

Qualification Pack



Refrigerated Storage Unit Supervisor

Electives: Grading line operations/ Ripening chamber operations

QP Code: LSC/Q8703

Version: 1.0

NSQF Level: 5

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LSC/Q8703: Refrigerated Storage Unit Supervisor

Brief Job Description

The individual monitors the plant's technical functioning to ensure that the required storage and plant operating parameters match the product requirements in the event of a change in environmental conditions/variations in external conditions. Additionally, they administer activities in the grading line, pre-cooling unit and ripening chamber until products are packaged and ready for dispatch.

Personal Attributes

The job requires the individual to have attention to detail, the ability to work in low-temperature conditions, good eye sight, arm-hand steadiness and the ability to withstand changing temperature conditions from one facility to another.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. [LSC/N8701: Supervise loading and unloading operations](#)
2. [LSC/N8702: Oversee inspection of goods at the time of arrival](#)
3. [LSC/N8704: Supervise pre-cooling operations](#)
4. [LSC/N8706: Manage placement of goods in controlled conditions](#)
5. [LSC/N8707: Supervise product protection and packaging](#)
6. [LSC/N9913: Supervise floor operations and workforce management](#)
7. [LSC/N9901: Maintain food and personnel safety, health and hygiene in cold storage plant](#)
8. [DGT/VSQ/N0102: Employability Skills \(60 Hours\)](#)

Electives(mandatory to select at least one):

Elective 1: Grading line operations

This OS unit is about administering sorting, grading, washing and drying for goods inspected and adhering to quality specifications and requirements.

1. [LSC/N8703: Administer grading line operations](#)

Elective 2: Ripening chamber operations

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This OS unit is about the management and supervision of goods from the time they enter the ripening chamber till the time they complete the ripening cycle and are transferred to cold storage.

1. [LSC/N8705: Administer Ripening chamber operations](#)

Qualification Pack (QP) Parameters

Sector	Logistics
Sub-Sector	Cold Chain Logistics Solutions
Occupation	Cold Chain Operations
Country	India
NSQF Level	5
Credits	21
Aligned to NCO/ISCO/ISIC Code	NCO-2015/1324
Minimum Educational Qualification & Experience	<p>UG in relevant field (Completed UG degree in food technology/ Cold chain/ Refrigeration/ Mechanical engineering/ Logistics) with 1 Year of experience relevant experience in cold storage operations OR Diploma (Completed UG diploma after 12th in food technology/ Logistics) with 2 Years of experience relevant experience in cold storage operations OR Completed 3 year diploma after 10th (in food technology/ Logistics) with 3 Years of experience relevant experience in cold storage operations OR 12th grade Pass with 4 Years of experience relevant experience in cold storage operations OR Previous relevant Qualification of NSQF Level (4) with 3 Years of experience relevant experience in cold storage operations</p>
Minimum Level of Education for Training in School	
Pre-Requisite License or Training	NA
Minimum Job Entry Age	21 Years



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Last Reviewed On	NA
Next Review Date	22/10/2027
NSQC Approval Date	22/10/2024
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NQR Version	1.0

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LSC/N8701: Supervise loading and unloading operations

Description

This OS unit is about verification of vehicle details and ensuring proper loading and unloading of perishable goods when the truck arrives at the cold storage facility.

Scope

The scope covers the following :

- Conduct workforce planning for deploying workers for loading or unloading
- Verify vehicle details
- Supervise proper handling of goods by unloaders.

Elements and Performance Criteria

Conduct workforce planning for deploying workers for loading or unloading

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

- PC1.** Get details of quantity and type of goods to be loaded or unloaded
- PC2.** Decide the number of workers to be deployed for loading or unloading based on the quantity and specification details
- PC3.** Ensure appropriate work allocation to workers so that they are available at the time of loading or unloading
- PC4.** Ensure workers are given prior information about the truck arrival and dispatch timing

Verify vehicle details

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

- PC5.** Get vehicle details from route controller and truck coordinator
- PC6.** Verify vehicle details with the details received from route controller
- PC7.** Ensure that the data entry operator enters truck details
- PC8.** Update truck coordinator and procurement head in case of discrepancy

Supervise proper handling of goods by unloaders

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

- PC9.** Make space to unload inbound goods
- PC10.** Analyze and implement handling requirements appropriate to types of goods. E.g., Some marine products are richer in aroma and thus should be handled properly to ensure that aroma doesn't spread to other products through hands or other tools used while handling. Baking soda can be used to absorb any odour. Similarly, fish must not be exposed to direct sunlight while unloading and handling vaccines and other liquids must be done with care to avoid spillage.
- PC11.** Ensure workers qualified to handle the goods are deployed for unloading
- PC12.** Supervise and direct workers for proper handling as per requirements
- PC13.** Ensure proper stacking is done in order to facilitate inspection
- PC14.** Ensure unloading area is properly shaded and clean to avoid any further damage to goods

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Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** Company's reporting structure
- KU2.** Individual's role in cold chain process flow
- KU3.** Occupational health and safety standards
- KU4.** Quality control standards for perishable products
- KU5.** Company's work instructions on quality standards
- KU6.** Company's policies, standard operating procedures and governance structure
- KU7.** Risk and impact of not following defined procedures/work instructions
- KU8.** Company's personnel management and incentives rules
- KU9.** Clients and suppliers of the company
- KU10.** Transport logistics service providers used by the company
- KU11.** Types of goods in which the company deals
- KU12.** Characteristics of the products being handled odour, texture, size, weight, stickiness etc. This would help to understand if the odour of the product spreads to other products (as for fish, other marine products, etc.), if there is possibility of spillage (as for milk products, vaccines, ice creams etc.), whether it should be handled manually or mechanically, for eg: using bucket elevators for grain and fish etc.
- KU13.** Product specific quality control and assurance standards
- KU14.** Loading methods that can be used for different types of goods
- KU15.** Operational knowledge of the safety precautions to be taken for product specific handling techniques
- KU16.** Appropriate Material Handling Equipment (MHE) to be used according to the size and quantity of goods for efficient loading
- KU17.** Types of workplace hazards that one can encounter in product handling
- KU18.** Steps and remedial measures to be taken in case of injury or hazard caused due to improper product handling

Generic Skills (GS)

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

- GS1.** Read codes used to label goods
- GS2.** Read instructions on workplace hazards and handling requirements for goods
- GS3.** Read and verify vehicle details
- GS4.** Read and understand quality control standards of goods
- GS5.** Maintain quantity details of goods unloaded
- GS6.** Write appropriate product codes and specifications of goods unloaded
- GS7.** Give clear instructions to unloaders for proper product handling
- GS8.** Coordinate with other supervisors and peers in english or accepted workplace language
- GS9.** Communicate with vehicle operators, drivers and helpers

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- GS10.** Clearly communicate types of workplace hazards, safety precautions and remedial measures to be taken by unloaders
- GS11.** Take non conformance decision on health and safety of loaders and unloaders
- GS12.** Decide appropriate unloading container and technique to be used
- GS13.** Ensure appropriate stacking to facilitate inspection
- GS14.** Prioritize and execute tasks in an efficient manner
- GS15.** Manage space for unloading goods
- GS16.** Coordinate time with procurement head and route controller for exchange of details
- GS17.** Customer requirements with respect to quality expectations
- GS18.** Goods that are in high demand in market
- GS19.** Goods for which high demand is expected to increase in future
- GS20.** Goods for which high demand is expected to increase in future
- GS21.** Take appropriate action in case vehicle details do not match
- GS22.** Make space arrangement in case delivery of goods is delayed
- GS23.** Understand schedule and number of trucks to be used
- GS24.** Assess protective equipment to be used based on weather conditions
- GS25.** Take decision on number of workers to be allocated across loading and unloading in case truck arrival and dispatch is scheduled at the same time
- GS26.** Balance loading and unloading work based on arrival schedules

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Conduct workforce planning for deploying workers for loading or unloading</i>	10	12	-	3
PC1. Get details of quantity and type of goods to be loaded or unloaded	3	3	-	1
PC2. Decide the number of workers to be deployed for loading or unloading based on the quantity and specification details	3	3	-	1
PC3. Ensure appropriate work allocation to workers so that they are available at the time of loading or unloading	2	3	-	-
PC4. Ensure workers are given prior information about the truck arrival and dispatch timing	2	3	-	1
<i>Verify vehicle details</i>	8	18	-	4
PC5. Get vehicle details from route controller and truck coordinator	2	4	-	1
PC6. Verify vehicle details with the details received from route controller	2	5	-	1
PC7. Ensure that the data entry operator enters truck details	2	4	-	1
PC8. Update truck coordinator and procurement head in case of discrepancy	2	5	-	1
<i>Supervise proper handling of goods by unloaders</i>	12	30	-	3
PC9. Make space to unload inbound goods	2	5	-	-
PC10. Analyze and implement handling requirements appropriate to types of goods. E.g., Some marine products are richer in aroma and thus should be handled properly to ensure that aroma doesn't spread to other products through hands or other tools used while handling. Baking soda can be used to absorb any odour. Similarly, fish must not be exposed to direct sunlight while unloading and handling vaccines and other liquids must be done with care to avoid spillage.	2	5	-	1

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. Ensure workers qualified to handle the goods are deployed for unloading	2	5	-	-
PC12. Supervise and direct workers for proper handling as per requirements	2	5	-	-
PC13. Ensure proper stacking is done in order to facilitate inspection	2	5	-	1
PC14. Ensure unloading area is properly shaded and clean to avoid any further damage to goods	2	5	-	1
NOS Total	30	60	-	10

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National Occupational Standards (NOS) Parameters

NOS Code	LSC/N8701
NOS Name	Supervise loading and unloading operations
Sector	Logistics
Sub-Sector	Cold Chain Logistics Solutions
Occupation	Cold Chain Operations
NSQF Level	5
Credits	2
Version	2.0
Last Reviewed Date	23/10/2024
Next Review Date	23/10/2027
NSQC Clearance Date	23/10/2024

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LSC/N8702: Oversee inspection of goods at the time of arrival

Description

This OS unit is about overseeing inspection of goods with respect to quality, quantity and extent of spoilage before they enter into the cold chain facility

Scope

The scope covers the following :

- Inspect the goods for extent of spoilage
- Inspect the goods w.r.t quality specifications
- Inspect the goods w.r.t quantity requirements
- Liaison with procurement head for details of goods and outcome of inspection
- Ensure goods are properly transferred to grading line after inspection, without undue spoilage

Elements and Performance Criteria

Inspect the goods for extent of spoilage

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

- PC1.** Supervise and direct workers in separating spoiled goods from unspoiled goods
- PC2.** Analyze if the extent of spoilage is within acceptable limits
- PC3.** Take non conformance decision and reject purchase in case of unhygienic conditions, temperature abuse or any adverse factors that may affect the safety and quality of goods received
- PC4.** Ensure non conforming goods are properly segregated from conforming goods

Inspect the goods w.r.t quality specifications

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

- PC5.** Obtain details from quality incharge about criteria of quality specifications such as permissible level of moisture content for eg: pepper should ideally have moisture content between 10 and 11 %, Nitrite radical level for fish paste products (fish sausage and ham) should be according to the food sanitation laws of the respective countries. For eg: it should be 0.05 g/kg or less as per Food Sanitation Law, Japan etc.
- PC6.** Ensure proper quality check is carried out by quality chemists based on quality standard/criteria decided for each product. For eg: for marine products the criteria could be viable bacteria count, nitrite radical level, moisture level, permissible temperature etc.
- PC7.** Get details about quality specifications of received goods after they are reviewed by quality chemists.
- PC8.** Analyze the extent to which quality of received goods meets the specifications criteria and permissible level details specified by quality in charge
- PC9.** If quality requirements do not conform, update the same to quality assurance department and procurement head

Inspect the goods w.r.t quantity requirements

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

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- PC10.** Get the purchase order from procurement head
 - PC11.** Supervise physical count of inventory done by workers
 - PC12.** Verify quantity received with the quantity ordered
 - PC13.** Ensure the inventory count is communicated to storekeeper
 - PC14.** Ensure data entry operator maintains records of goods in and out
- Liaison with procurement head for details of goods and outcome of inspection*

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

- PC15.** Get the purchase order and other documents from procurement head
- PC16.** Update procurement head for rejection of goods in case of spoilage due to temperature abuse or unhygienic conditions during transit
- PC17.** Communicate/update the procurement head about outcome of inspection
- PC18.** Ensure the deviations from specifications and requirements are properly communicated by procurement head to vendors
- PC19.** Follow up with procurement head for update in cases of discrepancy

Ensure goods are properly transferred to grading line after inspection, without undue spoilage

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

- PC20.** Make note of quantity of goods transferred to grading line once inspection is completed
- PC21.** Ensure quantity details are recorded by data entry operator
- PC22.** Ensure sufficient number of workers are available for transferring goods to grading line at required time
- PC23.** Ensure proper handling of goods while transferring to crates for grading line operations

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** Company's reporting structure
- KU2.** Individual's role in cold chain process flow
- KU3.** Occupational health and safety standards
- KU4.** Quality control standards for perishable products
- KU5.** Company's work instructions on quality standards
- KU6.** Company's policies, standard operating procedures and governance structure
- KU7.** Risk and impact of not following defined procedures/work instructions
- KU8.** Company's personnel management and incentives rules
- KU9.** Clients and suppliers of the company
- KU10.** Criteria for acceptability of goods
- KU11.** Units of the criteria used for measurement and evaluation of quality of products
- KU12.** Changes in spoiled goods with respect to colour, dehydration and protein content
- KU13.** Latest techniques for conducting quality checks
- KU14.** Codes and specifications used for quality checks
- KU15.** Units used for measurement and evaluation of quantity of goods received

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- KU16.** Inventory management recording system and procedures
- KU17.** Measurement units used for recording quantity details of goods
- KU18.** Characteristics of goods to be inspected
- KU19.** Which crate/ container is appropriate for transferring goods to the grading line

Generic Skills (GS)

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

- GS1.** Read quality control standards
- GS2.** Read product codes, quantity and specifications provided
- GS3.** Check reports for quality, quantity and weight
- GS4.** Read forms, inspection checklists pertaining to the inbound deliveries
- GS5.** Write down details of goods received for inspection
- GS6.** Maintain records of goods that qualified to enter the grading line operations after inspection
- GS7.** Mention details of rejected goods, along with reason for rejection
- GS8.** Communicate to supervisors about the outcome of inspection
- GS9.** Coordinate with peers such as procurement head and quality incharge in case of discrepancy
- GS10.** Clearly and precisely communicate to subordinate regarding criteria for acceptance and rejection of goods
- GS11.** Take non conformance decision for rejection of goods
- GS12.** Decide number of people to be deployed for inspection
- GS13.** Segregate conforming goods from non conforming goods
- GS14.** Plan the placement and stacking of goods in open space to facilitate inspection
- GS15.** Customer requirements with respect to quality expectations
- GS16.** Enforce hygienic conditions as per product handling requirements
- GS17.** Take appropriate action if conforming goods get mixed with non conforming goods
- GS18.** Handle day to day problems like delays, staffing shortage etc
- GS19.** The observation and inspection outcome provided by quality chemists
- GS20.** The proportion of goods that do not conform to quality requirements
- GS21.** Evaluate if the extent of spoilage is within acceptable limits
- GS22.** Allocate staff across departments and activities

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Inspect the goods for extent of spoilage</i>	8	12	-	1
PC1. Supervise and direct workers in separating spoiled goods from unspoiled goods	2	3	-	1
PC2. Analyze if the extent of spoilage is within acceptable limits	2	3	-	-
PC3. Take non conformance decision and reject purchase in case of unhygienic conditions, temperature abuse or any adverse factors that may affect the safety and quality of goods received	2	3	-	-
PC4. Ensure non conforming goods are properly segregated from conforming goods	2	3	-	-
<i>Inspect the goods w.r.t quality specifications</i>	8	15	-	3
PC5. Obtain details from quality incharge about criteria of quality specifications such as permissible level of moisture content for eg: pepper should ideally have moisture content between 10 and 11 %, Nitrite radical level for fish paste products (fish sausage and ham) should be according to the food sanitation laws of the respective countries. For eg: it should be 0.05 g/kg or less as per Food Sanitation Law, Japan etc.	2	3	-	1
PC6. Ensure proper quality check is carried out by quality chemists based on quality standard/criteria decided for each product. For eg: for marine products the criteria could be viable bacteria count, nitrite radical level, moisture level, permissible temperature etc.	2	3	-	1
PC7. Get details about quality specifications of received goods after they are reviewed by quality chemists.	2	3	-	1
PC8. Analyze the extent to which quality of received goods meets the specifications criteria and permissible level details specified by quality in charge	1	3	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC9. If quality requirements do not conform, update the same to quality assurance department and procurement head	1	3	-	-
<i>Inspect the goods w.r.t quantity requirements</i>	5	15	-	2
PC10. Get the purchase order from procurement head	1	3	-	1
PC11. Supervise physical count of inventory done by workers	1	3	-	1
PC12. Verify quantity received with the quantity ordered	1	3	-	-
PC13. Ensure the inventory count is communicated to storekeeper	1	3	-	-
PC14. Ensure data entry operator maintains records of goods in and out	1	3	-	-
<i>Liaison with procurement head for details of goods and outcome of inspection</i>	5	10	-	2
PC15. Get the purchase order and other documents from procurement head	1	2	-	1
PC16. Update procurement head for rejection of goods in case of spoilage due to temperature abuse or unhygienic conditions during transit	1	2	-	-
PC17. Communicate/update the procurement head about outcome of inspection	1	2	-	1
PC18. Ensure the deviations from specifications and requirements are properly communicated by procurement head to vendors	1	2	-	-
PC19. Follow up with procurement head for update in cases of discrepancy	1	2	-	-
<i>Ensure goods are properly transferred to grading line after inspection, without undue spoilage</i>	4	8	-	2
PC20. Make note of quantity of goods transferred to grading line once inspection is completed	1	2	-	1

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC21. Ensure quantity details are recorded by data entry operator	1	2	-	-
PC22. Ensure sufficient number of workers are available for transferring goods to grading line at required time	1	2	-	-
PC23. Ensure proper handling of goods while transferring to crates for grading line operations	1	2	-	1
NOS Total	30	60	-	10

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National Occupational Standards (NOS) Parameters

NOS Code	LSC/N8702
NOS Name	Oversee inspection of goods at the time of arrival
Sector	Logistics
Sub-Sector	Cold Chain Logistics Solutions
Occupation	Cold Chain Operations
NSQF Level	5
Credits	2
Version	2.0
Last Reviewed Date	23/10/2024
Next Review Date	23/10/2027
NSQF Clearance Date	23/10/2024

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LSC/N8704: Supervise pre-cooling operations

Description

This OS unit is about overseeing product placement, storage conditions and space management within the pre-cooling unit

Scope

The scope covers the following :

- Maintain proper storage conditions in the pre-cooling unit
- Supervise placement of goods in pre-cooling chambers
- Manage space efficiently within the pre-cooling unit

Elements and Performance Criteria

Maintain proper storage conditions in the pre-cooling unit

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

- PC1.** Ensure appropriate pre-cooling technology is used for the products
- PC2.** Ensure use of insulated panels suitable for pre-cooling temperature
- PC3.** Ensure doors are leak proof
- PC4.** Ensure electrical control panel for refrigeration rack system is working properly

Supervise placement of goods in pre-cooling chambers

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

- PC5.** Ensure goods of different grades are properly segregated in pre cooling chamber
- PC6.** Ensure goods requiring lesser pre-cooling time should be placed in the front of the chamber
- PC7.** Oversee proper placement and stacking of goods so as to ensure uniform pre-cooling of each stored unit

Manage space efficiently within the pre-cooling unit

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

- PC8.** Ensure timely removal of goods from pre-cooling unit to temporary staging space in order to free the space for sequential batch of harvested produce
- PC9.** Ensure staging area is clean
- PC10.** Ensure proper handling of goods in order to avoid undue spoilage

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** Company's reporting structure
- KU2.** Individual's role in cold chain process flow
- KU3.** Occupational health and safety standards
- KU4.** Quality control standards for perishable products

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- KU5.** Company's work instructions on quality standards
- KU6.** Company's policies, standard operating procedures and governance structure
- KU7.** Risk and impact of not following defined procedures/work instructions
- KU8.** Company's personnel management and incentives rules
- KU9.** Clients and suppliers of the company
- KU10.** Different types of pre-cooling techniques. for eg: a pre cooling unit can be in the form of forced-air cooling, hydro cooling, vacuum cooling, room cooling, icing, etc.
- KU11.** Safety and security precautions required in each type of pre-cooling technique
- KU12.** Time required for each type of pre-cooling technique
- KU13.** Which pre-cooling technique is appropriate for which types of goods
- KU14.** Correct pre-cooling temperature based on maturity level of goods. for eg: grapes are cooled to 1-4c, potato to 59c etc.
- KU15.** Velocity of refrigerating medium
- KU16.** Appropriate humidity levels in the air used for pre-cooling, in order to avoid excessive water loss
- KU17.** Cost and expenditure involved in the pre-cooling techniques
- KU18.** Adjustment required in pre-cooling conditions based on climatic changes
- KU19.** Appropriate time gap between harvesting of produce and pre-cooling

Generic Skills (GS)

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

- GS1.** Read instructions on handling requirements
- GS2.** Read details of goods entering the pre-cooling unit
- GS3.** Read quality control and assurance standards
- GS4.** Maintain details of goods placed inside the pre-cooling unit
- GS5.** Make improvements to instructions based on requirements and climatic changes
- GS6.** Interface effectively with internal team across departments
- GS7.** Work as a team and deliver frame to next work process on time resolve customers concerns satisfactorily within timeframe stipulated by the company or as agreed with customer or colleague
- GS8.** Take decision on appropriate temperature for pre-cooling of goods
- GS9.** Take decision on number of workers to be deployed in pre-cooling unit and fitness levels of workers
- GS10.** Appropriate placement and stacking of goods to ensure uniform pre-cooling
- GS11.** Pre-cooling conditions to be maintained for appropriate duration
- GS12.** Customer demand and quality requirements
- GS13.** Maintain quality and hygienic conditions to the extent expected by customers
- GS14.** Resolve basic problems in walls, roofing etc.
- GS15.** Take action in case of injury or workplace hazard
- GS16.** Analyze situation in case of over-cooling or under cooling of goods



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- GS17.** Assess whether the product meets the required specification
- GS18.** Spot process disruptions and delays
- GS19.** Appropriate pre-cooling technique to be used based on product characteristics, time and expenditure involved in each technique

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Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Maintain proper storage conditions in the pre-cooling unit</i>	12	24	-	4
PC1. Ensure appropriate pre-cooling technology is used for the products	3	6	-	1
PC2. Ensure use of insulated panels suitable for pre-cooling temperature	3	6	-	1
PC3. Ensure doors are leak proof	3	6	-	1
PC4. Ensure electrical control panel for refrigeration rack system is working properly	3	6	-	1
<i>Supervise placement of goods in pre-cooling chambers</i>	9	18	-	3
PC5. Ensure goods of different grades are properly segregated in pre cooling chamber	3	6	-	1
PC6. Ensure goods requiring lesser pre-cooling time should be placed in the front of the chamber	3	6	-	1
PC7. Oversee proper placement and stacking of goods so as to ensure uniform pre-cooling of each stored unit	3	6	-	1
<i>Manage space efficiently within the pre-cooling unit</i>	9	18	-	3
PC8. Ensure timely removal of goods from pre-cooling unit to temporary staging space in order to free the space for sequential batch of harvested produce	3	6	-	1
PC9. Ensure staging area is clean	3	6	-	1
PC10. Ensure proper handling of goods in order to avoid undue spoilage	3	6	-	1
NOS Total	30	60	-	10

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National Occupational Standards (NOS) Parameters

NOS Code	LSC/N8704
NOS Name	Supervise pre-cooling operations
Sector	Logistics
Sub-Sector	Cold Chain Logistics Solutions
Occupation	Cold Chain Operations
NSQF Level	5
Credits	2
Version	3.0
Last Reviewed Date	23/10/2024
Next Review Date	23/10/2027
NSQC Clearance Date	23/10/2024

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LSC/N8706: Manage placement of goods in controlled conditions

Description

This OS unit is about administering safe movement of goods and overseeing proper storage within the cold room facility

Scope

The scope covers the following :

- Ensure maintenance of safety conditions inside the cold storage
- Supervise appropriate placement and stocking of goods
- Oversee movement of goods in trolley in the cold store

Elements and Performance Criteria

Ensure maintenance of safety conditions inside the cold storage

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

- PC1.** Identify appropriate temperature, humidity and refrigerant conditions at which the goods should be stored
- PC2.** Ensure that storage conditions are maintained and adjusted based on climatic changes
- PC3.** Ensure that access to the cold store is restricted to authorised, trained persons only
- PC4.** Supervise handling operations and fitness levels of workers deployed for cold storage operations
- PC5.** Ensure that any work on the system where there is a potential for gas leaks or any other danger is allocated to appropriate workers under supervision of a senior and experienced worker
- PC6.** Execute monthly checks on vapour detectors and alarms
- PC7.** Ensure appropriate PPE such as jacket, gloves, caps, shoes, etc is worn by cold room operators

Supervise appropriate placement and stocking of goods

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

- PC8.** Chart a layout plan for palletization to control stock placement
- PC9.** Ensure racking selected is according to the operating temperature and is to SEMA (Storage Equipments Manufacturers Association) standard
- PC10.** Supervise appropriate placement of fans to ensure sufficient circulation of air
- PC11.** Coordinate with storekeeper for stock rotation in case required
- PC12.** Ensure stacking follows exactly the layout prescribed, respecting loading limits and allowing space between the stacks and walls, and below the pallets

Oversee movement of goods in trolley in the cold store

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

- PC13.** Ensure walkways are clearly marked by yellow lines, railings, etc
- PC14.** Ensure proper instructions are available for pedestrians to keep away from moving trolleys

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- PC15.** Ensure the cold store is well lit and has mirrors at the end of aisles
- PC16.** Supervise selection of vehicles to minimise risk for movement of goods within
- PC17.** Ensure all trolley operators are trained and follow daily pre-use vehicle checks

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** Company's reporting structure
- KU2.** Individual's role in cold chain process flow
- KU3.** Occupational health and safety standards
- KU4.** Quality control standards for perishable products
- KU5.** Company's work instructions on quality standards
- KU6.** Company's policies, standard operating procedures and governance structure
- KU7.** Risk and impact of not following defined procedures/work instructions
- KU8.** Company's personnel management and incentives rules
- KU9.** Clients and suppliers of the company
- KU10.** Appropriate PPE such as jacket, gloves, cap, shoes etc to be worn by operators
- KU11.** Areas of potential gas leaks within the cold storage
- KU12.** How to operate and read vapour detectors and alarms
- KU13.** Different types of trolleys used within the cold storage facility. for eg: trolleys can be of following types two-wheeled trolleys - manual platform trolleys, self-propelled platform trolleys, manual or self-propelled pallet trucks, belt, chain or roller conveyors, either gravity or self-propelled.
- KU14.** Equipments used for vehicle handling, namely platform elevators, cranes, gantries, hand-stacking equipment, fork lift trucks, various types of mechanized stacking equipment etc.
- KU15.** Maintenance schedule and functional understanding of equipments
- KU16.** Appropriate size of packages or blocks that can be readily palletized
- KU17.** Requirements laid down in national codes of practice, insurance companies, as well as international recommendations (ISO R1662) (BS 4434 1989/) etc that the refrigeration equipment should comply to
- KU18.** Precautionary measures and safety standards to be followed inside cold room facility
- KU19.** Product characteristics and appropriate placement on racks so that they are not crushed
- KU20.** Appropriate stack alignment and positioning of stacks, for eg: in a partly filled room the stack alignment must be perpendicular to the direction of air movement and the stacks placed close to the cooler, fans must be operating when the refrigeration system is running and it is advisable to stop them only during the defrosting period. two-speed fans should be used to adjust to air circulation needs in the room

Generic Skills (GS)

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

- GS1.** Read workplace instructions, safety hazards and operating procedures

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- GS2.** Read details of goods stored in the cold room, and records maintained by storekeeper
- GS3.** Write details of goods entering the cold storage
- GS4.** Make corrections and improvements in workplace instructions based on technological requirements
- GS5.** Maintain effective relationships and communicate clearly and precisely with sub ordinate
- GS6.** Obtain information and grasp its meaning
- GS7.** Discuss issues, clarify doubts and seek solutions
- GS8.** Placement of goods in the cold room based on product characteristics
- GS9.** Stack alignment and palletization pattern
- GS10.** Rectify on use of hazardous materials and do continuous checks
- GS11.** Worker allocation based on areas of potential gas leaks
- GS12.** Customer demand and quality requirements
- GS13.** Maintain quality and hygienic conditions to the extent expected by customers
- GS14.** Correct issues with vapour detector and alarms
- GS15.** Solve workplace issues with respect to delays in trolley transport and storage
- GS16.** Resolve issues related to leakages and temperature abuse within the cold storage
- GS17.** Initiate action in case of injury or hazard
- GS18.** Analyze the storage space based on average duration of storage, nature of goods, stacking height, product movement on trolleys etc.
- GS19.** Coordinate activities based on size of the room, number of door openings, protection of door openings, traffic through the doors, cold and warm air temperatures and humidity
- GS20.** Decide the appropriate cold room temperature and humidity conditions based on climatic changes
- GS21.** Appropriate vehicle to be used for movement of goods within the cold room

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Ensure maintenance of safety conditions inside the cold storage</i>	14	28	-	3.5
PC1. Identify appropriate temperature, humidity and refrigerant conditions at which the goods should be stored	2	4	-	0.5
PC2. Ensure that storage conditions are maintained and adjusted based on climatic changes	2	4	-	0.5
PC3. Ensure that access to the cold store is restricted to authorised, trained persons only	2	4	-	0.5
PC4. Supervise handling operations and fitness levels of workers deployed for cold storage operations	2	4	-	0.5
PC5. Ensure that any work on the system where there is a potential for gas leaks or any other danger is allocated to appropriate workers under supervision of a senior and experienced worker	2	4	-	0.5
PC6. Execute monthly checks on vapour detectors and alarms	2	4	-	0.5
PC7. Ensure appropriate PPE such as jacket, gloves, caps, shoes, etc is worn by cold room operators	2	4	-	0.5
<i>Supervise appropriate placement and stocking of goods</i>	10	20	-	2.5
PC8. Chart a layout plan for palletization to control stock placement	2	4	-	0.5
PC9. Ensure racking selected is according to the operating temperature and is to SEMA (Storage Equipments Manufacturers Association) standard	2	4	-	0.5
PC10. Supervise appropriate placement of fans to ensure sufficient circulation of air	2	4	-	0.5
PC11. Coordinate with storekeeper for stock rotation in case required	2	4	-	0.5

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. Ensure stacking follows exactly the layout prescribed, respecting loading limits and allowing space between the stacks and walls, and below the pallets	2	4	-	0.5
<i>Oversee movement of goods in trolley in the cold store</i>	6	12	-	4
PC13. Ensure walkways are clearly marked by yellow lines, railings, etc	2	4	-	1
PC14. Ensure proper instructions are available for pedestrians to keep away from moving trolleys	1	2	-	1
PC15. Ensure the cold store is well lit and has mirrors at the end of aisles	1	2	-	1
PC16. Supervise selection of vehicles to minimise risk for movement of goods within	1	2	-	0.5
PC17. Ensure all trolley operators are trained and follow daily pre-use vehicle checks	1	2	-	0.5
NOS Total	30	60	-	10

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	LSC/N8706
NOS Name	Manage placement of goods in controlled conditions
Sector	Logistics
Sub-Sector	Cold Chain Logistics Solutions
Occupation	Cold Chain Operations
NSQF Level	5
Credits	2
Version	3.0
Last Reviewed Date	23/10/2024
Next Review Date	23/10/2027
NSQC Clearance Date	23/10/2024

Qualification Pack

LSC/N8707: Supervise product protection and packaging

Description

This OS unit is about executing final quality checks and overseeing product packaging operations before they are dispatched from the cold storage facility

Scope

The scope covers the following :

- Execute final inspection of QC/QA checks
- Supervise packaging activities and tools used
- Execute Pre dispatch QC check

Elements and Performance Criteria

Execute final inspection of QC/QA checks

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

- PC1.** Supervise passage of goods through metal detector
- PC2.** Inspect samples to check for conformance to quality standards
- PC3.** Discard non conforming units
- PC4.** Supervise physical count of units to be packaged
- PC5.** Update packaging incharge with final number of units to be packaged

Supervise packaging activities and tools used

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

- PC6.** Ensure appropriate packaging material is used by pack-house incharge based on product specifications and end user requirement
- PC7.** Ensure packaging is appropriate to allow ease of loading, unloading and sales
- PC8.** Supervise container sterilization, filling and closing
- PC9.** Ensure sufficient stock of packing material is maintained

Execute Pre dispatch QC check

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

- PC10.** Ensure packaging is strong enough to protect and carry the produce
- PC11.** Supervise weighing, sealing and labelling of cartons
- PC12.** Supervise online numbering of cartons
- PC13.** Ensure stock maintenance register is updated

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** Company's reporting structure
- KU2.** Individual's role in cold chain process flow

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- KU3.** Occupational health and safety standards
- KU4.** Quality control standards for perishable products
- KU5.** Company's work instructions on quality standards
- KU6.** Company's policies, standard operating procedures and governance structure
- KU7.** Risk and impact of not following defined procedures/work instructions
- KU8.** Company's personnel management and incentives rules
- KU9.** Clients and suppliers of the company
- KU10.** Different types of packaging material available
- KU11.** Inspection checks to be conducted at the pre-dispatch stage
- KU12.** How to operate metal detector and other inspection equipments
- KU13.** Customer quality requirements with respect to packaging
- KU14.** Characteristics of packaging material used. For eg: its susceptibility to corrosion, breakage, wear and tear etc
- KU15.** Characteristics of the products being packaged. For eg: the products texture, size, odor, susceptibility to corrosion, effect of exposure to low temperature, water etc
- KU16.** Appropriate packaging material to be used based on product characteristics, for eg: the materials used for the package must be new, clean and of such a quality as to avoid causing any external or internal damage to the produce
- KU17.** Procedure for weighing, sealing and labelling of goods
- KU18.** Codes, standards and symbols used for weighing and labeling
- KU19.** The instructions and readings on equipments used for weighing and labeling and sealing

Generic Skills (GS)

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

- GS1.** Read instructions on handling requirements and packaging materials
- GS2.** Read details of goods required to be packed
- GS3.** Read quality control and assurance standards
- GS4.** Read labels and product codes mentioned on the packages
- GS5.** Maintain details of goods received and goods dispatched
- GS6.** Make records of outcome of inspection done before dispatch
- GS7.** Maintain effective relationships and communicate clearly and precisely with sub ordinate
- GS8.** Discuss issues, clarify doubts and seek solutions
- GS9.** Take non conformance decision in case the goods do not qualify inspection checks
- GS10.** What material is suitable for packaging the goods
- GS11.** Appropriate placement and stacking of goods to ensure packaging is safe until dispatch
- GS12.** Space required to carry out packaging activities and stacking of goods when they are ready for dispatch
- GS13.** Customer demand and quality requirements in terms of packaging quality
- GS14.** Maintain quality and hygienic conditions to the extent expected by customers
- GS15.** Take action if enough stock of packaging material is not maintained



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- GS16.** Take action if packaging is destroyed while handling
- GS17.** Analyze if the packaging material purchased is as per required specification
- GS18.** Analyze process disruptions and delays
- GS19.** Appropriate packaging material based on changing climatic conditions
- GS20.** Check if the metal detectors and other electronic devices are working properly

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Execute final inspection of QC/QA checks</i>	14	25	-	3
PC1. Supervise passage of goods through metal detector	3	5	-	0.5
PC2. Inspect samples to check for conformance to quality standards	3	5	-	0.5
PC3. Discard non conforming units	3	5	-	0.5
PC4. Supervise physical count of units to be packaged	3	5	-	0.5
PC5. Update packaging incharge with final number of units to be packaged	2	5	-	1
<i>Supervise packaging activities and tools used</i>	8	19	-	4
PC6. Ensure appropriate packaging material is used by pack-house incharge based on product specifications and end user requirement	2	5	-	1
PC7. Ensure packaging is appropriate to allow ease of loading, unloading and sales	2	5	-	1
PC8. Supervise container sterilization, filling and closing	2	5	-	1
PC9. Ensure sufficient stock of packing material is maintained	2	4	-	1
<i>Execute Pre dispatch QC check</i>	8	16	-	3
PC10. Ensure packaging is strong enough to protect and carry the produce	2	4	-	1
PC11. Supervise weighing, sealing and labelling of cartons	2	4	-	1
PC12. Supervise online numbering of cartons	2	4	-	0.5
PC13. Ensure stock maintenance register is updated	2	4	-	0.5
NOS Total	30	60	-	10

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	LSC/N8707
NOS Name	Supervise product protection and packaging
Sector	Logistics
Sub-Sector	Cold Chain Logistics Solutions
Occupation	Cold Chain Operations
NSQF Level	5
Credits	2
Version	2.0
Last Reviewed Date	23/10/2024
Next Review Date	23/10/2027
NSQC Clearance Date	23/10/2024

Qualification Pack

LSC/N9913: Supervise floor operations and workforce management

Description

This OS unit is about supervising floor operations and workforce management.

Scope

The scope covers the following :

- Prepare work plan and allocate resources using decision tool
- Monitor workers and floor operations

Elements and Performance Criteria

Prepare work plan and allocate resources using decision tool

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

- PC1.** Obtain daily work order and enter respective details in the decision tool
- PC2.** Read output of decision tool (which is based on decision science) and put values in work plan format
- PC3.** Get the work plan approved from the manager and allocate tasks to workers and associates as per decision tool output approved
- PC4.** Run task manager and it will automatically allocate tasks to respective users
- PC5.** Ensure the availability of required tools, equipment, materials and Personal Protective Equipment (PPE) to the cold storage workers, as per the work requirements

Monitor workers and floor operations

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

- PC6.** Monitor the workers during work operations to ensure they complete the assigned tasks appropriately
- PC7.** Identify the areas of lapses and scope of improvement and provide feedback to the relevant personnel
- PC8.** Support the workers in performing their duties as per the applicable work requirements and quality standards
- PC9.** Identify the need for training and skill enhancement for workers and propose to management accordingly
- PC10.** Review and monitor the work of the assistants, executives and contractual workforce, and check for accuracy of documentation and task performance
- PC11.** Inspect operational area for compliance to safety, security and cleanliness norms/5S
- PC12.** Engage resources in alternate operation when there is a delay of planned operations
- PC13.** Allocate additional and ad-hoc manpower and equipment during exigency
- PC14.** Act as a liaison between different activities to ensure continuity of operations
- PC15.** Escalate issues regarding operations, delays, accidents, damages, etc. to manager
- PC16.** Provide corrective and preventive action plans based on accident and damage reports

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- PC17.** Check for correct segregation, contamination, damage or leakage of items and facilitate disposal as per policy
- PC18.** Support in planning and executing preventive maintenance
- PC19.** Support manager in planning for new equipment purchase, installation and commissioning

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** Company's reporting structure
- KU2.** Individual's role in cold chain process flow
- KU3.** Occupational health and safety standards
- KU4.** Quality control standards for perishable products
- KU5.** Company's work instructions on quality standards
- KU6.** Company's policies, standard operating procedures and governance structure
- KU7.** Risk and impact of not following defined procedures/work instructions
- KU8.** Company's personnel management and incentives rules
- KU9.** Clients and suppliers of the company
- KU10.** Appropriate PPE such as jacket, gloves, cap, shoes etc. to be worn by operators
- KU11.** Areas of potential gas leaks within the cold storage
- KU12.** How to operate and read vapour detectors and alarms
- KU13.** Different types of trolleys used within the cold storage facility. for e.g. trolleys can be of following types two-wheeled trolleys - manual platform trolleys, self-propelled platform trolleys, manual or self-propelled pallet trucks, belt, chain or roller conveyors, either gravity or self-propelled
- KU14.** Equipment used for vehicle handling, namely platform elevators, cranes, gantries, hand-stacking equipment, fork lift trucks, various types of mechanized stacking equipment etc.
- KU15.** Maintenance schedule and functional understanding of equipment
- KU16.** Appropriate size of packages or blocks that can be readily palletized
- KU17.** Requirements laid down in national codes of practice, insurance companies, as well as international recommendations (ISO R1662) (BS 4434 1989/) etc. that the refrigeration equipment should comply with
- KU18.** Precautionary measures and safety standards to be followed inside cold room facility
- KU19.** Product characteristics and appropriate placement on racks so that they are not crushed
- KU20.** Appropriate stack alignment and positioning of stacks, for e.g. in a partly filled room the stack alignment must be perpendicular to the direction of air movement and the stacks placed close to the cooler, fans must be operating when the refrigeration system is running and it is advisable to stop them only during the defrosting period. two-speed fans should be used to adjust to air circulation needs in the room

Generic Skills (GS)

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

Qualification Pack

- GS1.** Read workplace instructions, safety hazards and operating procedures
- GS2.** Read details of goods stored in the cold room, and records maintained by storekeeper
- GS3.** Write details of goods entering the cold storage
- GS4.** Make corrections and improvements in workplace instructions based on technological requirements
- GS5.** Maintain effective relationships and communicate clearly and precisely with sub ordinate
- GS6.** Obtain information and grasp its meaning
- GS7.** Discuss issues, clarify doubts and seek solutions
- GS8.** Placement of goods in the cold room based on product characteristics
- GS9.** Stack alignment and palletization pattern
- GS10.** Rectify on use of hazardous materials and do continuous checks
- GS11.** Worker allocation based on areas of potential gas leaks
- GS12.** Customer demand and quality requirements
- GS13.** Maintain quality and hygienic conditions to the extent expected by customers
- GS14.** Correct issues with vapour detector and alarms
- GS15.** Solve workplace issues with respect to delays in trolley transport and storage
- GS16.** Resolve issues related to leakages and temperature abuse within the cold storage
- GS17.** Initiate action in case of injury or hazard
- GS18.** Analyze the storage space based on average duration of storage, nature of goods, stacking height, product movement on trolleys etc.
- GS19.** Coordinate activities based on size of the room, number of door openings, protection of door openings, traffic through the doors, cold and warm air temperatures and humidity
- GS20.** Decide the appropriate cold room temperature and humidity conditions based on climatic changes
- GS21.** Appropriate vehicle to be used for movement of goods within the cold room

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare work plan and allocate resources using decision tool</i>	6	16	-	3
PC1. Obtain daily work order and enter respective details in the decision tool	1	3	-	-
PC2. Read output of decision tool (which is based on decision science) and put values in work plan format	1	3	-	-
PC3. Get the work plan approved from the manager and allocate tasks to workers and associates as per decision tool output approved	1	3	-	1
PC4. Run task manager and it will automatically allocate tasks to respective users	2	4	-	1
PC5. Ensure the availability of required tools, equipment, materials and Personal Protective Equipment (PPE) to the cold storage workers, as per the work requirements	1	3	-	1
<i>Monitor workers and floor operations</i>	24	44	-	7
PC6. Monitor the workers during work operations to ensure they complete the assigned tasks appropriately	2	3	-	1
PC7. Identify the areas of lapses and scope of improvement and provide feedback to the relevant personnel	1	3	-	-
PC8. Support the workers in performing their duties as per the applicable work requirements and quality standards	2	3	-	1
PC9. Identify the need for training and skill enhancement for workers and propose to management accordingly	1	3	-	-
PC10. Review and monitor the work of the assistants, executives and contractual workforce, and check for accuracy of documentation and task performance	2	3	-	1

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. Inspect operational area for compliance to safety, security and cleanliness norms/5S	2	4	-	1
PC12. Engage resources in alternate operation when there is a delay of planned operations	2	3	-	-
PC13. Allocate additional and ad-hoc manpower and equipment during exigency	2	3	-	1
PC14. Act as a liaison between different activities to ensure continuity of operations	2	3	-	-
PC15. Escalate issues regarding operations, delays, accidents, damages, etc. to manager	2	4	-	1
PC16. Provide corrective and preventive action plans based on accident and damage reports	1	3	-	1
PC17. Check for correct segregation, contamination, damage or leakage of items and facilitate disposal as per policy	1	3	-	-
PC18. Support in planning and executing preventive maintenance	2	3	-	-
PC19. Support manager in planning for new equipment purchase, installation and commissioning	2	3	-	-
NOS Total	30	60	-	10

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	LSC/N9913
NOS Name	Supervise floor operations and workforce management
Sector	Logistics
Sub-Sector	
Occupation	Generic
NSQF Level	5
Credits	2
Version	1.0
Last Reviewed Date	23/10/2024
Next Review Date	23/10/2027
NSQC Clearance Date	23/10/2024

Qualification Pack

LSC/N9901: 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

The scope covers the following :

- Take precautionary measures to avoid work hazards
- Follow standard health, safety and hygiene procedures

Elements and Performance Criteria

Take precautionary measures to avoid work hazards

To be competent, the user/individual on the job 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

Follow standard health, safety and hygiene procedures

To be competent, the user/individual on the job 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

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- 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
- PC19.** Use effective loading and unloading systems
- PC20.** Proper stock rotation (First in First out) to be practiced
- 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 companys policies and rules
- PC26.** Ensure to be safe while handling machines (generator, compressor, condenser 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 every day, wearing clean and tidy clothes after ironing etc.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** Company's HR policies on personnel management
- KU2.** Company's reporting structure
- KU3.** Occupational health and safety standards
- KU4.** Cold storage plant inspection checklist
- KU5.** Company's sanitary standard operating procedures
- KU6.** Procedures to follow during emergency maintenance issues
- KU7.** Technical standards for design and construction of cold storages: Bureau of Indian standards (BIS), International standard (ISO) etc.
- KU8.** The purpose and usage of protective gears such as gloves , jackets etc. while working
- KU9.** Use of first aid at workplace

Qualification Pack

- KU10.** Cold storage order, 1980
- KU11.** Food safety and standards act, 2006
- KU12.** Reporting procedure or heirarchy for signs of damage and potential hazards
- KU13.** Methods to minimize accidental risks
- KU14.** Safe storage and handling of chemicals like refrigerants, ammonia, ethylene etc.
- KU15.** Loading and unloading systems
- KU16.** Standard operating procedure for safety drills and equipment maintenance
- KU17.** Operation of machines: compressor, condenser, evaporator etc.
- KU18.** Emergency procedures to be followed in case of an mishap such as fire, accidents, etc. and communication of safety instructions to subordinate staff
- KU19.** Emergency responses in case of malfunctioning of refrigeration equipment as a whole or its components like evaporator, condenser or compressor
- KU20.** Solid, liquid and gaseous waste disposal, treatment norms and equipment
- KU21.** Necessary action to be taken for the hazards identified
- KU22.** Knowledge of Quality systems like BRC, FSSAI, ISO, FSSC, HACCP etc.

Generic Skills (GS)

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

- GS1.** Read and interpret the relevant organisation policies, procedures and diagrams that identify health, safety and safe environmental practices.
- GS2.** Read job sheets, company policy documents and information displayed at the workplace for health, safety and environment.
- GS3.** Read notes/comments from the senior
- GS4.** Fill up documentation related to health, safety and environmental standards, if required
- GS5.** Verbally report health, safety and environmental hazards and poor organisation practice.
- GS6.** Communicate to the supervisor about the work health, safety and environmental issues
- GS7.** Receive instructions from supervisor on minimizing the risks
- GS8.** Communicate with co-workers about the precautions to be taken for hazards free work
- GS9.** Take preventive measures for the identified hazards
- GS10.** Select appropriate hand tools and personal protection equipment
- GS11.** Identify first aid needs in case of an injury
- GS12.** Formalize and display evacuation plan at strategic locations
- GS13.** Ensure targeted product delivery by practicing stipulated standards of occupational health safety and environmental measures
- GS14.** Take care of personal and equipment protection
- GS15.** Identify the hazards and suggest possible solutions
- GS16.** Use safety equipment such as fire extinguisher during fire accidents
- GS17.** Store tools in a safe way
- GS18.** Analyse the seriousness of the hazards
- GS19.** Evolve smooth workflow by avoiding hazards at workplace



Qualification Pack

GS20. Evaluate and apply the possible solutions for the hazards, as necessary

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Take precautionary measures to avoid work hazards</i>	12	23	-	6
PC1. Assess the various health, safety and environmental hazards in the cold storage	0.5	1	-	-
PC2. Take necessary steps to eliminate or minimize the hazards	1	2	-	1
PC3. Analyze the causes of accidents at the workplace	0.5	1	-	-
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.	1	2	-	1
PC5. Ensure the employees have access to first aid kit when needed	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	1	2	-	1
PC7. Ensure to display safety signs at places where necessary for people to be cautious	1	2	-	-
PC8. Use rubber mats in the places where floors are constantly wet	0.5	2	-	1
PC9. Ensure electrical precautions such as insulated clothing, adequate equipment insulation, dry work area, switch off the power supply when not required, etc	2	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.	1	2	-	-
PC11. Unplug the control panel, compressor, condensor etc before performing maintenance	0.5	1	-	-
PC12. Report to the superior on any problems and hazards identified	1	2	-	1

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. Install fire alarms (electrical/manual) in cold store/deep freeze and keep other safety devices like hammer/mallet in the storage area	1	2	-	1
<i>Follow standard health, safety and hygiene procedures</i>	18	37	-	4
PC14. Maintain appropriate ventilation in the cold rooms to avoid unacceptable accumulation of heat, condensation or odours	0.5	1	-	-
PC15. Check and review the cold storage areas frequently	0.5	2	-	-
PC16. Stack items in an organized way and use safe lifting techniques to reduce risk of injuries from handling procedures at the storage areas	1	2	-	-
PC17. Ensure no sign of pest infestation and install rodent traps, fly glues and insectocutors wherever needed	1	2	-	1
PC18. Follow hygiene & sanitation standards of Government bodies like FSSAI, APEDA and /or EIA or importing countries like FAO, EU standards	1	2	-	-
PC19. Use effective loading and unloading systems	1	2	-	-
PC20. Proper stock rotation (First in First out) to be practiced	1	2	-	-
PC21. Segregate damaged/non-conforming products from other products to designate area for appropriate disposition	1	2	-	1
PC22. Fumigate containers depending upon product and contamination or as per customers requirement	1	2	-	-
PC23. Avoid smoking, spitting, eating etc near food storage area	1	2	-	-
PC24. Ensure reefers are covered, clean, free from pest infestation & other contaminants	1	2	-	1
PC25. Dispose cold storage plant waste in the designated areas safely as per companys policies and rules	1	2	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC26. Ensure to be safe while handling machines (generator, compressor, condenser etc.), gas (ammonia) and chemicals (ethylene, refrigerants etc.)	1	2	-	1
PC27. Keep the floors free from oil, water and grease to avoid slippery surface	1	2	-	-
PC28. Cut nails regularly and avoid applying nail paint. Avoid wearing bangles, rings, and chains in cold storage	1	2	-	-
PC29. Wash hands with soap solution and dry under a dryer as they enter for duty or after using wash room	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	1	2	-	-
PC31. Ensure workers suffering from abscess, boils etc. should be relieved from food handling	1	2	-	-
PC32. Develop personal hygiene habits like brushing teeth, taking shower every day, wearing clean and tidy clothes after ironing etc.	1	2	-	-
NOS Total	30	60	-	10

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	LSC/N9901
NOS Name	Maintain food and personnel safety, health and hygiene in cold storage plant
Sector	Logistics
Sub-Sector	Cold Chain Logistics Solutions
Occupation	Cold Chain Operations
NSQF Level	5
Credits	2
Version	3.0
Last Reviewed Date	23/10/2024
Next Review Date	23/10/2027
NSQC Clearance Date	23/10/2024

Qualification Pack

DGT/VSQ/N0102: Employability Skills (60 Hours)

Description

This unit is about employability skills, Constitutional values, becoming a professional in the 21st Century, digital, financial, and legal literacy, diversity and Inclusion, English and communication skills, customer service, entrepreneurship, and apprenticeship, getting ready for jobs and career development.

Scope

The scope covers the following :

- Introduction to Employability Skills
- Constitutional values - Citizenship
- Becoming a Professional in the 21st Century
- Basic English Skills
- Career Development & Goal Setting
- Communication Skills
- Diversity & Inclusion
- Financial and Legal Literacy
- Essential Digital Skills
- Entrepreneurship
- Customer Service
- Getting ready for Apprenticeship & Jobs

Elements and Performance Criteria

Introduction to Employability Skills

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

- PC1.** identify employability skills required for jobs in various industries
- PC2.** identify and explore learning and employability portals

Constitutional values - Citizenship

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

- PC3.** recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.
- PC4.** follow environmentally sustainable practices

Becoming a Professional in the 21st Century

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

- PC5.** recognize the significance of 21st Century Skills for employment
- PC6.** practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life

Basic English Skills

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

Qualification Pack

- PC7.** use basic English for everyday conversation in different contexts, in person and over the telephone
- PC8.** read and understand routine information, notes, instructions, mails, letters etc. written in English
- PC9.** write short messages, notes, letters, e-mails etc. in English

Career Development & Goal Setting

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

- PC10.** understand the difference between job and career
- PC11.** prepare a career development plan with short- and long-term goals, based on aptitude

Communication Skills

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

- PC12.** follow verbal and non-verbal communication etiquette and active listening techniques in various settings
- PC13.** work collaboratively with others in a team

Diversity & Inclusion

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

- PC14.** communicate and behave appropriately with all genders and PwD
- PC15.** escalate any issues related to sexual harassment at workplace according to POSH Act

Financial and Legal Literacy

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

- PC16.** select financial institutions, products and services as per requirement
- PC17.** carry out offline and online financial transactions, safely and securely
- PC18.** identify common components of salary and compute income, expenses, taxes, investments etc
- PC19.** identify relevant rights and laws and use legal aids to fight against legal exploitation

Essential Digital Skills

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

- PC20.** operate digital devices and carry out basic internet operations securely and safely
- PC21.** use e- mail and social media platforms and virtual collaboration tools to work effectively
- PC22.** use basic features of word processor, spreadsheets, and presentations

Entrepreneurship

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

- PC23.** identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research
- PC24.** develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion
- PC25.** identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity

Customer Service

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

- PC26.** identify different types of customers
- PC27.** identify and respond to customer requests and needs in a professional manner.

Qualification Pack

PC28. follow appropriate hygiene and grooming standards

Getting ready for apprenticeship & Jobs

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

PC29. create a professional Curriculum vitae (Résumé)

PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively

PC31. apply to identified job openings using offline /online methods as per requirement

PC32. answer questions politely, with clarity and confidence, during recruitment and selection

PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. need for employability skills and different learning and employability related portals

KU2. various constitutional and personal values

KU3. different environmentally sustainable practices and their importance

KU4. Twenty first (21st) century skills and their importance

KU5. how to use English language for effective verbal (face to face and telephonic) and written communication in formal and informal set up

KU6. importance of career development and setting long- and short-term goals

KU7. about effective communication

KU8. POSH Act

KU9. Gender sensitivity and inclusivity

KU10. different types of financial institutes, products, and services

KU11. how to compute income and expenditure

KU12. importance of maintaining safety and security in offline and online financial transactions

KU13. different legal rights and laws

KU14. different types of digital devices and the procedure to operate them safely and securely

KU15. how to create and operate an e- mail account and use applications such as word processors, spreadsheets etc.

KU16. how to identify business opportunities

KU17. types and needs of customers

KU18. how to apply for a job and prepare for an interview

KU19. apprenticeship scheme and the process of registering on apprenticeship portal

Generic Skills (GS)

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

GS1. read and write different types of documents/instructions/correspondence

GS2. communicate effectively using appropriate language in formal and informal settings



Qualification Pack

- GS3.** behave politely and appropriately with all
- GS4.** how to work in a virtual mode
- GS5.** perform calculations efficiently
- GS6.** solve problems effectively
- GS7.** pay attention to details
- GS8.** manage time efficiently
- GS9.** maintain hygiene and sanitization to avoid infection

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Introduction to Employability Skills</i>	1	1	-	-
PC1. identify employability skills required for jobs in various industries	-	-	-	-
PC2. identify and explore learning and employability portals	-	-	-	-
<i>Constitutional values - Citizenship</i>	1	1	-	-
PC3. recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.	-	-	-	-
PC4. follow environmentally sustainable practices	-	-	-	-
<i>Becoming a Professional in the 21st Century</i>	2	4	-	-
PC5. recognize the significance of 21st Century Skills for employment	-	-	-	-
PC6. practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life	-	-	-	-
<i>Basic English Skills</i>	2	3	-	-
PC7. use basic English for everyday conversation in different contexts, in person and over the telephone	-	-	-	-
PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English	-	-	-	-
PC9. write short messages, notes, letters, e-mails etc. in English	-	-	-	-
<i>Career Development & Goal Setting</i>	1	2	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. understand the difference between job and career	-	-	-	-
PC11. prepare a career development plan with short- and long-term goals, based on aptitude	-	-	-	-
<i>Communication Skills</i>	2	2	-	-
PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings	-	-	-	-
PC13. work collaboratively with others in a team	-	-	-	-
<i>Diversity & Inclusion</i>	1	2	-	-
PC14. communicate and behave appropriately with all genders and PwD	-	-	-	-
PC15. escalate any issues related to sexual harassment at workplace according to POSH Act	-	-	-	-
<i>Financial and Legal Literacy</i>	2	3	-	-
PC16. select financial institutions, products and services as per requirement	-	-	-	-
PC17. carry out offline and online financial transactions, safely and securely	-	-	-	-
PC18. identify common components of salary and compute income, expenses, taxes, investments etc	-	-	-	-
PC19. identify relevant rights and laws and use legal aids to fight against legal exploitation	-	-	-	-
<i>Essential Digital Skills</i>	3	4	-	-
PC20. operate digital devices and carry out basic internet operations securely and safely	-	-	-	-
PC21. use e- mail and social media platforms and virtual collaboration tools to work effectively	-	-	-	-
PC22. use basic features of word processor, spreadsheets, and presentations	-	-	-	-

Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Entrepreneurship</i>	2	3	-	-
PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research	-	-	-	-
PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion	-	-	-	-
PC25. identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity	-	-	-	-
<i>Customer Service</i>	1	2	-	-
PC26. identify different types of customers	-	-	-	-
PC27. identify and respond to customer requests and needs in a professional manner.	-	-	-	-
PC28. follow appropriate hygiene and grooming standards	-	-	-	-
<i>Getting ready for apprenticeship & Jobs</i>	2	3	-	-
PC29. create a professional Curriculum vitae (Résumé)	-	-	-	-
PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively	-	-	-	-
PC31. apply to identified job openings using offline /online methods as per requirement	-	-	-	-
PC32. answer questions politely, with clarity and confidence, during recruitment and selection	-	-	-	-
PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements	-	-	-	-
NOS Total	20	30	-	-

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	DGT/VSQ/N0102
NOS Name	Employability Skills (60 Hours)
Sector	Cross Sectoral
Sub-Sector	Professional Skills
Occupation	Employability
NSQF Level	4
Credits	2
Version	1.0
Last Reviewed Date	08/05/2025
Next Review Date	30/04/2028
NSQC Clearance Date	08/05/2025

Qualification Pack

LSC/N8703: Administer grading line operations

Description

This OS unit is about administering sorting, grading, washing and drying for those goods that have been inspected and which adhere to quality specifications and requirements

Scope

The scope covers the following :

- Supervise sorting and grading of goods
- Supervise washing and drying of goods
- Schedule and monitor activities and progress through the grading line

Elements and Performance Criteria

Supervise sorting and grading of goods

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

- PC1.** Supervise primary sorting of goods for removal of spilled over, improperly sized, severely damaged, over mature or deformed units
- PC2.** Ensure appropriate disposal of rejected goods
- PC3.** Decide the criteria for grading of goods based on end user requirements- by quality, shelf-life, weight or market value, etc.
- PC4.** Ensure workers are well educated about the categories in which the goods have to be sorted/graded
- PC5.** Ensure the graded units are properly separated as per grades

Supervise washing and drying of goods

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

- PC6.** Ensure washing facility is clean and hygienic
- PC7.** Ensure water used for washing is appropriately chlorinated and is of good quality
- PC8.** Ensure water temperature is appropriate relative to farm produce being washed
- PC9.** Supervise waste water disposal is done in proper manner
- PC10.** Ensure excessive drying of goods is avoided to prevent wilting, shrinking and water loss

Schedule and monitoring activities and progress through the grading line

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

- PC11.** Plan the appropriate number of workers to be deployed in grading line operations
- PC12.** Ensure areas are properly covered and clean
- PC13.** Ensure proper positioning and posture of workers while working on the conveyor belt
- PC14.** Execute sample inspections/checks of the graded/sorted units
- PC15.** Ensure movement of goods from one stage to another is as per the planned schedule
- PC16.** Take corrective action in case of discrepancy

Knowledge and Understanding (KU)

Qualification Pack

The individual on the job needs to know and understand:

- KU1.** Company's reporting structure
- KU2.** Individual's role in cold chain process flow
- KU3.** Occupational health and safety standards
- KU4.** Quality control standards for perishable products
- KU5.** Company's work instructions on quality standards
- KU6.** Company's policies, standard operating procedures and governance structure
- KU7.** Risk and impact of not following defined procedures/work instructions
- KU8.** Company's personnel management and incentives rules
- KU9.** Clients and suppliers of the company
- KU10.** Appropriate grading criteria for goods
- KU11.** Extent of chlorination required for washing of fruits
- KU12.** Technique for measurement of hydration levels
- KU13.** Identification of goods based on grading categories
- KU14.** Appropriate oxygen and carbon-dioxide levels to be maintained in the grading line facility
- KU15.** Appropriate water temperature used for washing, for eg: it is recommended that fruit temperature is at least 5 c lower than liquid
- KU16.** Waste water recycling, reuse and disposal procedure
- KU17.** Time for which washed goods should be dried, in order to avoid shrinking and water loss
- KU18.** Appropriate time required for each stage of grading line operations
- KU19.** Correct posture and positioning of workers to ensure efficient execution of activities

Generic Skills (GS)

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

- GS1.** Read product codes, quantity and specifications provided
- GS2.** Read instructions for safety precautions and material handling
- GS3.** Maintain records of goods passing through each stage of grading line
- GS4.** Mention details of rejected goods, along with reason for rejection
- GS5.** Communicate clear instructions to workers about handling techniques
- GS6.** Give instructions about the identification of goods for different categories
- GS7.** Decide criteria for grading of goods, whether based on market value, weight
- GS8.** Dispose waste water after washing of goods
- GS9.** Time schedule for activities in each stage of grading line
- GS10.** Re-schedule and re-allocate workers across activities in case of requirement
- GS11.** Customer requirements with respect to quality expectations
- GS12.** Enforce hygienic conditions as per product handling requirements
- GS13.** Segregate goods as per customer requirements
- GS14.** Handle delays in one stage of grading line operations so that it doesn't affect the other stage

Qualification Pack

- GS15.** Handle the situation if units of one grade get mixed with units of other grade
- GS16.** Plan the appropriate number of workers to be deployed in grading line operations
- GS17.** Make changes in grading line temperature conditions based on climatic changes
- GS18.** Decide appropriate time period for which goods should be dried in order to avoid excessive water loss
- GS19.** Decide extent of chlorination required in water used for washing
- GS20.** Treat the waste water after washing; whether it should be disposed or recycled or reused

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Supervise sorting and grading of goods</i>	10	20	-	2.5
PC1. Supervise primary sorting of goods for removal of spilled over, improperly sized, severely damaged, over mature or deformed units	2	4	-	0.5
PC2. Ensure appropriate disposal of rejected goods	2	4	-	0.5
PC3. Decide the criteria for grading of goods based on end user requirements- by quality, shelf-life, weight or market value, etc.	2	4	-	0.5
PC4. Ensure workers are well educated about the categories in which the goods have to be sorted/graded	2	4	-	0.5
PC5. Ensure the graded units are properly separated as per grades	2	4	-	0.5
<i>Supervise washing and drying of goods</i>	10	20	-	2.5
PC6. Ensure washing facility is clean and hygienic	2	4	-	0.5
PC7. Ensure water used for washing is appropriately chlorinated and is of good quality	2	4	-	0.5
PC8. Ensure water temperature is appropriate relative to farm produce being washed	2	4	-	0.5
PC9. Supervise waste water disposal is done in proper manner	2	4	-	0.5
PC10. Ensure excessive drying of goods is avoided to prevent wilting, shrinking and water loss	2	4	-	0.5
<i>Schedule and monitoring activities and progress through the grading line</i>	10	20	-	5
PC11. Plan the appropriate number of workers to be deployed in grading line operations	2	4	-	1

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. Ensure areas are properly covered and clean	2	4	-	1
PC13. Ensure proper positioning and posture of workers while working on the conveyor belt	2	4	-	1
PC14. Execute sample inspections/checks of the graded/sorted units	2	4	-	1
PC15. Ensure movement of goods from one stage to another is as per the planned schedule	1	2	-	0.5
PC16. Take corrective action in case of discrepancy	1	2	-	0.5
NOS Total	30	60	-	10



Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	LSC/N8703
NOS Name	Administer grading line operations
Sector	Logistics
Sub-Sector	Cold Chain Logistics Solutions
Occupation	Cold Chain Operations
NSQF Level	5
Credits	2
Version	2.0
Last Reviewed Date	23/10/2024
Next Review Date	23/10/2027
NSQF Clearance Date	23/10/2024

Qualification Pack

LSC/N8705: Administer Ripening chamber operations

Description

This OS unit is about management and supervision of goods from the time they enter the ripening chamber till the time they complete the ripening cycle and are transferred to cold storage

Scope

The scope covers the following :

- This unit/task covers the following:
- Ensure placement of goods in the ripening chamber
- Supervise chamber conditions during the ripening cycle
- Ensure space management in the ripening chamber

Elements and Performance Criteria

Ensure placement of fruits in the ripening chamber

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

- PC1.** Ensure ripening gas level (ethylene) is maintained at appropriate level
- PC2.** Ensure appropriate level of oxygen and carbon d-oxide are maintained (low oxygen and high carbon di-oxide levels slow the ripening process, stop the development of some storage disorders such as scald in apples, and slows the growth of decay organisms)
- PC3.** Supervise air path control mechanism for even distribution of chilled air
- PC4.** Supervise temperature maintenance inside the ripening chamber
- PC5.** Ensure exhaust fans are working properly
- PC6.** Ensure ripening chamber operator is aware of changes required to be made to chamber conditions over the ripening cycle

Supervise chamber conditions during the ripening cycle

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

- PC7.** Supervise measurement and evaluation of maturity stage of goods
- PC8.** Ensure products of appropriate maturity are transferred to ripening chamber
- PC9.** Ensure produce is loaded into the refrigerated room or transportation truck without undue spoilage
- PC10.** Supervise maintenance of pre-engineered building panels for walls and roofing, material handling equipments and refrigeration system
- PC11.** Ensure appropriate crates are used to ensure uniform ripening

Ensure space management in the ripening chamber

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

- PC12.** Ensure refrigerated fans are appropriately placed to ensure uniform circulation of cold air within the room and around the produce
- PC13.** Identify appropriate number of days for which goods should be kept in ripening chambers
- PC14.** Ensure alternate use of ripening chamber is done in case of availability of space

Qualification Pack

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** Company's reporting structure
- KU2.** Individual's role in cold chain process flow
- KU3.** Occupational health and safety standards
- KU4.** Quality control standards for perishable products
- KU5.** Company's work instructions on quality standards
- KU6.** Company's policies, standard operating procedures and governance structure
- KU7.** Risk and impact of not following defined procedures/work instructions
- KU8.** Company's personnel management and incentives rules
- KU9.** Clients and suppliers of the company
- KU10.** Appropriate level of ethylene or any other ripening gas required based on ripening maturity
- KU11.** Units used for measurement and identification of maturity level, for eg: brix is the unit used to measure sugar content and ripening maturity of fruits
- KU12.** Appropriate maturity level at which fruits should enter the ripening chamber
- KU13.** Changes required in the temperature, humidity and gas level over the ripening cycle
- KU14.** Variations in the duration of ripening cycle across varieties of products. For eg: for fruits, the ripening cycle is of 4-6 days
- KU15.** Which crates are suitable to enable uniform ripening
- KU16.** Proper placement of refrigeration fans to ensure air circulation throughout the chamber
- KU17.** Basic engineering requirements for walls and roofing, material handling equipments and refrigeration system
- KU18.** Proper height of stack of crates to be maintained for proper ripening.

Generic Skills (GS)

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

- GS1.** Instructions on handling requirements
- GS2.** Details of goods entering the ripening chamber
- GS3.** Maintain details of goods placed inside the ripening chamber
- GS4.** Record details of goods transferred out of the ripening chamber
- GS5.** Interface effectively with internal team across departments
- GS6.** Negotiate time frame and deliver goods to next work process on time
- GS7.** Take decision of ripening maturity of goods
- GS8.** Take decision on number of workers to be deployed in ripening chamber and fitness levels
- GS9.** Appropriate placement and stacking of goods to ensure uniform ripening
- GS10.** Chamber conditions to be maintained in every stage of ripening cycle for required duration
- GS11.** Customer demand and quality requirements
- GS12.** Maintain quality and hygienic conditions to the extent expected by customers



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- GS13.** Resolve basic problems in walls, roofing etc.
- GS14.** Take action in case of over ripening or under ripening of goods
- GS15.** Estimate the value of the delivered goods
- GS16.** Assess whether the product meets the required specification
- GS17.** Spot process disruptions and delays
- GS18.** Make variations with every passing stage of ripening cycle

Qualification Pack

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Ensure placement of fruits in the ripening chamber</i>	14	24	-	4
PC1. Ensure ripening gas level (ethylene) is maintained at appropriate level	3	4	-	1
PC2. Ensure appropriate level of oxygen and carbon d-oxide are maintained (low oxygen and high carbon di-oxide levels slow the ripening process, stop the development of some storage disorders such as scald in apples, and slows the growth of decay organisms)	3	4	-	1
PC3. Supervise air path control mechanism for even distribution of chilled air	2	4	-	0.5
PC4. Supervise temperature maintenance inside the ripening chamber	2	4	-	0.5
PC5. Ensure exhaust fans are working properly	2	4	-	0.5
PC6. Ensure ripening chamber operator is aware of changes required to be made to chamber conditions over the ripening cycle	2	4	-	0.5
<i>Supervise chamber conditions during the ripening cycle</i>	10	21	-	3
PC7. Supervise measurement and evaluation of maturity stage of goods	2	4	-	0.5
PC8. Ensure products of appropriate maturity are transferred to ripening chamber	2	4	-	0.5
PC9. Ensure produce is loaded into the refrigerated room or transportation truck without undue spoilage	2	4	-	0.5
PC10. Supervise maintenance of pre-engineered building panels for walls and roofing, material handling equipments and refrigeration system	2	4	-	0.5
PC11. Ensure appropriate crates are used to ensure uniform ripening	2	5	-	1
<i>Ensure space management in the ripening chamber</i>	6	15	-	3

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. Ensure refrigerated fans are appropriately placed to ensure uniform circulation of cold air within the room and around the produce	2	5	-	1
PC13. Identify appropriate number of days for which goods should be kept in ripening chambers	2	5	-	1
PC14. Ensure alternate use of ripening chamber is done in case of availability of space	2	5	-	1
NOS Total	30	60	-	10

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	LSC/N8705
NOS Name	Administer Ripening chamber operations
Sector	Logistics
Sub-Sector	Cold Chain Logistics Solutions
Occupation	Cold Chain Operations
NSQF Level	5
Credits	2
Version	2.0
Last Reviewed Date	23/10/2024
Next Review Date	23/10/2027
NSQC Clearance Date	23/10/2024

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

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 criterion
5. To pass the Qualification Pack, every trainee should score a minimum of 70% for NSQF level 4 & above job roles and 50% for NSQF level 1 to 3 job roles
6. In case of unsuccessful completion, the trainee may seek re-assessment on the Qualification Pack

Qualification Pack

Minimum Aggregate Passing % at QP Level : 70

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

Minimum Passing % at NOS Level: 50

(Please note: A Trainee must score the minimum percentage for each NOS separately as well as on the QP as a whole.)

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
LSC/N8701.Supervise loading and unloading operations	30	60	0	10	100	15
LSC/N8702.Oversee inspection of goods at the time of arrival	30	60	0	10	100	15
LSC/N8704.Supervise pre-cooling operations	30	60	0	10	100	15
LSC/N8706.Manage placement of goods in controlled conditions	30	60	0	10	100	10
LSC/N8707.Supervise product protection and packaging	30	60	0	10	100	10
LSC/N9913.Supervise floor operations and workforce management	30	60	0	10	100	10
LSC/N9901.Maintain food and personnel safety, health and hygiene in cold storage plant	30	60	0	10	100	10
DGT/VSQ/N0102.Employability Skills (60 Hours)	20	30	-	-	50	5
Total	230	450	-	70	750	90

Elective: 1 Grading line operations

Qualification Pack

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
LSC/N8703.Administer grading line operations	30	60	0	10	100	10
Total	30	60	-	10	100	10

Elective: 2 Ripening chamber operations

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
LSC/N8705.Administer Ripening chamber operations	30	60	0	10	100	10
Total	30	60	-	10	100	10



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.

Qualification Pack

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.