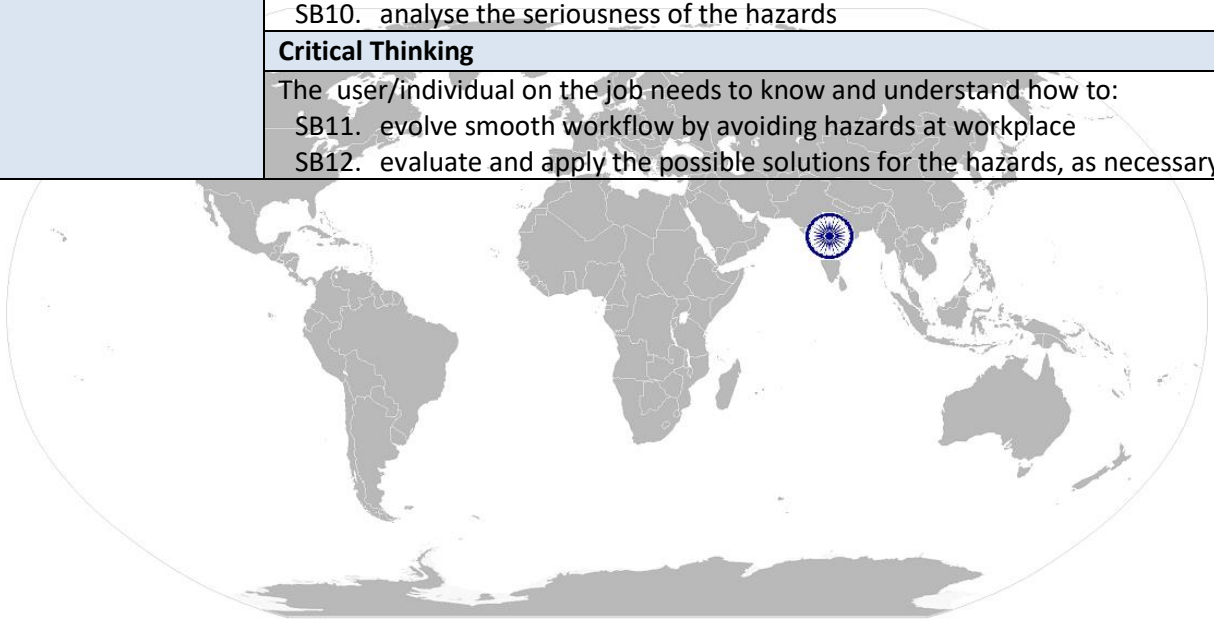
Unit Code	LSC/N9901
Unit Title (Task)	Maintain food and personnel safety, health and hygiene in cold storage plant
Description	This OS unit is about complying with safety, health and hygiene at the workplace to have a hazard-free environment and avoid downtime
Scope	This unit/task covers the following: • Take precautionary measures to avoid work hazards • Follow standard health, safety and hygiene procedures

Performance Criteria(PC) w.r.t. the Scope	
Element	**Performance Criteria**
Taking precautionary measures to avoid work hazards	To be competent, the user/ individual must be able to: PC1. assess the various health, safety and environmental hazards in the cold storage PC2. take necessary steps to eliminate or minimize the hazards PC3. analyze the causes of accidents at the workplace PC4. take preventive measures to avoid risk of cold burns and other injury due to contact with hot surfaces, gas, fire, hot fluids/ liquids, etc. PC5. ensure the employees have access to first aid kit when needed PC6. ensure to use personal protective equipment and safety gear such as gloves, jacket, footwear etc. for loading and unloading material in cold rooms to protect themselves from hypothermia, frostbite etc PC7. ensure to display safety signs at places where necessary for people to be cautious PC8. use rubber mats in the places where floors are constantly wet PC9. ensure electrical precautions such as insulated clothing, adequate equipment insulation, dry work area, switch off the power supply when not required, etc PC10. display emergency exit plan at prominent places and have emergency assembly area earmarked as a grid for easy counting of on duty associates and workers. PC11. unplug the control panel, compressor, condensor etc before performing maintenance PC12. report to the superior on any problems and hazards identified PC13. install fire alarms (electrical/manual) in cold store/deep freeze and keep other safety devices like hammer/mallet in the storage area
Following standard health, safety and hygiene procedures	To be competent, the user/individual must be able to: PC14. maintain appropriate ventilation in the cold rooms to avoid unacceptable accumulation of heat, condensation or odours PC15. check and review the cold storage areas frequently PC16. stack items in an organized way and use safe lifting techniques to reduce risk of injuries from handling procedures at the storage areas PC17. ensure no sign of pest infestation and install rodent traps, fly glues and insectocutors wherever needed PC18. follow hygiene & sanitation standards of Government bodies like FSSAI, APEDA and /or EIA or importing countries like FAO, EU standards after PC 20

	PC19. use effective loading and unloading systems PC20. proper stock rotation (First in First out) to be practised PC21. segregate damaged/ non-conforming products from other products to designate area for appropriate disposition PC22. fumigate containers depending upon product and contamination or as per customers' requirement PC23. avoid smoking, spitting, eating etc near food storage area PC24. ensure reefers are covered, clean, free from pest infestation & other contaminants PC25. dispose cold storage plant waste in the designated areas safely as per company's policies and rules PC26. ensure to be safe while handling machines(generator, compressor, condensor etc), gas (ammonia) and chemicals(ethylene, refrigerants etc) PC27. keep the floors free from oil, water and grease to avoid slippery surface PC28. cut nails regularly and avoid applying nail paint. Avoid wearing bangles, rings, and chains in cold storage PC29. wash hands with soap solution and dry under a dryer as they enter for duty or after using wash room PC30. periodic examination of protective devices, pressure vessels and pipelines, and parts of pipework by a competent person to prevent defect that may give rise to danger PC31. ensure workers suffering from abscess, boils etc should be relieved from food handling PC32. develop personal hygiene habits like brushing teeth, taking shower everybody, wearing clean and tidy clothes after ironing etc
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	The individual on the job needs to know and understand: KA1. company's HR policies on personnel management KA2. company's reporting structure KA3. occupational health and safety standards KA4. cold storageplant inspection checklist KA5. company's sanitary standard operating procedures KA6. procedures to follow during emergency maintenance issues KA7. technical standards for design and construction of cold storages: Bureau of Indian standards(BIS), International standard(ISO) etc
B. Technical Knowledge	The individual on the job needs to know and understand: KB1. the purpose and usage of protective gears such as gloves , jackets etc. while working KB2. use of first aid at workplace KB3. cold storage order 1980 KB4. food safety and standards act 2006 KB5. reporting procedure or heirarchy for signs of damage and potential hazards

	KB6. methods to minimize accidental risks KB7. safe storage and handling of chemicals like refrigerants, ammonia, ethylene etc KB8. loading and unloading systems KB9. standard operating procedure for safety drills and equipment maintenance KB10. operation of machines: compressor, condensor, evaporator etc KB11. emergency procedures to be followed in case of an mishap such as fire, accidents, etc. and communication of safety instructions to subordinate staff KB12. emergency responses in case of malfunctioning of refrigeration equipment as a whole or its components like evaporator, condenser or compressor KB13. solid, liquid and gaseous waste disposal, treatment norms and equipment KB14. necessary action to be taken for the hazards identified KB15. knowledge of Quality systems like BRC, FSSAI, ISO, FSSC, HACCP etc
Skills (S)	
A. Core Skills/ Generic Skills	**Reading Skills**
	The user/individual on the job needs to know and understand how to: SA1. read and interpret the relevant organisation policies, procedures and diagrams that identify health, safety and safe environmental practices. SA2. read job sheets, company policy documents and information displayed at the workplace for health, safety and environment. SA3. read notes/comments from the senior
	Writing Skills
	The user/individual on the job needs to know and understand how to: SA4. fill up documentation related to health, safety and environmental standards, if required
	Oral Communication (Listening and Speaking skills)
	The user/individual on the job needs to know and understand how to: SA5. verbally report health, safety and environmental hazards and poor organisation practice. SA6. communicate to the supervisor about the work health, safety and environmental issues SA7. receive instructions from supervisor on minimizing the risks SA8. communicate with co-workers about the precautions to be taken for hazards free work
B. Professional Skills	**Decision Making**
	The user/individual on the job needs to know and understand how to: SB1. take preventive measures for the identified hazards SB2. select appropriate hand tools and personal protection equipment SB3. identify first aid needs in case of an injury
	Plan and Organize
	The user/individual on the job needs to know and understand how to: SB4. formalize and display evacuation plan at strategic locations

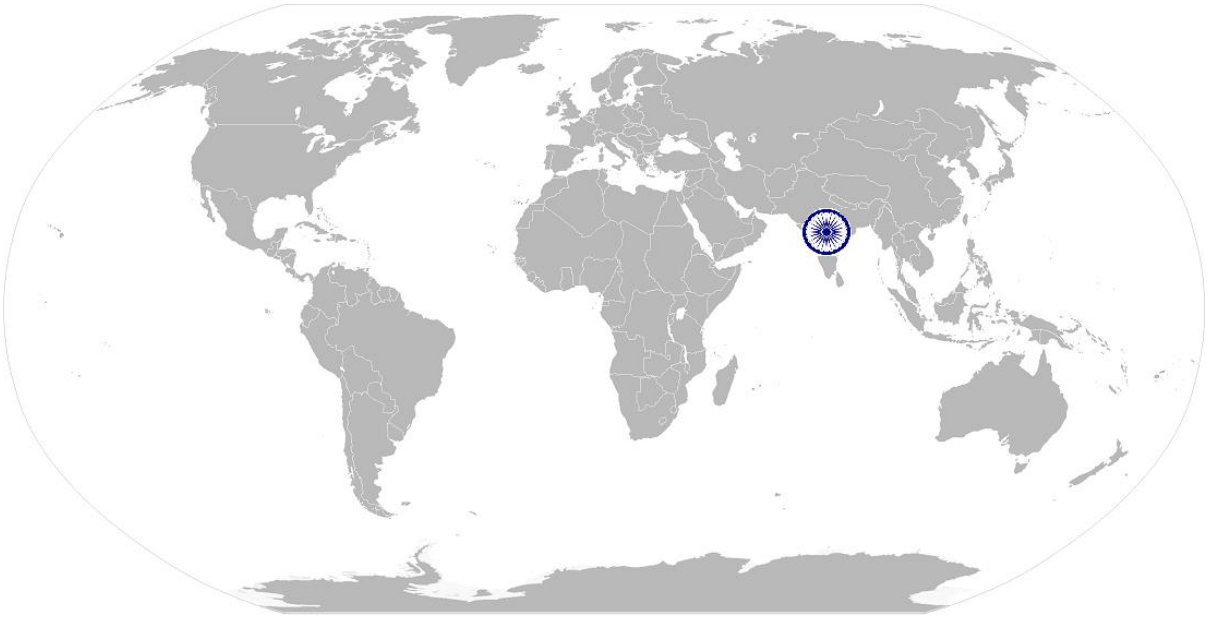
	Customer Centricity
	The user/ individual on the job needs to know and understand how to: SB5. ensure targeted product delivery by practicing stipulated standards of occupational health safety and environmental measures
	Problem Solving
	The user/individual on the job needs to know and understand how to: SB6. take care of personal and equipment protection SB7. identify the hazards and suggest possible solutions
	Analytical Thinking
	The user/individual on the job needs to know and understand how to: SB8. use safety equipment such as fire extinguisher during fire accidents SB9. store tools in a safe way SB10. analyse the seriousness of the hazards
	Critical Thinking
	The user/individual on the job needs to know and understand how to: SB11. evolve smooth workflow by avoiding hazards at workplace SB12. evaluate and apply the possible solutions for the hazards, as necessary



LSC/N9901 **Maintain food and personnel safety, health and hygiene in cold storage plant**

NOS Version Control

NOS Code	LSC/N9901		
Credits(NSQF)	TBD	Version number	1.0
Industry	Logistics	Drafted on	08/08/16
Industry Sub-sector	Cold chain logistics	Last reviewed on	04/03/19
Occupation	Maintenance	Next review date	04/03/22



LSC/N9902 Communicate effectively with colleagues and clients

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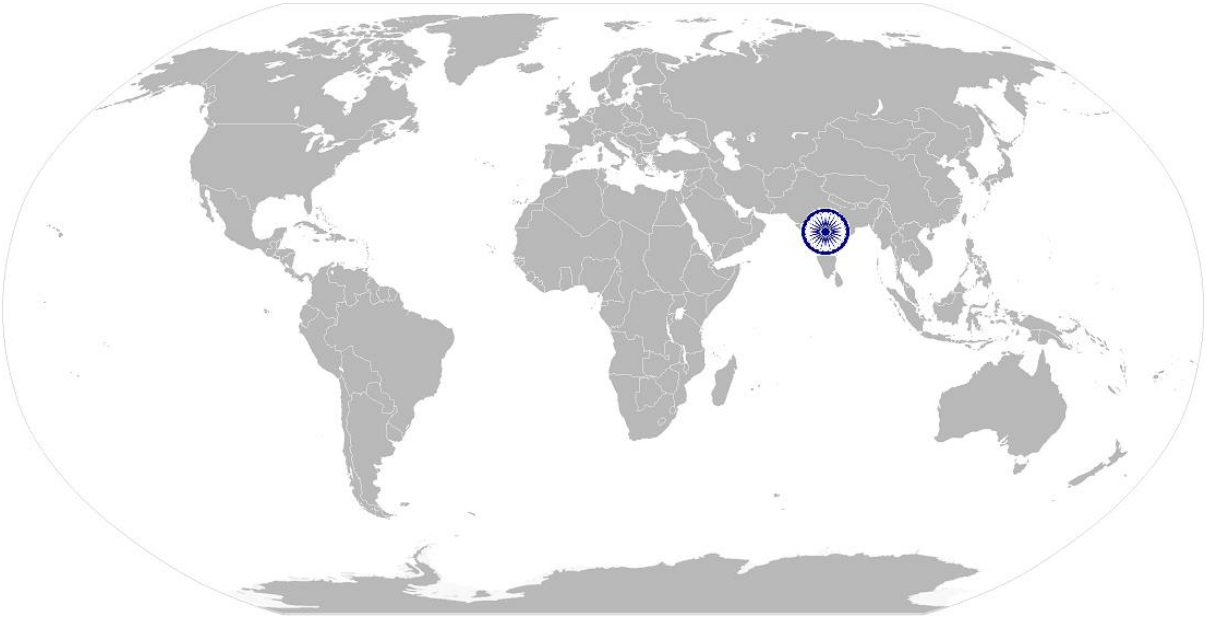
National Occupational Standard



Overview

This unit is about coordinating and communicating effectively with seniors, colleagues and clients to achieve a smooth workflow.

LSC/N9902 Communicate effectively with colleagues and clients

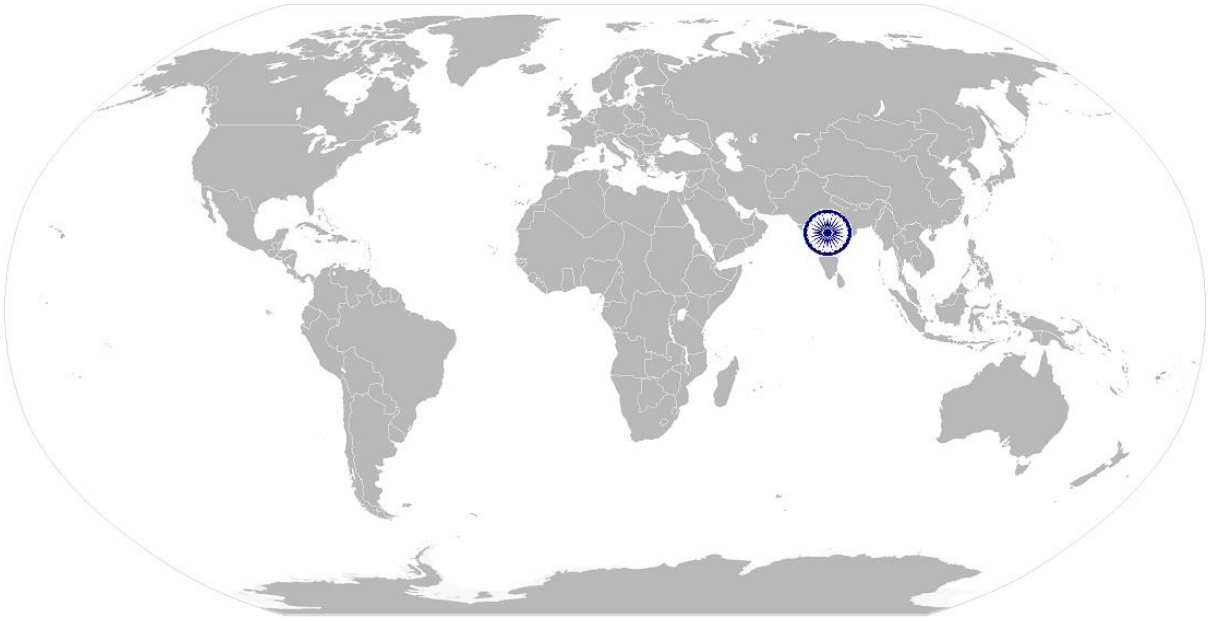
National Occupational Standard

Unit Code	LSC/N9902
Unit Title (Task)	**Communicate effectively with colleagues and clients**
Description	This OS unit is about coordinating and communicating effectively with seniors, colleagues and clients to achieve a smooth workflow
Scope	This unit/task covers the following: • Interact with seniors • Communicate with colleagues • Communicate effectively with clients
Performance Criteria(PC) w.r.t. the Scope	
Element	**Performance Criteria**
Interacting with seniors	To be competent, the user/ individual must be able to: PC1. understand the work output requirements, targets, performance indicators and incentives PC2. deliver quality work on time and report any anticipated reasons for delays PC3. escalate unresolved problems or complaints to the relevant superior PC4. communicate project progress proactively to the superior PC5. receive feedback on work standards PC6. document the completed work schedule and handover to the superior
Communicating with colleagues	To be competent, the user/ individual must be able to: PC7. exhibit trust, support and respect to all the colleagues in the workplace PC8. aim to achieve hassle free cold chain operation PC9. help and assist colleagues with information and knowledge PC10. seek assistance from the colleagues when required PC11. identify the potential and existing conflicts with the colleagues and resolve PC12. pass on essential information to other colleagues on timely basis PC13. maintain the etiquette, use polite language, demonstrate responsible and disciplined behaviors to the colleagues PC14. interact with colleagues from different departments: ripening chamber, cold storage, transport, packhouse etc to effectively carry out the work among the team and understand the nature of their work PC15. put team over individual goals and multi task or share work where necessary supporting the colleagues PC16. highlight any errors of colleagues, help to rectify and ensure quality output PC17. work with cooperation, coordination, communication and collaboration, with shared goals and supporting each others performance
Communicating effectively with clients	To be competent, the user/ individual must be able to: PC18. ask relevant questions to the client and identify their needs PC19. possess strong knowledge on market and cold chain operation PC20. brief the client clearly on potential costs and challenges involved in the cold chain industry PC21. communicate with the client in a polite, professional and friendly manner PC22. build effective but impersonal relationship with the client

	PC23. ensure the appropriate language and tone are used with clients PC24. listen actively and have a two way communication PC25. be sensitive to the gender, cultural and social differences such as modes of greeting, formality, etc. PC26. understand the client expectations correctly and provide the appropriate products and services PC27. understand the client dissatisfaction and address or escalate their complaints effectively PC28. maintain a positive, sensible and cooperative manner all time PC29. ensure to maintain a proper body language, dress code, gestures and etiquettes towards the client PC30. avoid interrupting the client while they talk PC31. ensure to avoid negative questions and statements to the client PC32. inform the client on any issues or problems before hand and also on the developments involving them PC33. ensure to respond back to the client immediately for their voice messages, e-mails, apps, etc. PC34. develop good rapport with the client and promote other products and services PC35. seek feedback from the client on their understanding to what was discussed PC36. explain the terms and conditions clearly
Knowledge and Understanding (K)	
A. Organizational Context (Knowledge of the company / organization and its processes)	The individual on the job needs to know and understand: KA1. vision, mission and values of the company KA2. business and performance of the company KA3. company's policies on personnel management, effective team work at workplace KA4. company's HR policies KA5. company's reporting structure KA6. company's documentation policy KA7. company's customer profile KA8. occupational health and safety standards KA9. company's policy on business ethics and code of conduct
B. Technical Knowledge	The individual on the job needs to know and understand: KB1. methods for effective communication with various categories of people and the different departments in the organization KB2. significance of team coordination and productivity targets of the organisation KB3. how to record the job activity as required on various types of documents KB4. how to use computer or smartphone to communicate effectively and productively KB5. significance of helping colleagues with specific issues and problems KB6. importance of meeting quality and time standards as a team KB7. how to practice effective listening and talking KB8. effective use of voice tone and pitch for communication

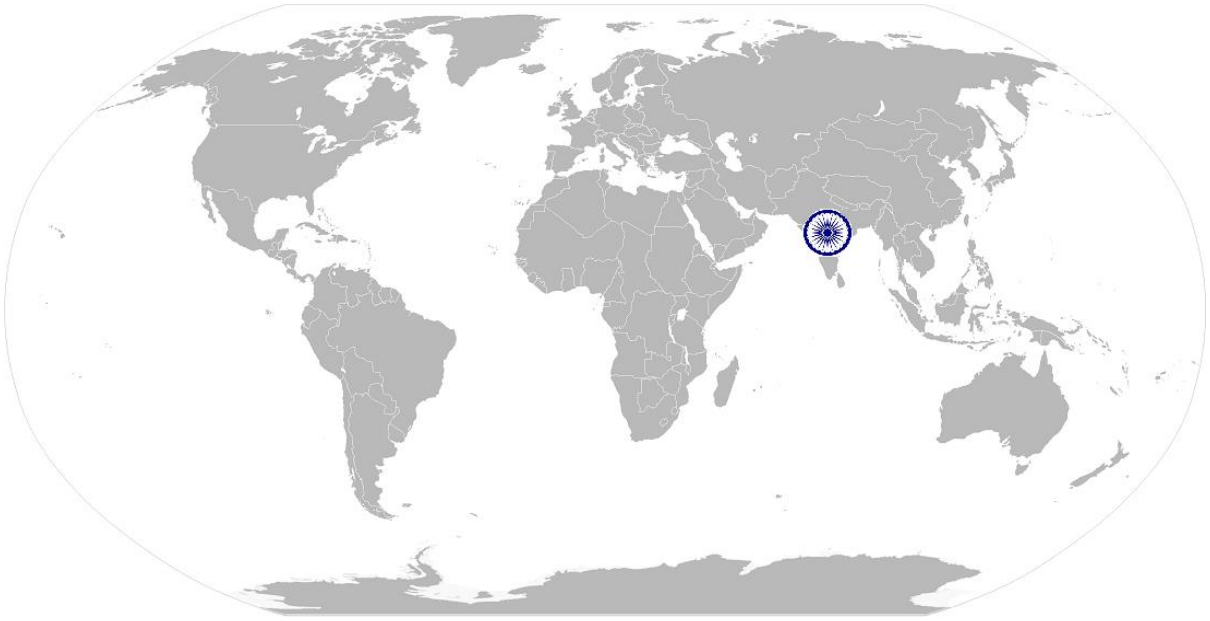
	KB9. how to demonstrate ethics and convey discipline to the clients KB10. how to build effective working relationship with mutual trust and respect within the team KB11. importance of dealing with grievances effectively and in time
Skills (S)	
A. Core Skills/ Generic Skills	**Reading Skills**
	The user/ individual on the job needs to know and understand how to: SA1. read job sheets, company policy documents and information displayed at the workplace SA2. read notes/comments from the senior
	Writing Skills
	The user/ individual on the job needs to know and understand how to: SA3. fill up documentation pertaining to job requirement
	Oral Communication (Listening and Speaking skills)
	The user/ individual on the job needs to know and understand how to: SA4. interact with team members to work efficiently SA5. communicate effectively with senior to achieve smooth workflow SA6. communicate effectively with the clients to build a good rapport with them SA7. use language that the client or colleague understands SA8. use the communication systems of the company, e.g., telephone, fax, public announcement systems SA9. E-mail and use Internet for communicating SA10. use of audio-visual aids to communicate complex issues
B. Professional Skills	**Decision Making**
	The user/ individual on the job needs to know and understand how to: SB1. spot and communicate potential areas of disruptions to work process and report the same SB2. report to supervisor and deal with a colleague individually, depending on the type of concern
	Plan and Organize
	The user/ individual on the job needs to know and understand how to: SB3. plan communication strategy in order to avoid conflicts and work disruption
	Customer Centricity
	The user/ individual on the job needs to know and understand how to: SB4. practice patient listening, careful talking and paraphrasing in order to avoid misunderstanding
	Problem Solving
	The user/ individual on the job needs to know and understand how to: SB5. coordinate with different departments and multi-task as necessary SB6. contribute to quality of team work and achieve smooth workflow SB7. share work load as required SB8. delegate work in consultation with senior or as necessary instead of allowing

	work to pile up
	Analytical Thinking
	The user/ individual on the job needs to know and understand how to: SB9. resolve recurring inter-personal conflicts by clear and two-way dialogue
	Critical Thinking
	The user/ individual on the job needs to know and understand how to: SB10. improve work processes by interacting with others and adopting best practices



NOS Version Control

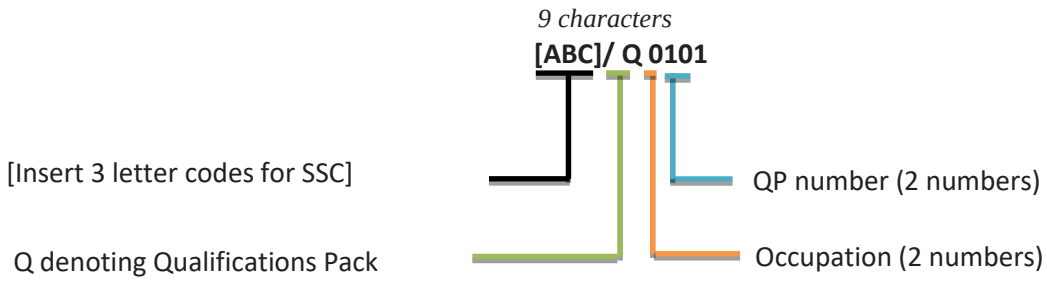
NOS Code	LSC/N9902		
Credits(NSQF)	TBD	Version number	1.0
Industry	Logistics	Drafted on	08/08/16
Industry Sub-sector	Cold chain logistics	Last reviewed on	04/03/19
Occupation	Maintenance	Next review date	04/03/22



Annexure

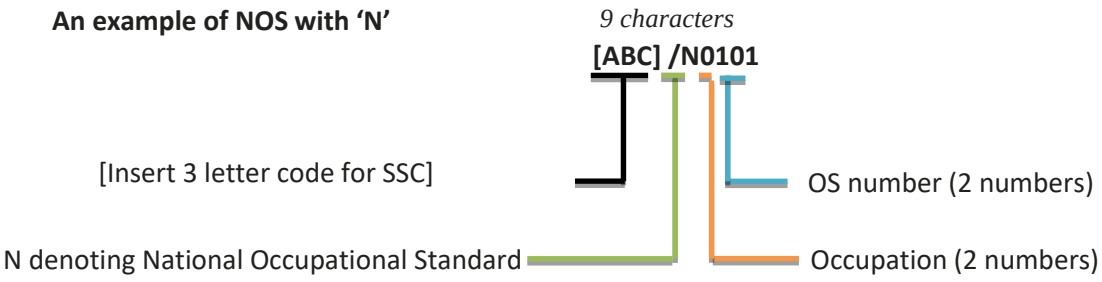
Nomenclature for QP and NOS

Qualifications Pack



Occupational Standard

An example of NOS with 'N'



Back to top…

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

Sub-sector	Range of Occupation numbers
Warehousing	**1 to 9**
Land Transportation	**10 to 14**
EXIM/ Freight Forwarding/ Customs Clearance	**21 to 23**
Courier/Express	**15 to 20**
E-Commerce	**24 to 30**
Supply Chain	**31 to 34**
Port Terminals, ICD and CFS	**35 to 41**
Inland Waterways	**42 to 46**
Liquid Logistics	**47 to 49**
Air Cargo Operations	**61 to 62**
Rail Logistics	**50 to 55**
Cold Chain Logistics	**86 to 94**
Generic Occupations	**95 to 99**

Sequence	Description	Example
Three letters	Industry name	LSC
Slash	/	/
Next letter	Whether **Q**P or **N**OS	Q / N
Next two numbers	Occupation code	01
Next two numbers	OS number	01

CRITERIA FOR ASSESSMENT OF TRAINEES

Job Role Refrigeration Equipment Maintenance Specialist

Qualification Pack LSC/Q9101

Sector Skill Council Logistics

Guidelines for Assessment

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC
3. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below)
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criteria
5. To pass the Qualification Pack, every trainee should score a minimum of 70% in every NOS
6. In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack

COMPULSORY NOS					
Total Marks: 600			**Marks Allocation**		
Assessment Outcomes	**Assessment Criteria for Outcomes**	**Total Marks**	**Out of**	**Theory**	**Skills Practical**
LSC/N9101 Plan the maintenance of refrigeration equipment	PC1. prepare work programme and schedules for maintenance of evaporator, condenser and compressor	100	7	2	5
	PC2. maintenance as per legislative laws, organization requirements, resources, and environment		7	2	5
	PC3. plan electrical system maintenance at least once in five years as per the Institute of Electrical and Electronics Engineers Code of Practice		7	2	5
	PC4. plan to check evaporators for defrosting and coil surface for dust accumulation		7	2	5
	PC5. ensure to check electrical connections for corroded terminals		7	2	5
	PC6. ensure that the maintenance plan checks oil safety and high pressure controls of compressor units		6	2	4
	PC7. record the schedules for preventive maintenance		6	2	4

	PC8. plan activities so as to minimize disruption to normal working		6	2	4
	PC9. ensure to schedule seasonal maintenance		6	2	4
	PC10. make contingency plans for emergency situations regarding working of the equipment		7	2	5
	PC11. PC1. identify resources for maintenance based on the skills required		6	2	4
	PC12. PC2. allocate resources for each maintenance activity		6	2	4
	PC13. make contingency plans for variations in labour availability		6	2	4
	PC14. provide checklists for maintenance activities		6	2	4
	PC15. provide information on priority and deadlines for the tasks, so that losses are minimized		5	1	4
	PC16. provide necessary tools, components and protective gear to carry out maintenance activities		5	1	4
			100	**30**	**70**
LSC/N9102 Monitor maintenance of refrigeration equipment	PC1. inspect regularly to ensure maintenance activities are done as per quality requirements	100	6	2	4
	PC2. inspect regularly to ensure maintenance activities are completed timely		6	2	4
	PC3. inspect regularly to ensure maintenance activities are done within the costs planned		6	2	4
	PC4. ensure that the quality of the products stored under refrigeration is not harmed while equipment components are being checked		6	2	4
	PC5. ensure that there is safe discharge of ammonia, so that excess refrigerant is discharged safely (not inside cold room and away from work area)		6	2	4
	PC6. ensure to keep drains in the cold area free of debris		6	2	4
	PC7. ensure to check operations of door seals regularly		6	2	4
	PC8. monitor the sequence of activities as per the schedule		6	2	4
	PC9. ensure workers are using protective gear during maintenance or repair		6	2	4
	PC10. ensure workers leave the area safe and clean after performing maintenance activities		6	2	4
	PC11. ensure that the equipment is calibrated correctly before use		6	2	4

	PC12. assign a resource to maintain records of refrigeration equipment maintenance activities regularly		5	1	4
	PC13. conduct regular checks on maintenance log to see if it is current		5	1	4
	PC14. instruct concerned person to update records if it is not latest		4	1	3
	PC15. report to all concerned people in the organization in case the schedule cannot be met		4	1	3
	PC16. carry out walk around inspection regularly to monitor activities of subordinates		4	1	3
	PC17. communicate with workers as often as needed to ensure maintenance schedule is followed		4	1	3
	PC18. allocate parallel tasks to handle different components of refrigeration equipment like evaporator, compressor and condenser, wherever possible		4	1	3
	PC19. observe the work efficiency of the workforce and identify training needs wherever necessary		4	1	3
			100	**30**	**70**
LSC/N9103 Oversee service and repair of refrigeration equipment	PC1. plan types of maintenance activities based on manufacturer's instructions	100	7	2	5
	PC2. plan the frequency of maintenance activities		7	2	5
	PC3. consider industry level standard practices while planning maintenance		6	2	4
	PC4. understand procedures while removing or replacing an evaporator or a compressor		6	2	4
	PC5. carry out tests or checks regularly to ensure system is working as required		6	2	4
	PC6. check for freezer insulation degradation by observing compressor duty cycle, condensation or presence of ice		6	2	4
	PC7. check operation of defrost system and thermostat		6	2	4
	PC8. plan repairs limited to thermostats, electrical systems, start relays and defrost timers as much as possible		6	2	4
	PC9. avoid repairs to the cooling system, if they are uneconomical, and consider replacement of components		6	2	4
	PC10. inspect cold store ceiling panel suspension rods and also their attachments at least once a year		6	2	4
	PC11. check discharge pressure and suction pressure in control system and make adjustments if necessary		6	2	4
	PC12. ensure that service or repair activities		6	2	4

	follow hygiene procedures				
	PC13. trace faults in the components of refrigeration system when it arises		6	2	4
	PC14. test the working of the equipment, after service or repair		5	1	4
	PC15. ensure that the equipment is calibrated correctly before using		5	1	4
	PC16. maintain records of service and repair of refrigeration, electrical system, equipment components		5	1	4
	PC17. analyze the records to arrive at the performance of refrigerated equipment in terms of operating efficiency, downtime and conformity to the requirements		5	1	4
			100	**30**	**70**
LSC/N9104 Undertake training for plant engineers	PC1. train plant engineers to follow safety procedures while handling refrigerants	100	8	3	5
	PC2. provide information on hazardous effects of refrigerants to the environment		8	3	5
	PC3. train them to ensure refrigerant leaks do not enter work areas or closed room		7	2	5
	PC4. train plant engineers on complying with procedures and practices to maintain refrigeration equipment		7	2	5
	PC5. teach them procedures while removing or replacing an evaporator, condenser or compressor		7	2	5
	PC6. provide maintenance history details of the refrigeration equipment, to help in familiarizing with the routine requirements		7	2	5
	PC7. sensitize plant engineers on energy consumption of refrigeration equipment		7	2	5
	PC8. provide information on dismantling refrigeration components to trace faults		7	2	5
	PC9. train plant engineers to inspect the components in need of repair or service		7	2	5
	PC10. teach plant engineers to reinstate components into the refrigeration equipment		7	2	5
	PC11. train plant engineers to understand control circuit diagrams of the refrigeration system		7	2	5
	PC12. train plant engineers on usage of appropriate tools and techniques while handling repairs of evaporators, consenders or compressors		7	2	5
	PC13. train plant engineers on undertaking numerical calculations or data entry mechanisms required for the activities		7	2	5

	PC14. train them on emergency responses in case of malfunctioning of refrigeration equipment as a whole or its components like evaporator, condenser or compressor		7	2	5
			100	**30**	**70**
LSC/N9901 Maintain food and personnel safety, health and hygiene in cold storage plant	PC1. assess the various health, safety and environmental hazards in the cold storage	100	4	1	3
	PC2. take necessary steps to eliminate or minimize the hazards		4	1	3
	PC3. analyze the causes of accidents at the workplace		4	1	3
	PC4. take preventive measures to avoid risk of cold burns and other injury due to contact with hot surfaces, gas, fire, hot fluids/ liquids, etc.		3	1	2
	PC5. ensure the employees have access to first aid kit when needed		3	1	2
	PC6. ensure to use personal protective equipment and safety gear such as gloves, jacket, footwear etc. for loading and unloading material in cold rooms to protect themselves from hypothermia, frostbite etc		3	1	2
	PC7. ensure to display safety signs at places where necessary for people to be cautious		3	1	2
	PC8. use rubber mats in the places where floors are constantly wet		2	0	2
	PC9. ensure electrical precautions such as insulated clothing, adequate equipment insulation, dry work area, switch off the power supply when not required, etc		3	1	2
	PC10. display emergency exit plan at prominent places and have emergency assembly area earmarked as a grid for easy counting of on duty associates and workers.		3	1	2
	PC11. unplug the control panel, compressor, condensor etc before performing maintenance		2	0	2
	PC12. report to the superior on any problems and hazards identified		3	1	2
	PC13. install fire alarms (electrical/manual) in cold store/deep freeze and keep other safety devices like hammer/mallet in the storage area		4	1	3
	PC14. maintain appropriate ventilation in the cold rooms to avoid unacceptable accumulation of heat, condensation or odours		3	1	2
	PC15. check and review the cold storage areas		3	1	2

	frequently				
PC16.	stack items in an organized way and use safe lifting techniques to reduce risk of injuries from handling procedures at the storage areas		3	1	2
PC17.	ensure no sign of pest infestation and install rodent traps, fly glues and insectocutors wherever needed		3	1	2
PC18.	follow hygiene & sanitation standards of Government bodies like FSSAI, APEDA and /or EIA or importing countries like FAO, EU standards after PC 20		3	1	2
PC19.	use effective loading and unloading systems		3	1	2
PC20.	proper stock rotation (First in First out) to be practised		3	1	2
PC21.	segregate damaged/ non-conforming products from other products to designate area for appropriate disposition		3	1	2
PC22.	fumigate containers depending upon product and contamination or as per customers' requirement		3	1	2
PC23.	avoid smoking, spitting, eating etc near food storage area		3	1	2
PC24.	ensure reefers are covered, clean, free from pest infestation & other contaminants		3	1	2
PC25.	dispose cold storage plant waste in the designated areas safely as per company's policies and rules		4	1	3
PC26.	ensure to be safe while handling machines(generator, compressor, condensor etc), gas (ammonia) and chemicals(ethylene, refrigerants etc)		3	1	2
PC27.	keep the floors free from oil, water and grease to avoid slippery surface		3	1	2
PC28.	cut nails regularly and avoid applying nail paint. Avoid wearing bangles, rings, and chains in cold storage		3	1	2
PC29.	wash hands with soap solution and dry under a dryer as they enter for duty or after using wash room		3	1	2
PC30.	periodic examination of protective devices, pressure vessels and pipelines, and parts of pipework by a competent person to prevent defect that may give rise to danger		3	1	2
PC31.	ensure workers suffering from abscess, boils etc should be relieved from food handling		4	1	3
PC32.	develop personal hygiene habits like brushing teeth, taking shower		3	1	2

	everybody, wearing clean and tidy clothes after ironing etc				
			100	**30**	**70**
LSC/N9902 Communicate effectively with colleagues and clients	PC1. understand the work output requirements, targets, performance indicators and incentives	100	3	1	2
	PC2. deliver quality work on time and report any anticipated reasons for delays		3	1	2
	PC3. escalate unresolved problems or complaints to the relevant superior		3	1	2
	PC4. communicate project progress proactively to the superior		3	1	2
	PC5. receive feedback on work standards		3	1	2
	PC6. document the completed work schedule and handover to the superior		3	1	2
	PC7. exhibit trust, support and respect to all the colleagues in the workplace		3	1	2
	PC8. aim to achieve hassle free cold chain operation		3	1	2
	PC9. help and assist colleagues with information and knowledge		3	1	2
	PC10. seek assistance from the colleagues when required		3	1	2
	PC11. identify the potential and existing conflicts with the colleagues and resolve		3	1	2
	PC12. pass on essential information to other colleagues on timely basis		3	1	2
	PC13. maintain the etiquette, use polite language, demonstrate responsible and disciplined behaviours to the colleagues		3	1	2
	PC14. interact with colleagues from different departments: ripening chamber, cold storage, transport, packhouse etc to effectively carry out the work among the team and understand the nature of their work		3	1	2
	PC15. put team over individual goals and multi task or share work where necessary supporting the colleagues		3	1	2
	PC16. highlight any errors of colleagues, help to rectify and ensure quality output		3	1	2
	PC17. work with cooperation, coordination, communication and collaboration, with shared goals and supporting each others performance		3	1	2
	PC18. ask relevant questions to the client and identify their needs		3	1	2
	PC19. possess strong knowledge on market and cold chain operation		3	1	2
	PC20. brief the client clearly on potential costs and challenges involved in the cold chain industry		3	1	2

	PC21. communicate with the client in a polite, professional and friendly manner		3	1	2
	PC22. build effective but impersonal relationship with the client		3	1	2
	PC23. ensure the appropriate language and tone are used with clients		3	1	2
	PC24. listen actively and have a two way communication		3	1	2
	PC25. be sensitive to the gender, cultural and social differences such as modes of greeting, formality, etc.		3	1	2
	PC26. understand the client expectations correctly and provide the appropriate products and services		3	1	2
	PC27. understand the client dissatisfaction and address or escalate their complaints effectively		3	1	2
	PC28. maintain a positive, sensible and cooperative manner all time		3	1	2
	PC29. ensure to maintain a proper body language, dress code, gestures and etiquettes towards the client		2	0	2
	PC30. avoid interrupting the client while they talk		2	0	2
	PC31. ensure to avoid negative questions and statements to the client		2	0	2
	PC32. inform the client on any issues or problems before hand and also on the developments involving them		2	0	2
	PC33. ensure to respond back to the client immediately for their voice messages, e-mails, apps, etc.		2	0	2
	PC34. develop good rapport with the client and promote other products and services		2	0	2
	PC35. seek feedback from the client on their understanding to what was discussed		2	1	1
	PC36. explain the terms and conditions clearly		2	1	1
			100	**30**	**70**