Assistant Technician -Cold Storage

QP Code: FIC/Q7004

Version: 4.0

NSQF Level: 3

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Qualification Pack

FIC/Q7004: Assistant Technician -Cold Storage

Brief Job Description

An Assistant Technician -Cold Storage is responsible for handling refrigerant charging and storage of food in the cold storage by maintaining storage parameters such as temperature and relative humidity. The individual carries out basic maintenance of the refrigeration equipment and the relevant documentation.

Personal Attributes

The individual should be physically fit to work for long durations. The person should have the ability to plan, organize, prioritize, calculate and solve problems. The individual should have a mechanical aptitude with effective verbal and written communication skills.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

1. FIC/N7010: Prepare for the cold storage operations

2. FIC/N7011: Handle cold storage facility for storing food

3. FIC/N9906: Apply food safety guidelines in Food Processing

4. DGT/VSQ/N0101: Employability Skills (30 Hours)

Qualification Pack (QP) Parameters

Sector	Food Processing
Sub-Sector	Fruits and Vegetables, Dairy Products, Meat and Poultry, Fish and Sea Food
Occupation	Refrigeration
Country	India
NSQF Level	3
Credits	10
Aligned to NCO/ISCO/ISIC Code	NCO-2015/7127.0.100

Minimum Educational Qualification & Experience	10th grade pass OR 8th grade pass with 3 Years of experience in food processing OR Previous relevant Qualification of NSQF Level 2 with 3 Years of experience in food processing OR Previous relevant Qualification of NSQF Level 2.5 with 1.5 years of experience in food processing
Minimum Level of Education for Training in School	Not Applicable
Pre-Requisite License or Training	NA
Minimum Job Entry Age	16 Years
Last Reviewed On	NA
Next Review Date	22/10/2027
NSQC Approval Date	22/10/2024
Version	4.0
Reference code on NQR	QG-04-FI-03329-2024-V3-FICSI
NQR Version	3.0

Remarks:

NA

FIC/N7010: Prepare for the cold storage operations

Description

This unit is about preparing for the cold storage operations, which includes work area preparation and basic maintenance of the cold storage equipment

Scope

The scope covers the following :

- Prepare the work area
- Prepare for operations

Elements and Performance Criteria

Prepare the work area

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

PC1. clean the work area using the approved disinfectants and sanitizers to remove dust, dirt and pests

PC2. collect and dispose of the waste materials as per the standard procedures and industry requirements

PC3. identify the potential safety hazards in the work area, e.g. obstructions and slippery floor, and take appropriate preventive measures

PC4. check for proper insulation in the cold storage to maintain consistent temperature and minimize energy consumption

PC5. ensure adequate lighting in the work area for efficient and safe operations

PC6. set up shelving or storage racks according to the layout plan, ensuring adequate spacing for air circulation

Prepare for operations

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

PC7. check for the availability of appropriate Personal Protective Equipment (PPE), such as gloves and safety goggles, insulated clothing

PC8. ensure the availability of appropriate maintenance tools and equipment and material handling equipment for the cold storage operations

PC9. conduct basic tests to check for the correct functioning of the cold storage equipment

PC10. carry out basic repair and maintenance of the cold storage equipment, following the manufacturer's guidelines

PC11. coordinate with the supervisor for complex repairs requiring professional assistance

PC12. clean the equipment using the approved disinfectants and relevant cleaning accessories

PC13. conduct temperature mapping to ensure uniform cooling throughout the storage area

PC14. establish proper loading procedures to prevent overloading and ensure even distribution of products

PC15. carry out appropriate documentation concerning the cold storage preparation activities

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. the functions of different components of a refrigeration system, e.g. compressor, condenser, evaporator, expansion valve

KU2. the refrigeration cycle and how it works

KU3. the lockout/tagout (LOTO) procedures to safely de-energize equipment and prevent accidental startup

KU4. the safety data sheets (SDS) for refrigerants and cleaning chemicals

KU5. the relevant health, safety, and environmental regulations

KU6. the food safety standards concerning the storage of perishable items

KU7. the importance of optimum airflow and ventilation to ensure uniform cooling

KU8. the safe use of relevant PPE, including gloves, safety glasses, and safety shoes

KU9. the importance of removing any debris, obstructions, or unnecessary materials from the work area

KU10. the process of cleaning floors, walls, and ceilings to remove dust, dirt, and contaminants

KU11. different types of chemicals, materials and tools required for the cleaning and maintenance of tools and equipment

KU12. the process of cleaning and disinfecting the cold storage tools and equipment

KU13. the safe use and storage of relevant sanitizers and disinfectants

KU14. the importance of adequate lighting in the work area

KU15. how to conduct temperature mapping to ensure uniform cooling throughout the storage area

KU16. the appropriate shelving or storage racks for a cold storage facility

KU17. the importance of ensuring adequate spacing in the cold storage for optimum air circulation

KU18. the proper loading procedures for cold storage

KU19. use of relevant tools and equipment for maintenance and repairs of cold storage equipment

KU20. use of measuring instruments (thermometers, multimeters, pressure gauges)

KU21. the process of conducting a visual inspection of refrigeration equipment components for signs of wear, damage, or leaks

KU22. the importance of ensuring safe and secure electrical and mechanical connections

KU23. how to test the performance of the refrigeration system

KU24. the appropriate corrective measures for any unusual noises, vibrations, or operational issues in the refrigeration system

KU25. the process of cleaning or replacing air filters and strainers to ensure proper airflow and prevent contamination

KU26. how to measure the refrigerant levels to ensure they are within the manufacturers specified range

KU27. the use of a leak detector to check for refrigerant leaks and how to plug the leakages

KU28. the use of thermometers to verify the accuracy of temperature sensors and thermometers

KU29. how to calibrate control systems, thermostats, and humidity controls to ensure their correct operation

KU30. how to test the alarm systems to ensure their correct functioning in case of temperature deviations or system faults

Generic Skills (GS)

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

GS1. maintain work-related notes and records

GS2. read the relevant literature to learn about the latest developments in the field of work

GS3. listen attentively to understand the information/ instructions being shared by the speaker

GS4. communicate clearly and politely with co-workers and clients

GS5. coordinate with co-workers to achieve work objectives

GS6. plan and prioritize tasks to ensure timely completion

GS7. identify possible disruptions to work and take appropriate preventive measures

GS8. make quick decisions to deal with workplace emergencies/ accidents

GS9. evaluate all possible solutions to a problem to select the best one

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Prepare the work area	**15**	**25**	**-**	**10**
PC1. clean the work area using the approved disinfectants and sanitizers to remove dust, dirt and pests	3	5	-	2
PC2. collect and dispose of the waste materials as per the standard procedures and industry requirements	2	4	-	2
PC3. identify the potential safety hazards in the work area, e.g. obstructions and slippery floor, and take appropriate preventive measures	2	4	-	1
PC4. check for proper insulation in the cold storage to maintain consistent temperature and minimize energy consumption	3	4	-	2
PC5. ensure adequate lighting in the work area for efficient and safe operations	2	4	-	2
PC6. set up shelving or storage racks according to the layout plan, ensuring adequate spacing for air circulation	3	4	-	1
Prepare for operations	**15**	**25**	**-**	**10**
PC7. check for the availability of appropriate Personal Protective Equipment (PPE), such as gloves and safety goggles, insulated clothing	2	3	-	1
PC8. ensure the availability of appropriate maintenance tools and equipment and material handling equipment for the cold storage operations	2	3	-	2
PC9. conduct basic tests to check for the correct functioning of the cold storage equipment	2	4	-	1
PC10. carry out basic repair and maintenance of the cold storage equipment, following the manufacturer's guidelines	2	4	-	2
PC11. coordinate with the supervisor for complex repairs requiring professional assistance	1	3	-	2

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. clean the equipment using the approved disinfectants and relevant cleaning accessories	2	3	-	0.5
PC13. conduct temperature mapping to ensure uniform cooling throughout the storage area	1	2	-	0.5
PC14. establish proper loading procedures to prevent overloading and ensure even distribution of products	1	1	-	0.5
PC15. carry out appropriate documentation concerning the cold storage preparation activities	2	2	-	0.5
NOS Total	**30**	**50**	**-**	**20**

National Occupational Standards (NOS) Parameters

NOS Code	FIC/N7010
NOS Name	Prepare for the cold storage operations
Sector	Food Processing
Sub-Sector	Fruits and Vegetables, Dairy Products, Meat and Poultry, Fish and Sea Food
Occupation	Refrigeration
NSQF Level	3
Credits	3
Version	2.0
Last Reviewed Date	22/10/2024
Next Review Date	22/10/2027
NSQC Clearance Date	22/10/2024

FIC/N7011: Handle cold storage facility for storing food

Description

This unit is about handling refrigeration system and components and storing food in the cold storage room/chamber while maintaining storage parameters as per the specifications and organizational standards

Scope

The scope covers the following :

- Start the refrigeration system
- Store food products in the cold storage room
- Inspect, repair/replace the refrigeration system and components
- Maintain the refrigeration system and components
- Carry out the appropriate documentation

Elements and Performance Criteria

Start the refrigeration system

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

PC1. check the compressor discharge and suction pressures after starting the refrigeration system to ensure they are in the normal operating range

PC2. check for proper refrigerant charge

PC3. monitor and maintain the required compressor oil level

PC4. check the voltage and amperage at the compressor terminals

PC5. check the piping and electrical connections for vibration and take the necessary corrective measures

PC6. check fans on the evaporator coil and condensing unit of the air-cooled condenser to ensure they are operational and turning in the correct direction

PC7. check the cooling tower of the water-cooled condenser to ensure there is no refrigerant leakage

PC8. set the defrost control/ timer clock to the required duration and verify the defrost initiation settings

PC9. set the temperature control to the desired temperature range

PC10. check the functioning and performance of sensors and temperature measuring device

Store food products in the cold storage room

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

PC11. determine the work requirements

PC12. check the operation of the cooling equipment to ensure the readiness of the cold storage facility for use

PC13. calibrate the temperature and humidity measuring instruments of the storage facility

PC14. check the quality of the product to be stored in the cold storage facility based on the relevant physical parameter

PC15. check the product packaging to ensure it is intact

PC16. set the appropriate storage room/chamber parameters, such as temperature and humidity required to store different types of food products as per the storage parameter chart

PC17. check readings to ensure the set storage parameters and make the necessary adjustments or set controls in the PLC and monitor system for the computerized cold storage units

PC18. check the weight and temperature of the food products

PC19. store the food products in cold storage using the appropriate tools and equipment

PC20. check and ensure optimum air circulation between the cartons/ packages in the cold storage

PC21. maintain the storage room parameters during the entire storage period, checking and adjusting the temperature and humidity, as required

PC22. check the temperature of air and stored food periodically to ensure conformance to the applicable specifications and standards

PC23. examine the storage products periodically for decay, mold growth, sprouting, shrivelling, etc

PC24. maintain the products in cold storage for the recommended duration

PC25. check the temperature, weight, and quality of the food products retrieved from the cold storage

PC26. identify and segregate the agricultural produce with shrivelling, freezer burns, mould growth, deterioration, etc

PC27. report any issues, such as equipment malfunction to the supervisor and take the suggested corrective action

Inspect, repair/replace the refrigeration system and components

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

PC28. conduct periodic inspections of the refrigeration system and components for correct operation

PC29. check the operating conditions and identify the need for repair or adjustment

PC30. detect refrigerant leaks following the appropriate methods and take appropriate corrective action, including recovering and recharging the refrigerant

PC31. identify the malfunctioning of components following the appropriate fault detection methods

PC32. repair or replace the faulty components following the equipment manufacturer's guidelines

PC33. test for the correct operation of equipment after reassembling following repair

PC34. charge the system with the correct refrigerant, as required

PC35. maintain the required operating conditions in the cold storage for the efficient operation of the refrigeration equipment

Maintain the refrigeration system and components

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

PC36. carry out periodic maintenance of the refrigeration system as per the manufacturer's guidelines

PC37. check the evaporators for ice accumulation/proper defrosting and wash the evaporator coils to remove dust and foreign materials drawn into the fins

PC38. check the evaporator and condenser fan blades for fractures

PC39. carry out maintenance of the fan, including cleaning, tightening of fan screws, lubrication, and replacing worn-out fan blades and faulty fan motor

PC40. check for the correct operation of defrost controls and the correct position of defrost heaters to ensure optimum heat transfer to the evaporator coil

PC41. check the voltage at each heater terminal and ensure heater terminals are in good condition

PC42. identify and remove foreign materials from the drain pan to ensure proper drainage and prevent blockages and consequent water overflow or ice buildup

PC43. check the drain line heater to ensure that it functions correctly and prevents ice buildup, potential blockages and consequent system failures

PC44. replace the worn-out condenser motor in the compressor unit

PC45. check the electrical components and tighten all electrical connections

PC46. identify and replace the damaged wiring

PC47. check and ensure proper functioning of pressure and safety controls, solenoid valves, and cold room temperature thermostat

PC48. check and maintain the recommended oil level in the compressor unit

PC49. clean the condenser at appropriate intervals as per the manufacturer's guidelines

PC50. check the condition of refrigerant line insulation and replace it, as necessary

PC51. check the refrigerant level to ensure it is as recommended

PC52. check for refrigerant leakages and take appropriate action to plug leakages, as required

Carry out the appropriate documentation

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

PC53. maintain the daily inventory records, including, product description, batch number, Stock Keeping Unit (SKU), quantity, weight and storage location

PC54. update the daily cold storage stock records, accounting for the receipt, dispatch and handling of food products

PC55. track the expiration or best-before dates of perishable items and follow the FIFO technique to maintain the stock quality

PC56. maintain the temperature records, including monitoring logs, temperature readings and deviations

PC57. carry out appropriate documentation concerning the scheduled and completed maintenance activities for refrigeration

PC58. maintain records of safety inspections, internal audits, quality checks and any issues identified and resolved, in compliance with the applicable regulations

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. the applicable Food Safety and Standards Authority of India (FSSAI) regulations concerning food safety, product storage, worker safety in the cold storage environment, etc

KU2. the refrigeration principles, techniques and practices

KU3. different types of refrigerants and the procedure to handle them

KU4. different types of produce and food products suitable to be stored in cold storage

KU5. the optimum temperature and humidity required to store different types of food products in cold storage to prolong their shelf life

KU6. the benefits of maintaining and following a chart for storing different types of produce in cold storage and their storage parameters

KU7. how to operate the refrigeration equipment to control the temperature and humidity in a cold storage facility

KU8. the procedure to monitor the produce and food products storage in the cold storage

KU9. the parameters to be evaluated concerning the performance of refrigeration systems

KU10. how to check the performance of refrigeration systems

KU11. the procedure of loading, storing and unloading various types of food in the cold storage facility

KU12. the procedure for charging refrigerant in the refrigeration system

KU13. the procedure for identifying and rectifying faults in the refrigeration system

KU14. the basics of replacing faulty components of the refrigeration systems

KU15. the procedure and sequence for performing preventative maintenance of the refrigeration system and its components

KU16. how to calculate the refrigerant required for the cold storage area

KU17. the risks associated with working in extreme temperatures and the appropriate safety measures

KU18. the quality parameters to be used to assess the quality of produce and food products storage in the cold storage

KU19. the relevant Good Manufacturing Practices (GMP)

KU20. the application of Hazard Analysis and Critical Control Points (HACCP) to cold storage operations

KU21. the importance of maintaining the record of cold storage equipment inspections, maintenance activities, and calibration activities

KU22. the importance of training the cold storage personnel on the operation of the refrigeration system, safety protocols, and emergency procedures

KU23. different types of documentation requirements concerning cold storage operations

Generic Skills (GS)

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

GS1. maintain work-related notes and records

GS2. read the relevant literature to learn about the latest developments in the field of work

GS3. listen attentively to understand the information/ instructions being shared by the speaker

GS4. communicate clearly and politely with co-workers and clients

GS5. coordinate with co-workers to achieve work objectives

GS6. plan and prioritize tasks to ensure timely completion

GS7. identify possible disruptions to work and take appropriate preventive measures

GS8. make quick decisions to deal with workplace emergencies/ accidents

GS9. evaluate all possible solutions to a problem to select the best one

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Start the refrigeration system	**5**	**9**	**-**	**3**
PC1. check the compressor discharge and suction pressures after starting the refrigeration system to ensure they are in the normal operating range	0.5	1	-	0.5
PC2. check for proper refrigerant charge	0.5	0.5	-	-
PC3. monitor and maintain the required compressor oil level	0.5	1	-	0.5
PC4. check the voltage and amperage at the compressor terminals	0.5	0.5	-	0.5
PC5. check the piping and electrical connections for vibration and take the necessary corrective measures	0.5	1	-	-
PC6. check fans on the evaporator coil and condensing unit of the air-cooled condenser to ensure they are operational and turning in the correct direction	0.5	1	-	-
PC7. check the cooling tower of the water-cooled condenser to ensure there is no refrigerant leakage	0.5	1	-	0.5
PC8. set the defrost control/ timer clock to the required duration and verify the defrost initiation settings	0.5	1	-	0.5
PC9. set the temperature control to the desired temperature range	0.5	1	-	-
PC10. check the functioning and performance of sensors and temperature measuring device	0.5	1	-	0.5
Store food products in the cold storage room	**9**	**14.5**	**-**	**5.5**
PC11. determine the work requirements	0.5	1	-	-
PC12. check the operation of the cooling equipment to ensure the readiness of the cold storage facility for use	0.5	1	-	0.5

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC13. calibrate the temperature and humidity measuring instruments of the storage facility	0.5	1	-	0.5
PC14. check the quality of the product to be stored in the cold storage facility based on the relevant physical parameter	0.5	0.5	-	0.5
PC15. check the product packaging to ensure it is intact	0.5	0.5	-	-
PC16. set the appropriate storage room/chamber parameters, such as temperature and humidity required to store different types of food products as per the storage parameter chart	0.5	1	-	0.5
PC17. check readings to ensure the set storage parameters and make the necessary adjustments or set controls in the PLC and monitor system for the computerized cold storage units	0.5	0.5	-	0.5
PC18. check the weight and temperature of the food products	0.5	0.5	-	0.5
PC19. store the food products in cold storage using the appropriate tools and equipment	1	0.5	-	0.5
PC20. check and ensure optimum air circulation between the cartons/ packages in the cold storage	0.5	1	-	-
PC21. maintain the storage room parameters during the entire storage period, checking and adjusting the temperature and humidity, as required	0.5	1	-	0.5
PC22. check the temperature of air and stored food periodically to ensure conformance to the applicable specifications and standards	0.5	1	-	0.5
PC23. examine the storage products periodically for decay, mold growth, sprouting, shrivelling, etc	0.5	1	-	-
PC24. maintain the products in cold storage for the recommended duration	0.5	1	-	-
PC25. check the temperature, weight, and quality of the food products retrieved from the cold storage	0.5	1	-	0.5

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC26. identify and segregate the agricultural produce with shrivelling, freezer burns, mould growth, deterioration, etc	0.5	1	-	0.5
PC27. report any issues, such as equipment malfunction to the supervisor and take the suggested corrective action	0.5	1	-	-
Inspect, repair/replace the refrigeration system and components	**4**	**7**	**-**	**3**
PC28. conduct periodic inspections of the refrigeration system and components for correct operation	0.5	1	-	0.5
PC29. check the operating conditions and identify the need for repair or adjustment	0.5	1	-	-
PC30. detect refrigerant leaks following the appropriate methods and take appropriate corrective action, including recovering and recharging the refrigerant	0.5	1	-	0.5
PC31. identify the malfunctioning of components following the appropriate fault detection methods	0.5	1	-	0.5
PC32. repair or replace the faulty components following the equipment manufacturer's guidelines	0.5	1	-	0.5
PC33. test for the correct operation of equipment after reassembling following repair	0.5	1	-	0.5
PC34. charge the system with the correct refrigerant, as required	0.5	0.5	-	0.5
PC35. maintain the required operating conditions in the cold storage for the efficient operation of the refrigeration equipment	0.5	0.5	-	-
Maintain the refrigeration system and components	**9**	**14.5**	**-**	**5.5**
PC36. carry out periodic maintenance of the refrigeration system as per the manufacturer's guidelines	0.5	1	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC37. check the evaporators for ice accumulation/proper defrosting and wash the evaporator coils to remove dust and foreign materials drawn into the fins	0.5	1	-	0.5
PC38. check the evaporator and condenser fan blades for fractures	0.5	1	-	0.5
PC39. carry out maintenance of the fan, including cleaning, tightening of fan screws, lubrication, and replacing worn-out fan blades and faulty fan motor	0.5	0.5	-	0.5
PC40. check for the correct operation of defrost controls and the correct position of defrost heaters to ensure optimum heat transfer to the evaporator coil	0.5	0.5	-	-
PC41. check the voltage at each heater terminal and ensure heater terminals are in good condition	0.5	1	-	0.5
PC42. identify and remove foreign materials from the drain pan to ensure proper drainage and prevent blockages and consequent water overflow or ice buildup	0.5	0.5	-	0.5
PC43. check the drain line heater to ensure that it functions correctly and prevents ice buildup, potential blockages and consequent system failures	0.5	0.5	-	0.5
PC44. replace the worn-out condenser motor in the compressor unit	1	0.5	-	0.5
PC45. check the electrical components and tighten all electrical connections	0.5	1	-	-
PC46. identify and replace the damaged wiring	0.5	1	-	0.5
PC47. check and ensure proper functioning of pressure and safety controls, solenoid valves, and cold room temperature thermostat	0.5	1	-	0.5
PC48. check and maintain the recommended oil level in the compressor unit	0.5	1	-	-
PC49. clean the condenser at appropriate intervals as per the manufacturer's guidelines	0.5	1	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC50. check the condition of refrigerant line insulation and replace it, as necessary	0.5	1	-	0.5
PC51. check the refrigerant level to ensure it is as recommended	0.5	1	-	0.5
PC52. check for refrigerant leakages and take appropriate action to plug leakages, as required	0.5	1	-	-
Carry out the appropriate documentation	**3**	**5**	**-**	**3**
PC53. maintain the daily inventory records, including, product description, batch number, Stock Keeping Unit (SKU), quantity, weight and storage location	0.5	1	-	0.5
PC54. update the daily cold storage stock records, accounting for the receipt, dispatch and handling of food products	0.5	1	-	0.5
PC55. track the expiration or best-before dates of perishable items and follow the FIFO technique to maintain the stock quality	0.5	1	-	0.5
PC56. maintain the temperature records, including monitoring logs, temperature readings and deviations	0.5	1	-	0.5
PC57. carry out appropriate documentation concerning the scheduled and completed maintenance activities for refrigeration	0.5	0.5	-	0.5
PC58. maintain records of safety inspections, internal audits, quality checks and any issues identified and resolved, in compliance with the applicable regulations	0.5	0.5	-	0.5
NOS Total	**30**	**50**	**-**	**20**

Qualification Pack

National Occupational Standards (NOS) Parameters

NOS Code	FIC/N7011
NOS Name	Handle cold storage facility for storing food
Sector	Food Processing
Sub-Sector	Fruits and Vegetables, Dairy Products, Meat and Poultry, Fish and Sea Food
Occupation	Refrigeration
NSQF Level	3
Credits	5
Version	2.0
Last Reviewed Date	22/10/2024
Next Review Date	22/10/2027
NSQC Clearance Date	22/10/2024

FIC/N9906: Apply food safety guidelines in Food Processing

Description

This unit covers the essential components of food safety, Good Manufacturing Practices (GMP), and personal hygiene in the food industry. It emphasizes the importance of individuals working in the food industry in protecting the health and well-being of consumers by following food safety protocols and procedures and ensuring the production of safe and high-quality food products.

Scope

The scope covers the following :

- Apply personal hygiene and follow Good Manufacturing practices at the workplace.
- Implement Food Safety and pre-requisite programs (PRP) at the workplace.

Elements and Performance Criteria

Apply personal hygiene and follow Good Manufacturing practices at workplace

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

PC1.   PC1. follow a site relevant documented procedure for Personal Hygiene and Visitor/ Contractor rules.

PC2.   PC2. follow work instructions at levels of employees inside a food manufacturing site and ensure that the relevant instructions are well communicated and being followed at the fixed timelines.

PC3.   PC3. ensure timely participate and carry out the relevant training and awareness sessions on personal hygiene, GMP, and related topics.

PC4.   PC4.ensure timely medical examination from a prescribed and authorized doctor and comply with the guidelines of Schedule IV as described in Food Safety Standard Authority of India (FSSAI) guidelines.

PC5.   PC5. fill in data in the daily monitoring checklist related to personal hygiene, food safety, and GMP.

PC6.   • PC6. follow a site-relevant documented procedure and area-wise work instructions for Good Manufacturing Practices (GMP) to be followed on the site.
• procedure: Hand washing requirements, Gowning & De gowning protocols, cleaning, and sanitation of employee lockers, follow the protocols as laid down in the different categories of processing areas like Low Risk, High Risk, High Care areas, etc.

PC7.   PC7. follow all validated Do's & Don'ts inside a food manufacturing firm.

PC8.   PC8. follow man and materials movement throughout the production facility, to restrict unwanted hazards to cross-contaminate the products which are being manufactured in the facility.

PC9.   PC9. refer to the process flow charts, HACCP summary plan, and critical process parameters in each and respective areas of the production line.

PC10.   PC10. identify the material requirements such as manufacturing equipments, Utensils, and other processing aids, cleaning chemicals, and cleaning work instructions in all the relevant areas of the manufacturing facility. Also, a special focus shall be given to Allergens and their risks. Wherever required, the allergen requirements shall be separately addressed.

PC11. PC11. ensure to properly tag and number all the equipment, machinery, tools, and other processing aids to keep proper traceability of the product being manufactured and handled at the site.

PC12. PC12. follow and implement all training and awareness guidelines in the manufacturing area and regularly participate in training effectiveness for evaluation.

PC13. PC13. participate in audits and address the aspects of Good Manufacturing Procedures, personal hygiene, and food safety.

PC14. PC14. ensure the record keeping and documentation such as Daily Monitoring Sheets, Batch Traceability Records, machine records, product parameters, process control parameters, etc.

Implement food safety practices at the workplace

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

PC15. PC15. maintain updated facilities, equipment, and tool and design requirements to minimize the risks associated with the products being handled at the site.

PC16. PC16. follow the instruction in the raw and packaging materials warehouse and ensure receiving material parameters match all the laid requirements. parameters: Incoming vehicles Visual report, storage, and handling requirements, hazardous and non-hazardous goods, allergens, cross-contamination risks, Quarantine, Accepted & rejected goods, monitoring temperature and humidity, etc.

PC17. PC17. follow FSSAI Schedule IV requirements related to Pest Control, Cleaning, and Sanitation, Utilities, Waste Disposal, Prevention of Cross-Contamination, allergen management, corrective action, preventive actions, food operation control etc.

PC18. PC18. ensure timely check of the critical control points and product parameters.

PC19. PC19. record keeping and documentation such as daily monitoring sheets, cleaning sheets, parameters, etc.

PC20. PC20. report any food safety and GMP issue to the supervisor, if any.

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. importance of personal hygiene, GMP, visitors & contractor's rules. Associated risk in case of deviation from the standard policies and how the requirement is linked with the site's FSSAI License.

KU2. KU2. importance of training and work instruction delivered by the supervisors.

KU3. KU3. importance of filling the records and checklists, formats and how to ensure that the timely and effective completion is achieved.

KU4. KU4. knowledge of trainings and skills required to perform in food processing premises.

KU5. KU5. understand FSSAI Schedule IV requirements of food handlers and PRPs within the processing area

KU6. KU6. importance of timely medical examinations and awareness of communicable diseases

KU7. Understanding of Do's & Don'ts, intellect mindset to understand the visual illustrations

KU8. KU8. understanding about Site Zoning plans.

KU9. KU9. awareness of layout which would help to demarcate the defined movements of RM, PM, FG, and wastes generated during the processing of goods. This one lays a framework to launch Good Manufacturing Practices (GMP) successfully and effectively on site.

KU10. KU10. understand the manufacturing process, product parameters and process control parameters such as CCPs

KU11. KU11. understanding about Hazard Analysis and Critical Control Points (HACCP)

KU12. KU12. understanding about Allergens and their types and controls to monitor effective handling of allergen raw materials on site.

KU13. KU13. basic understanding of traceability and mock recall

KU14. KU14. awareness about Internal & external Audits

KU15. KU15. understanding for RCA CAPA, cleaning and sanitation

KU16. KU16. awareness about record keeping and data monitoring in various sheets as per organizational requirement

Generic Skills (GS)

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

GS1. GS1. read and comprehend basic content to read labels, charts, signages, symbols and product manuals

GS2. GS2. communicate with coworkers appropriately to clarify instructions and other issues

GS3. GS3. plan and organize the work schedule, work area, tools, equipment, and materials for improved productivity

GS4. GS4. plan and prioritize tasks as per work requirements

GS5. GS5. always be punctual and courteous

GS6. GS6. good observations and intellect mindset

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Apply personal hygiene and follow Good Manufacturing practices at workplace	**22**	**44**	**-**	**6**
PC1. PC1. follow a site relevant documented procedure for Personal Hygiene and Visitor/ Contractor rules.	2	4	-	-
PC2. PC2. follow work instructions at levels of employees inside a food manufacturing site and ensure that the relevant instructions are well communicated and being followed at the fixed timelines.	2	4	-	2
PC3. PC3. ensure timely participate and carry out the relevant training and awareness sessions on personal hygiene, GMP, and related topics.	2	4	-	-
PC4. PC4.ensure timely medical examination from a prescribed and authorized doctor and comply with the guidelines of Schedule IV as described in Food Safety Standard Authority of India (FSSAI) guidelines.	2	4	-	-
PC5. PC5. fill in data in the daily monitoring checklist related to personal hygiene, food safety, and GMP.	2	4	-	-
PC6. • PC6. follow a site-relevant documented procedure and area-wise work instructions for Good Manufacturing Practices (GMP) to be followed on the site. • procedure: Hand washing requirements, Gowning & De gowning protocols, cleaning, and sanitation of employee lockers, follow the protocols as laid down in the different categories of processing areas like Low Risk, High Risk, High Care areas, etc.	2	4	-	2
PC7. PC7. follow all validated Do's & Don'ts inside a food manufacturing firm.	1	2	-	1
PC8. PC8. follow man and materials movement throughout the production facility, to restrict unwanted hazards to cross-contaminate the products which are being manufactured in the facility.	2	4	-	-
PC9. PC9. refer to the process flow charts, HACCP summary plan, and critical process parameters in each and respective areas of the production line.	1	2	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. PC10. identify the material requirements such as manufacturing equipments, Utensils, and other processing aids, cleaning chemicals, and cleaning work instructions in all the relevant areas of the manufacturing facility. Also, a special focus shall be given to Allergens and their risks. Wherever required, the allergen requirements shall be separately addressed.	2	4	-	-
PC11. PC11. ensure to properly tag and number all the equipment, machinery, tools, and other processing aids to keep proper traceability of the product being manufactured and handled at the site.	1	2	-	-
PC12. PC12. follow and implement all training and awareness guidelines in the manufacturing area and regularly participate in training effectiveness for evaluation.	1	2	-	-
PC13. PC13. participate in audits and address the aspects of Good Manufacturing Procedures, personal hygiene, and food safety.	1	2	-	-
PC14. PC14. ensure the record keeping and documentation such as Daily Monitoring Sheets, Batch Traceability Records, machine records, product parameters, process control parameters, etc.	1	2	-	-
Implement food safety practices at the workplace	**8**	**16**	**-**	**4**
PC15. PC15. maintain updated facilities, equipment, and tool and design requirements to minimize the risks associated with the products being handled at the site.	2	4	-	-
PC16. PC16. follow the instruction in the raw and packaging materials warehouse and ensure receiving material parameters match all the laid requirements. parameters: Incoming vehicles Visual report, storage, and handling requirements, hazardous and non-hazardous goods, allergens, cross-contamination risks, Quarantine, Accepted & rejected goods, monitoring temperature and humidity, etc.	1	2	-	1

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC17. PC17. follow FSSAI Schedule IV requirements related to Pest Control, Cleaning, and Sanitation, Utilities, Waste Disposal, Prevention of Cross-Contamination, allergen management, corrective action, preventive actions, food operation control etc.	2	4	-	2
PC18. PC18. ensure timely check of the critical control points and product parameters.	1	2	-	-
PC19. PC19. record keeping and documentation such as daily monitoring sheets, cleaning sheets, parameters, etc.	1	2	-	1
PC20. PC20. report any food safety and GMP issue to the supervisor, if any.	1	2	-	-
NOS Total	**30**	**60**	**-**	**10**

National Occupational Standards (NOS) Parameters

NOS Code	FIC/N9906
NOS Name	Apply food safety guidelines in Food Processing
Sector	Food Processing
Sub-Sector	Generic
Occupation	Generic
NSQF Level	3
Credits	1
Version	1.0
Last Reviewed Date	18/02/2025
Next Review Date	18/02/2028
NSQC Clearance Date	18/02/2025

DGT/VSQ/N0101: Employability Skills (30 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
- 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.   understand the significance of employability skills in meeting the job requirements

Constitutional values – Citizenship

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

PC2.   identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices

Becoming a Professional in the 21st Century

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

PC3.   explain 21st Century Skills such as Self-Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.

Basic English Skills

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

PC4.   speak with others using some basic English phrases or sentences

Communication Skills

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

PC5.   follow good manners while communicating with others

PC6.   work with others in a team

Diversity & Inclusion

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

PC7. communicate and behave appropriately with all genders and PwD

PC8. report any issues related to sexual harassment

Financial and Legal Literacy

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

PC9. use various financial products and services safely and securely

PC10. calculate income, expenses, savings etc.

PC11. approach the concerned authorities for any exploitation as per legal rights and laws

Essential Digital Skills

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

PC12. operate digital devices and use its features and applications securely and safely

PC13. use internet and social media platforms securely and safely

Entrepreneurship

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

PC14. identify and assess opportunities for potential business

PC15. identify sources for arranging money and associated financial and legal challenges

Customer Service

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

PC16. identify different types of customers

PC17. identify customer needs and address them appropriately

PC18. follow appropriate hygiene and grooming standards

Getting ready for apprenticeship & Jobs

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

PC19. create a basic biodata

PC20. search for suitable jobs and apply

PC21. identify and register apprenticeship opportunities as per requirement

Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. need for employability skills

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 basic spoken English language

KU6. Do and dont of effective communication

KU7. inclusivity and its importance

KU8. different types of disabilities and appropriate communication and behaviour towards PwD

KU9. different types of financial products and services

KU10. how to compute income and expenses
KU11. importance of maintaining safety and security in financial transactions
KU12. different legal rights and laws
KU13. how to operate digital devices and applications safely and securely
KU14. ways to identify business opportunities
KU15. types of customers and their needs
KU16. how to apply for a job and prepare for an interview
KU17. apprenticeship scheme and the process of registering on apprenticeship portal

Generic Skills (GS)

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

GS1. communicate effectively using appropriate language
GS2. behave politely and appropriately with all
GS3. perform basic calculations
GS4. solve problems effectively
GS5. be careful and attentive at work
GS6. use time effectively
GS7. maintain hygiene and sanitisation to avoid infection

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Introduction to Employability Skills	**1**	**1**	**-**	**-**
PC1. understand the significance of employability skills in meeting the job requirements	-	-	-	-
Constitutional values – Citizenship	**1**	**1**	**-**	**-**
PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices	-	-	-	-
Becoming a Professional in the 21st Century	**1**	**3**	**-**	**-**
PC3. explain 21st Century Skills such as Self-Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.	-	-	-	-
Basic English Skills	**2**	**3**	**-**	**-**
PC4. speak with others using some basic English phrases or sentences	-	-	-	-
Communication Skills	**1**	**1**	**-**	**-**
PC5. follow good manners while communicating with others	-	-	-	-
PC6. work with others in a team	-	-	-	-
Diversity & Inclusion	**1**	**1**	**-**	**-**
PC7. communicate and behave appropriately with all genders and PwD	-	-	-	-
PC8. report any issues related to sexual harassment	-	-	-	-
Financial and Legal Literacy	**3**	**4**	**-**	**-**
PC9. use various financial products and services safely and securely	-	-	-	-

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. calculate income, expenses, savings etc.	-	-	-	-
PC11. approach the concerned authorities for any exploitation as per legal rights and laws	-	-	-	-
Essential Digital Skills	**4**	**6**	**-**	**-**
PC12. operate digital devices and use its features and applications securely and safely	-	-	-	-
PC13. use internet and social media platforms securely and safely	-	-	-	-
Entrepreneurship	**3**	**5**	**-**	**-**
PC14. identify and assess opportunities for potential business	-	-	-	-
PC15. identify sources for arranging money and associated financial and legal challenges	-	-	-	-
Customer Service	**2**	**2**	**-**	**-**
PC16. identify different types of customers	-	-	-	-
PC17. identify customer needs and address them appropriately	-	-	-	-
PC18. follow appropriate hygiene and grooming standards	-	-	-	-
Getting ready for apprenticeship & Jobs	**1**	**3**	**-**	**-**
PC19. create a basic biodata	-	-	-	-
PC20. search for suitable jobs and apply	-	-	-	-
PC21. identify and register apprenticeship opportunities as per requirement	-	-	-	-
NOS Total	**20**	**30**	**-**	**-**

National Occupational Standards (NOS) Parameters

NOS Code	DGT/VSQ/N0101
NOS Name	Employability Skills (30 Hours)
Sector	Cross Sectoral
Sub-Sector	Professional Skills
Occupation	Employability
NSQF Level	2
Credits	1
Version	1.0
Last Reviewed Date	08/05/2025
Next Review Date	08/05/2028
NSQC Clearance Date	08/05/2025

Assessment Guidelines and Assessment Weightage

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Element/ Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each Element/ PC.

2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.

3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.

4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).

5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.

6. To pass the Qualification Pack assessment, every trainee should score the Recommended Pass % aggregate for the QP.

7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

Minimum Aggregate Passing % at QP Level : 50

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

Assessment Weightage

Compulsory NOS

National Occupational Standards	Theory Marks	Practical Marks	Project Marks	Viva Marks	Total Marks	Weightage
FIC/N7010.Prepare for the cold storage operations	30	50	0	20	100	25
FIC/N7011.Handle cold storage facility for storing food	30	50	0	20	100	40
FIC/N9906.Apply food safety guidelines in Food Processing	30	60	-	10	100	25
DGT/VSQ/N0101.Employability Skills (30 Hours)	20	30	-	-	50	10
Total	**110**	**190**	**-**	**50**	**350**	**100**

Acronyms

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
TVET	Technical and Vocational Education and Training
NCVET	National Council for Vocational Education and Training
FICSI	Food Industry Capacity & Skill Initiative
QP	Qualification Pack
MC	Model Curriculum
NSQF	National Skills Qualification Framework
NSQC	National Skills Qualification Committee
NOS	National Occupational Standards
NCO	National Classification of Occupations
ES	Employability Skills
HACCP	Hazard Analysis and Critical Control Points
FSSAI	Food Safety and Standards Authority of India
GMPs	Good Manufacturing Practices
PPE	Personal Protective Equipment
LOTO	Lockout/Tagout
SOS	Safety Data Sheets

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.
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.
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.
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Performance Criteria	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
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Qualification Pack	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.
Knowledge & Understanding (KU)	Knowledge and Understanding (KU) are statements that together specify, the technical, generic, professional, and organizational specific knowledge that an individual needs in order to perform to the required standard.
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