



# Food Microbiologist

QP Code: FIC/Q7603

Version: 1.0

NSQF Level: 6

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## Qualification Pack

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## Qualification Pack

### FIC/Q7603: Food Microbiologist

#### Brief Job Description

A Food Microbiologist is responsible for reporting the microbiological analysis of raw materials, packaging materials, finished products, shelf-life samples and market complaint samples through microbiological procedures such as sampling, preparing culture media, sterilization of culture media etc.

#### Personal Attributes

A Food Microbiologist should have reading, writing, and communication skills, mathematical ability to calculate, ability to plan, organize and prioritize, concentrate, physical stamina. She/he must be able to handle pressure and work in teams. He/she must also possess mechanical aptitude and trouble shooting skills, understanding on food safety standards & requirements, personal and professional hygiene.

#### Applicable National Occupational Standards (NOS)

##### Compulsory NOS:

1. [FIC/N7609: Prepare and maintain work area and lab equipment](#)
2. [FIC/N7610: Carry out microbiological analysis of food products](#)
3. [FIC/N7611: Monitor food safety system](#)
4. [FIC/N7612: Complete documentation and record keeping related to microbiological analysis](#)
5. [FIC/N9001: Ensure food safety, hygiene and sanitation for processing food products](#)
6. [FIC/N9004: Manage and lead a team](#)

#### Qualification Pack (QP) Parameters

<b>Sector</b>	Food Processing
<b>Sub-Sector</b>	Fruits and Vegetables, Food Grain Milling, Dairy Products, Meat and Poultry, Fish and Sea Food, Bread and Bakery, Alcoholic Beverages, Aerated Water/Soft Drinks, Soya Food, Packaged Foods
<b>Occupation</b>	Quality Analysis
<b>Country</b>	India

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<b>NSQF Level</b>	6
<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2004/NIL
<b>Minimum Educational Qualification &amp; Experience</b>	Graduate (Microbiology) with 2-3 Years of experience in food processing units handling microbiological analysis of food products
<b>Minimum Level of Education for Training in School</b>	
<b>Pre-Requisite License or Training</b>	1. Food Safety Standards and Regulations (as per FSSAI) 2. Microbiological analysis procedures for food products 3. Quality Management Systems 4. Computer basics and ERP
<b>Minimum Job Entry Age</b>	18 Years
<b>Last Reviewed On</b>	04/09/2018
<b>Next Review Date</b>	31/03/2022
<b>Deactivation Date</b>	31/03/2022
<b>NSQF Approval Date</b>	03/03/2017
<b>Version</b>	1.0
<b>Reference code on NQR</b>	2017/FI/FICSI/01758
<b>NQR Version</b>	1.0

## Qualification Pack

### FIC/N7609: Prepare and maintain work area and lab equipment

#### Description

This OS unit is about preparing and maintaining work area and laboratory equipments for microbiological analysis of food products.

#### Scope

This unit/task covers the following:

#### Elements and Performance Criteria

##### *Prepare and maintain work area for microbiological analysis of food products*

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

- PC1.** clean laminar air flow cabinet or lab bench using approved disinfectants and sanitizers
- PC2.** ensure cleanliness is maintained to keep it free from microbes to carry out microbiological analysis
- PC3.** ensure that the work area is safe and hygienic for microbiological analysis of food products
- PC4.** ensure destruction of microbes from used culture media following SOP

##### *Prepare and maintain process machineries and tools for microbiological analysis of food products*

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

- PC5.** ensure the working and performance of all equipments and tools used for microbiological analysis of food products such as weighing scale, homogeniser, autoclave, laminar air flow chamber, vacuum pump, bunsen burner, inoculation loop, incubator, refrigerator, microscope, etc.
- PC6.** clean the equipments and glass wares used with recommended sanitizers following specifications and organisation standards
- PC7.** attend minor adjustments of equipments, if required
- PC8.** organize glass wares and equipments for analysis

#### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** hygiene requirements and standards relevant to microbiology laboratory
- KU2.** standards and procedures followed in the organisation for cleaning and disinfecting equipment/ tools in microbiology laboratory
- KU3.** job responsibilities/duties to maintain lab hygiene standards
- KU4.** dress code to be followed
- KU5.** whom to approach for support in order to obtain work related instructions, clarifications and support
- KU6.** importance of following hygiene, safety and quality standards and the impact of not following the standards

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- KU7.** types o chemicals, materials and equipment required for the cleaning and maintenance
- KU8.** cleaning process to disinfect equipments/ tools
- KU9.** supplier/manufacturers instructions related to cleaning and maintenance
- KU10.** knowledge of food safety standards and regulations (as per FSSAI) knowledge on legal regulations pertaining to work place like health and safety, recommended dosage for use of sanitizers, control of substances hazardous to health, handling/storage/ disposal/ cautions of use of sanitizers and disinfectants, fire precautions, occurrences, hygiene practice, disposal of waste, environmental protection, etc.

## Generic Skills (GS)

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

- GS1.** note the information communicated
- GS2.** note the raw materials used for production and the finished products produced
- GS3.** note the readings of the process parameters and provide necessary information to fill the process chart
- GS4.** note down observations (if any) related to the process
- GS5.** write information documents to internal departments/ internal teams
- GS6.** note down the data for online ERP or as per applicability in the organization
- GS7.** read and interpret the process required for producing various types of products
- GS8.** read and interpret and process flowchart for all products produced
- GS9.** read equipment manuals and process documents to understand the equipments operation and process requirement
- GS10.** read internal information documents sent by internal teams
- GS11.** discuss task lists, schedules and activities
- GS12.** effectively communicate with team members
- GS13.** question in order to understand the nature of the problem and to clarify queries
- GS14.** attentively listen and comprehend the information given by the speaker
- GS15.** communicate clearly on the issues being faced
- GS16.** analyse critical points in day to day tasks through experience and observation and identify control measures to solve the issue
- GS17.** handle issues in case the manager is not available (as per the authority matrix defined by the organization)
- GS18.** plan and organize the work order and jobs received
- GS19.** organize raw materials and packaging materials required for all products
- GS20.** plan and prioritize the work based on the instructions received
- GS21.** plan to utilise time and equipment's effectively
- GS22.** organize all process/ equipment manuals so as to access information easily
- GS23.** support the manager in scheduling tasks for helper(s)
- GS24.** understand customer requirements and their priority and respond as per their needs
- GS25.** support manager in solving problems by detailing out problems



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- GS26.** discuss the possible solutions with the manager for problem solving
- GS27.** apply domain information about maintenance processes and technical knowledge about tools and equipment
- GS28.** use common sense and make judgments on day to day basis
- GS29.** use reasoning skills to identify and resolve basic problems
- GS30.** use intuition to detect any potential problems which could arise during operations
- GS31.** use acquired knowledge of the process for identifying and handling issues

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### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare and maintain work area for microbiological analysis of food products</i>	<b>19</b>	<b>36</b>	-	-
<b>PC1.</b> clean laminar air flow cabinet or lab bench using approved disinfectants and sanitizers	5	10	-	-
<b>PC2.</b> ensure cleanliness is maintained to keep it free from microbes to carry out microbiological analysis	5	10	-	-
<b>PC3.</b> ensure that the work area is safe and hygienic for microbiological analysis of food products	5	10	-	-
<b>PC4.</b> ensure destruction of microbes from used culture media following SOP	4	6	-	-
<i>Prepare and maintain process machineries and tools for microbiological analysis of food products</i>	<b>16</b>	<b>29</b>	-	-
<b>PC5.</b> ensure the working and performance of all equipments and tools used for microbiological analysis of food products such as weighing scale, homogeniser, autoclave, laminar air flow chamber, vacuum pump, bunsen burner, inoculation loop, incubator, refrigerator, microscope, etc.	5	10	-	-
<b>PC6.</b> clean the equipments and glass wares used with recommended sanitizers following specifications and organisation standards	4	6	-	-
<b>PC7.</b> attend minor adjustments of equipments, if required	2	3	-	-
<b>PC8.</b> organize glass wares and equipments for analysis	5	10	-	-
<b>NOS Total</b>	<b>35</b>	<b>65</b>	-	-



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### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	FIC/N7609
<b>NOS Name</b>	Prepare and maintain work area and lab equipment
<b>Sector</b>	Food Processing
<b>Sub-Sector</b>	Fruits and Vegetables, Food Grain Milling, Dairy Products, Meat and Poultry, Fish and Sea Food, Bread and Bakery, Alcoholic Beverages, Aerated Water/Soft Drinks, Soya Food, Packaged Foods
<b>Occupation</b>	Quality Analysis
<b>NSQF Level</b>	6
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	04/09/2018
<b>Next Review Date</b>	31/03/2022
<b>Deactivation Date</b>	31/03/2022
<b>NSQC Clearance Date</b>	03/03/2017

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### FIC/N7610: Carry out microbiological analysis of food products

#### Description

This OS unit is about microbiological analysis of food products through preparation of culture media, sampling, inoculation, incubation, counting, isolation, analyzing test results and reporting.

#### Scope

This unit/task covers the following:

#### Elements and Performance Criteria

##### *Prepare culture media for microbiological analysis*

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

- PC1.** read and understand sops for preparing culture media
- PC2.** weigh required chemicals, solvents in calibrated instruments, prepare liquid and solid culture media (nutrient broth and nutrient agar) following SOP
- PC3.** transfer prepared broth, culture media, solvent etc. in glass wares, plug with cotton plug, wrap with paper and prepare for sterilization
- PC4.** place the broth, culture media, solvent, glassware, etc. in the autoclave, set control parameters such as temperature, time, etc. of autoclave, and start equipment for sterilization
- PC5.** remove sterilized items from autoclave and transfer to sterile area, cool and store at suitable temperature following SOP
- PC6.** prepare solid culture media such as slopes/slants, plates from nutrient agar in sterile area
- PC7.** maintain inventory of all lab chemicals, glass wares, consumables etc for microbiological analysis

##### *Sample for microbiological analysis*

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

- PC8.** read and understand sampling requirement from the production schedule and discuss with the manager on the sampling plan
- PC9.** read and understand sampling procedure and sample raw materials, packaging materials, online production samples, finished products, shelf life samples, market samples, customer/consumer complaint samples, following SOP
- PC10.** take swab test samples from employees hand and cloth for evaluating personnel hygiene, on equipments and machineries in the production line, in the premises for evaluating sanitation and collect air samples, following SOP
- PC11.** label the samples with details such as sample type, date and time of sampling, batch/manufacture /expiry details (as applicable), record sample details in the lab register
- PC12.** transfer the samples to microbiology lab for analysis and store following SOP until analysis

##### *Inoculate and incubate samples for microbiological analysis*

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

- PC13.** read and understand the SOP for analysis of microbes in all types of sample

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- PC14.** prepare the work space (Laminar Air Flow Cabinet) or lab bench by wiping with disinfectant, clean glass ware, tools and equipments
- PC15.** dilute samples following sop to prepare for testing (or) start vacuum pump and filter sample through thin membrane (as applicable)
- PC16.** label liquid broth , solid culture media plates with sample details, organism details and date
- PC17.** inoculate samples aseptically in labeled liquid and solid culture media (through suitable techniques such as broth inoculation, pour plate, direct plating, streak plate, spread plate, membrane filtration, etc.), as applicable, following SOP
- PC18.** set controls of incubator such as temperature, time, etc. and place inoculated media in it for microbial growth
- PC19.** remove plates from the incubator after incubation period, transfer to the sterile atmosphere, and prepare for counting the microbes

### *Estimate and calculate microbial count*

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

- PC20.** adjust controls of microscope, place petri dish under microscope and count the microbes directly and record counts (or)
- PC21.** carry out serial dilution of sample in sterile media in sterile condition for counting microbes, following SOP
- PC22.** plate the diluted samples and incubate following incubation conditions for the organism
- PC23.** count the micro-organisms and colonies under the microscope and record counts
- PC24.** calculate the concentration of micro-organisms in original sample
- PC25.** destroy microbes in used culture media following SOP before disposal or cleaning of glassware

### *Isolate and preserve pure microbial culture*

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

- PC26.** perform test to identify the type and characteristics of microbes from the colonies of microbes grown in the petri plates plated through serial dilution
- PC27.** prepare enrichment media, plate, inoculate and incubate micro organism of selected type and characteristics (such as those required as starter culture for fermentation of food products) to prepare pure culture, following SOP
- PC28.** preserve pure culture through refrigeration, paraffin method, freeze drying etc maintaining the parameters like temperature, anaerobic condition, pressure etc, following SOP
- PC29.** transfer pure culture into a fresh medium at specified intervals, to allow continuous growth and viability of microorganisms, for sub-culturing of microbes

### *Analyze results and provide recommendations*

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

- PC30.** compile the results of microbiological tests and prepare microbiological data
- PC31.** analyze microbiological data and compare with food safety standards of the organisation, national and international regulations
- PC32.** establish implications of test results with respect to food safety standards and draw conclusions
- PC33.** document test results, conclusions and recommendations and share with manager for immediate corrective actions

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### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** organization standards and procedures related to analysis of food products produced in the organisation
- KU2.** types of products produced by the organisation
- KU3.** job responsibilities/duties and standard operating procedures relevant to microbiological analysis of food products
- KU4.** provision of wages, working hours as per organisation policy
- KU5.** food safety and hygiene standards followed
- KU6.** classification, characteristics and types of micro-organisms
- KU7.** principles of food microbiology and microbiology terminologies
- KU8.** significance of micro-organisms in preservation, production and spoilage of food
- KU9.** microbiological techniques for analysis of food products
- KU10.** preparation of culture media and other reagents
- KU11.** sterilization of culture media, solvents and glassware
- KU12.** various microbiological procedures such as sampling, transferring and maintaining samples, inoculating culture media, plating, serial dilution, colony streaking, isolation of pure cultures, staining techniques, identification of microbes, storage of pure cultures
- KU13.** colonial morphology of microbes and methods to identify various types of micro-organisms
- KU14.** various lab equipments for microbiological analysis and methods to handle and maintain them
- KU15.** physical and chemical methods to control and destroy micro-organisms
- KU16.** disposal of used microbiological media and culture
- KU17.** complex mathematical computations and use of statistical techniques to compute data, interpret results and apply to findings
- KU18.** production process for products produced in the organisation
- KU19.** quality standards for food products produced in the organisation and methods to assess and maintain quality of food products
- KU20.** quality audit methods and procedures
- KU21.** food safety systems like haccp, food hygiene and sanitation
- KU22.** methods to identify critical control points, implement and monitor haccp in food processing
- KU23.** GMP
- KU24.** food regulatory system such as fssai and food standards for products produced in the organization

### Generic Skills (GS)

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

- GS1.** note the information communicated
- GS2.** note the raw materials used for production and the finished products produced

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- GS3.** note the readings of the process parameters and provide necessary information to fill the process chart
- GS4.** note down observations (if any) related to the process
- GS5.** write information documents to internal departments/ internal teams
- GS6.** note down the data for online erp or as per applicability in the organization
- GS7.** read and interpret the process required for producing various types of products
- GS8.** read and interpret and process flowchart for all products produced
- GS9.** read equipment manuals and process documents to understand the equipments operation and process requirement
- GS10.** read internal information documents sent by internal teams
- GS11.** discuss task lists, schedules and activities
- GS12.** effectively communicate with team members
- GS13.** question in order to understand the nature of the problem and to clarify queries
- GS14.** attentively listen and comprehend the information given by the speaker
- GS15.** communicate clearly on the issues being faced
- GS16.** analyse critical points in day to day tasks through experience and observation and identify control measures to solve the issue
- GS17.** handle issues in case the manager is not available (as per the authority matrix defined by the organization)
- GS18.** plan and organize the work order and jobs received
- GS19.** organize raw materials and packaging materials required for all products
- GS20.** plan and prioritize the work based on the instructions received
- GS21.** plan to utilise time and equipment's effectively
- GS22.** organize all process/ equipment manuals so as to access information easily
- GS23.** support the manager in scheduling tasks for helper(s)
- GS24.** understand customer requirements and their priority and respond as per their needs
- GS25.** support manager in solving problems by detailing out problems
- GS26.** discuss the possible solutions with the manager for problem solving
- GS27.** apply domain information about maintenance processes and technical knowledge about tools and equipment
- GS28.** use common sense and make judgments on day to day basis
- GS29.** use reasoning skills to identify and resolve basic problems
- GS30.** use intuition to detect any potential problems which could arise during operations
- GS31.** use acquired knowledge of the process for identifying and handling issues

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Prepare culture media for microbiological analysis</i>	<b>7.5</b>	<b>13.5</b>	-	-
<b>PC1.</b> read and understand sops for preparing culture media	1	1	-	-
<b>PC2.</b> weigh required chemicals, solvents in calibrated instruments, prepare liquid and solid culture media (nutrient broth and nutrient agar) following SOP	1	2	-	-
<b>PC3.</b> transfer prepared broth, culture media, solvent etc. in glass wares, plug with cotton plug, wrap with paper and prepare for sterilization	1	2	-	-
<b>PC4.</b> place the broth, culture media, solvent, glassware, etc. in the autoclave, set control parameters such as temperature, time, etc. of autoclave, and start equipment for sterilization	1.5	2.5	-	-
<b>PC5.</b> remove sterilized items from autoclave and transfer to sterile area, cool and store at suitable temperature following SOP	1	2	-	-
<b>PC6.</b> prepare solid culture media such as slopes/slants, plates from nutrient agar in sterile area	1	2	-	-
<b>PC7.</b> maintain inventory of all lab chemicals, glass wares, consumables etc for microbiological analysis	1	2	-	-
<i>Sample for microbiological analysis</i>	<b>4.5</b>	<b>7.5</b>	-	-
<b>PC8.</b> read and understand sampling requirement from the production schedule and discuss with the manager on the sampling plan	1	1	-	-
<b>PC9.</b> read and understand sampling procedure and sample raw materials, packaging materials, online production samples, finished products, shelf life samples, market samples, customer/consumer complaint samples, following SOP	1	1	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC10.</b> take swab test samples from employees hand and cloth for evaluating personnel hygiene, on equipments and machineries in the production line, in the premises for evaluating sanitation and collect air samples, following SOP	1.5	2.5	-	-
<b>PC11.</b> label the samples with details such as sample type, date and time of sampling, batch/manufacture /expiry details (as applicable), record sample details in the lab register	0.5	1.5	-	-
<b>PC12.</b> transfer the samples to microbiology lab for analysis and store following SOP until analysis	0.5	1.5	-	-
<i>Inoculate and incubate samples for microbiological analysis</i>	<b>7</b>	<b>13</b>	-	-
<b>PC13.</b> read and understand the SOP for analysis of microbes in all types of sample	1	1	-	-
<b>PC14.</b> prepare the work space (Laminar Air Flow Cabinet) or lab bench by wiping with disinfectant, clean glass ware, tools and equipments	1	2	-	-
<b>PC15.</b> dilute samples following sop to prepare for testing (or) start vacuum pump and filter sample through thin membrane (as applicable)	1	2	-	-
<b>PC16.</b> label liquid broth , solid culture media plates with sample details, organism details and date	0.5	1.5	-	-
<b>PC17.</b> inoculate samples aseptically in labeled liquid and solid culture media (through suitable techniques such as broth inoculation, pour plate, direct plating, streak plate, spread plate, membrane filtration, etc.), as applicable, following SOP	1.5	2.5	-	-
<b>PC18.</b> set controls of incubator such as temperature, time, etc. and place inoculated media in it for microbial growth	1	2	-	-
<b>PC19.</b> remove plates from the incubator after incubation period, transfer to the sterile atmosphere, and prepare for counting the microbes	1	2	-	-
<i>Estimate and calculate microbial count</i>	<b>7.5</b>	<b>13.5</b>	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC20.</b> adjust controls of microscope, place petri dish under microscope and count the microbes directly and record counts (or)	1	2	-	-
<b>PC21.</b> carry out serial dilution of sample in sterile media in sterile condition for counting microbes, following SOP	1.5	2.5	-	-
<b>PC22.</b> plate the diluted samples and incubate following incubation conditions for the organism	1.5	2.5	-	-
<b>PC23.</b> count the micro-organisms and colonies under the microscope and record counts	1	2	-	-
<b>PC24.</b> calculate the concentration of micro-organisms in original sample	1	2	-	-
<b>PC25.</b> destroy microbes in used culture media following SOP before disposal or cleaning of glassware	1.5	2.5	-	-
<i>Isolate and preserve pure microbial culture</i>	<b>5.5</b>	<b>10.5</b>	-	-
<b>PC26.</b> perform test to identify the type and characteristics of microbes from the colonies of microbes grown in the petri plates plated through serial dilution	1.5	2.5	-	-
<b>PC27.</b> prepare enrichment media, plate, inoculate and incubate micro organism of selected type and characteristics (such as those required as starter culture for fermentation of food products) to prepare pure culture, following SOP	1.5	2.5	-	-
<b>PC28.</b> preserve pure culture through refrigeration, paraffin method, freeze drying etc maintaining the parameters like temperature, anaerobic condition, pressure etc, following SOP	1.5	2.5	-	-
<b>PC29.</b> transfer pure culture into a fresh medium at specified intervals, to allow continuous growth and viability of microorganisms, for sub-culturing of microbes	1	3	-	-
<i>Analyze results and provide recommendations</i>	<b>3</b>	<b>7</b>	-	-
<b>PC30.</b> compile the results of microbiological tests and prepare microbiological data	0.5	1.5	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC31.</b> analyze microbiological data and compare with food safety standards of the organisation, national and international regulations	1	2	-	-
<b>PC32.</b> establish implications of test results with respect to food safety standards and draw conclusions	0.5	1.5	-	-
<b>PC33.</b> document test results, conclusions and recommendations and share with manager for immediate corrective actions	1	2	-	-
<b>NOS Total</b>	<b>35</b>	<b>65</b>	-	-

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### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	FIC/N7610
<b>NOS Name</b>	Carry out microbiological analysis of food products
<b>Sector</b>	Food Processing
<b>Sub-Sector</b>	Fruits and Vegetables, Food Grain Milling, Dairy Products, Meat and Poultry, Fish and Sea Food, Bread and Bakery, Alcoholic Beverages, Aerated Water/Soft Drinks, Soya Food, Packaged Foods
<b>Occupation</b>	Quality Analysis
<b>NSQF Level</b>	6
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	04/09/2018
<b>Next Review Date</b>	31/03/2022
<b>Deactivation Date</b>	31/03/2022
<b>NSQC Clearance Date</b>	03/03/2017

## Qualification Pack

### FIC/N7611: Monitor food safety system

#### Description

This OS unit is about monitoring food safety system in food processing unit to produce products meeting organisation and regulatory standards.

#### Scope

This unit/task covers the following:

- Monitor housekeeping
- Implement and monitor food safety in food processing unit
- Monitor and implement personal hygiene standards

#### Elements and Performance Criteria

##### *Monitor housekeeping*

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

- PC1.** read and understand sop and checklist for housekeeping
- PC2.** visit the warehouses (raw materials, packaging materials, finished goods warehouse), process/production area, packaging area, laboratory at regular intervals and perform checks based on the housekeeping checklist to ensure food safety
- PC3.** ensure workplace is maintained in a clean and tidy order to meet workplace standards and that the waste is disposed following industry standards
- PC4.** inform the department supervisor in case of any deviation, suggest/ recommend corrective actions
- PC5.** ensure recommended corrective action has been implemented
- PC6.** carry out internal audit on housekeeping to ensure safety and hygiene system are in place

##### *Implement and monitor food safety in food processing unit*

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

- PC7.** identify food safety requirements in the food products production process based on microbial analysis results of production line, premises and food products
- PC8.** identify microbiological hazards in production process, and its critical control point to minimize or prevent those hazards
- PC9.** take swab sample of work area, materials, equipment, products and personnel routinely for microbiological analysis, to monitor and ensure compliance with food safety requirements
- PC10.** discuss test reports and findings with reporting manager and department managers with possible recommendations to establish preventive control measures
- PC11.** carry out audits on processes and practices to identify gap in organisation food safety system, to monitor the effectiveness of the implemented preventive controls, and to ensure corrective actions are implemented
- PC12.** share audit findings with manager, reanalyze the preventive measures based on the audit findings, and arrive at additional preventive controls to address the hazards identified

##### *Monitor and implement personal hygiene standards*

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

- PC13.** monitor premises of the food processing unit, processing machineries, drainage system to ensure it meets food hygiene standards of the processing unit
- PC14.** monitor storage area for raw materials, packaging materials, finished goods to ensure quality standards are met and food products are fit for human consumption
- PC15.** ensure chemicals, disinfectants, etc. are stored separately and away from food manufacturing/storing/handling areas
- PC16.** ensure pest control system is in place in the food processing unit
- PC17.** monitor the personnel hygiene and health condition of employees to ensure hygiene system of the organisation is met
- PC18.** monitor and ensure clothing, footwear etc complies with the food safety and hygiene standards of the organisation and government regulations
- PC19.** carry out swab test on personnel to check their personal hygiene, share the findings with them, educate on the consequences, and train to follow hygiene methods
- PC20.** provide training to employees of all department on personnel hygiene, food safety and hygiene requirements and standards, and the need to follow them

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** food safety systems followed in the organization
- KU2.** organization standards and procedures related to monitoring food safety system
- KU3.** job responsibilities/duties and standard operating procedures relevant to monitoring food safety system in the organization
- KU4.** internal processes such as procurement, store management, inventory management, human resource management, quality management, production, maintenance and logistic management, and key contact points for query resolution
- KU5.** provision of wages, working hours as per organisation policy
- KU6.** food safety and hygiene standards followed
- KU7.** principles of microbiology
- KU8.** food microbiology and microbiology terminologies
- KU9.** significance of micro-organisms in preservation, production and spoilage of food
- KU10.** microbiological techniques for analysis of food products
- KU11.** aseptic techniques
- KU12.** physical and chemical methods to control and destroy micro-organisms
- KU13.** production process for products produced in the organisation
- KU14.** quality standards for food products produced in the organisation and methods to assess and maintain quality of food products
- KU15.** quality audit methods and procedures
- KU16.** training skills
- KU17.** food safety systems like HACCP, food hygiene and sanitation
- KU18.** methods to identify critical control points, implement and monitor HACCP in food processing

## Qualification Pack

- KU19.** methods to implement and monitor food hygiene and sanitation system
- KU20.** GMP
- KU21.** food regulatory system like FSSAI and food standards for products produced in the organisation

### Generic Skills (GS)

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

- GS1.** note the information communicated
- GS2.** note the raw materials used for production and the finished products produced
- GS3.** note the readings of the process parameters and provide necessary information to fill the process chart
- GS4.** note down observations (if any) related to the process
- GS5.** write information documents to internal departments/ internal teams
- GS6.** note down the data for online erp or as per applicability in the organization
- GS7.** read and interpret the process required for producing various types of products
- GS8.** read and interpret and process flowchart for all products produced
- GS9.** read equipment manuals and process documents to understand the equipments operation and process requirement
- GS10.** read internal information documents sent by internal teams
- GS11.** discuss task lists, schedules and activities
- GS12.** effectively communicate with team members
- GS13.** question in order to understand the nature of the problem and to clarify queries
- GS14.** attentively listen and comprehend the information given by the speaker
- GS15.** communicate clearly on the issues being faced
- GS16.** analyse critical points in day to day tasks through experience and observation and identify control measures to solve the issue
- GS17.** handle issues in case the manager is not available (as per the authority matrix defined by the organization)
- GS18.** plan and organize the work order and jobs received
- GS19.** organize raw materials and packaging materials required for all products
- GS20.** plan and prioritize the work based on the instructions received
- GS21.** plan to utilise time and equipment's effectively
- GS22.** organize all process/ equipment manuals so as to access information easily
- GS23.** support the manager in scheduling tasks for helper(s)
- GS24.** understand customer requirements and their priority and respond as per their needs
- GS25.** support manager in solving problems by detailing out problems
- GS26.** discuss the possible solutions with the manager for problem solving
- GS27.** apply domain information about maintenance processes and technical knowledge about tools and equipment
- GS28.** use common sense and make judgments on day to day basis



## Qualification Pack

- GS29.** use reasoning skills to identify and resolve basic problems
- GS30.** use intuition to detect any potential problems which could arise during operations
- GS31.** use acquired knowledge of the process for identifying and handling issues

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Monitor housekeeping</i>	<b>8</b>	<b>18</b>	-	-
<b>PC1.</b> read and understand sop and checklist for housekeeping	1	1	-	-
<b>PC2.</b> visit the warehouses (raw materials, packaging materials, finished goods warehouse), process/production area, packaging area, laboratory at regular intervals and perform checks based on the housekeeping checklist to ensure food safety	2	4	-	-
<b>PC3.</b> ensure workplace is maintained in a clean and tidy order to meet workplace standards and that the waste is disposed following industry standards	2	2	-	-
<b>PC4.</b> inform the department supervisor in case of any deviation, suggest/ recommend corrective actions	1	3	-	-
<b>PC5.</b> ensure recommended corrective action has been implemented	1	4	-	-
<b>PC6.</b> carry out internal audit on housekeeping to ensure safety and hygiene system are in place	1	4	-	-
<i>Implement and monitor food safety in food processing unit</i>	<b>11</b>	<b>21</b>	-	-
<b>PC7.</b> identify food safety requirements in the food products production process based on microbial analysis results of production line, premises and food products	1	4	-	-
<b>PC8.</b> identify microbiological hazards in production process, and its critical control point to minimize or prevent those hazards	2	3	-	-
<b>PC9.</b> take swab sample of work area, materials, equipment, products and personnel routinely for microbiological analysis, to monitor and ensure compliance with food safety requirements	2	4	-	-
<b>PC10.</b> discuss test reports and findings with reporting manager and department managers with possible recommendations to establish preventive control measures	2	3	-	-

**Qualification Pack**

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC11.</b> carry out audits on processes and practices to identify gap in organisation food safety system, to monitor the effectiveness of the implemented preventive controls, and to ensure corrective actions are implemented	2	4	-	-
<b>PC12.</b> share audit findings with manager, reanalyze the preventive measures based on the audit findings, and arrive at additional preventive controls to address the hazards identified	2	3	-	-
<i>Monitor and implement personal hygiene standards</i>	<b>16</b>	<b>26</b>	-	-
<b>PC13.</b> monitor premises of the food processing unit, processing machineries, drainage system to ensure it meets food hygiene standards of the processing unit	2	3	-	-
<b>PC14.</b> monitor storage area for raw materials, packaging materials, finished goods to ensure quality standards are met and food products are fit for human consumption	2	4	-	-
<b>PC15.</b> ensure chemicals, disinfectants, etc. are stored separately and away from food manufacturing/storing/handling areas	2	3	-	-
<b>PC16.</b> ensure pest control system is in place in the food processing unit	2	3	-	-
<b>PC17.</b> monitor the personnel hygiene and health condition of employees to ensure hygiene system of the organisation is met	2	3	-	-
<b>PC18.</b> monitor and ensure clothing, footwear etc complies with the food safety and hygiene standards of the organisation and government regulations	2	3	-	-
<b>PC19.</b> carry out swab test on personnel to check their personal hygiene, share the findings with them, educate on the consequences, and train to follow hygiene methods	2	4	-	-
<b>PC20.</b> provide training to employees of all department on personnel hygiene, food safety and hygiene requirements and standards, and the need to follow them	2	3	-	-
<b>NOS Total</b>	<b>35</b>	<b>65</b>	-	-



## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	FIC/N7611
<b>NOS Name</b>	Monitor food safety system
<b>Sector</b>	Food Processing
<b>Sub-Sector</b>	Fruits and Vegetables, Food Grain Milling, Dairy Products, Meat and Poultry, Fish and Sea Food, Bread and Bakery, Alcoholic Beverages, Aerated Water/Soft Drinks, Soya Food, Packaged Foods
<b>Occupation</b>	Quality Analysis
<b>NSQF Level</b>	6
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	04/09/2018
<b>Next Review Date</b>	31/03/2022
<b>Deactivation Date</b>	31/03/2022
<b>NSQC Clearance Date</b>	03/03/2017

## Qualification Pack

# FIC/N7612: Complete documentation and record keeping related to microbiological analysis

## Description

This OS unit is about documenting and maintaining records on microbiological analysis of raw materials, production sample, finished products, control sample, market complaint samples, and food safety and hygiene system related to production of food products.

## Scope

This unit/task covers the following:

## Elements and Performance Criteria

### *Document and maintain records on microbiological analysis of raw materials for production of food products*

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

- PC1.** document and maintain records of details of raw materials and packaging materials sampled for microbiological analysis such as name of raw material, sampling date and time, sampling point, sampling procedure, details of sample like supplier information, batch number, receiving date/ date of manufacture, expiry date, supplier quality document, condition of the transport vehicle (or) storage area, condition of raw material etc. as per organisation standards
- PC2.** document and maintain records of details of microbiological analysis of raw materials and packaging material like storage of sample until analysis, date of microbiological analysis, method of analysis, microbiological analysis report, results and findings, recommendations etc, as per organisation standards
- PC3.** document and maintain records of deviations of microbiological standards of raw materials and packaging materials from organisation standards and corrective actions taken
- PC4.** load the microbiological analysis result and report on raw materials and packaging materials in ERP for future reference
- PC5.** verify the documents and track from finished product to microbiological analysis details and report of raw materials and packaging materials, in case of quality concerns and during quality management system audits

### *Document and maintain records on microbiological analysis of production sample, finished products, control sample and market complaint samples for production of food products*

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

- PC6.** document and maintain records of details of on-line production sample drawn for microbiological analysis such as production stage/sampling area (in the process line), sampling date and time, sampling procedure, details of sample, sample condition, storage of sample until analysis, date of microbiological analysis, method of analysis, microbiological analysis report, results and findings, recommendations etc. as per organisation standards

## Qualification Pack

- PC7.** document and maintain records of details of finished product and control sample drawn for microbiological analysis like name of product, sampling date and time, sampling procedure and sampling condition, batch number, date of manufacture, expiry date, label details, sample condition, storage of sample until analysis, date of microbiological analysis, method of analysis, microbiological analysis report, results and findings, recommendations etc. as per organisation standards
- PC8.** document and maintain records of details of market complaint samples received for microbiological analysis like name of product, sampling location (in market), type of outlet, display condition, storage condition, sampling methods and sampling condition, method of transfer of sample to lab, physical condition of sample (package and product), date of manufacture, expiry date, storage of sample until analysis, date of microbiological analysis, method of analysis, microbiological analysis report, results and findings, recommendations etc. as per organisation standards
- PC9.** document and maintain records of deviations on microbiological standards of on-line production sample, finished product, control sample, market complaint sample from organisation standards, and corrective actions taken
- PC10.** load the microbiological analysis result and report on production sample, finished product, control sample, market complaint sample in erp for future reference
- PC11.** verify the documents and track microbiological analysis details and report of finished product to production sample, finished product, control sample, in case of quality concerns and during quality management system audits

### *Document and maintain records on food safety and hygiene system for food processing unit*

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

- PC12.** document and maintain records of audits carried out on housekeeping, processing area, premises etc
- PC13.** document and maintain records of food safety system like haccp implemented in the organisation like critical control points identified, monitoring control points, microbiological analysis on the critical control points, deviations identifies, recommended corrective actions, corrective actions taken, report on the effectiveness of the system etc, as per the organisation standards
- PC14.** document and maintain records of food safety hygiene system like tests carried out to assess the personal hygiene of the employees, test findings, recommendations, follow up audit reports on compliance to the recommendations
- PC15.** document and maintain records of training provided to the employees on food safety and hygiene system like date of training, attendance, group trained, training assessment, ratings on trainings etc as per organisation standards

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** organization standards and procedures followed for documentation and record keeping
- KU2.** marks and accreditations of the organisation
- KU3.** job responsibilities/duties for documentaion and records management in the organisation
- KU4.** ERP system used/followed in the organisation
- KU5.** documentation system followed in the organization on quality management system

## Qualification Pack

- KU6.** details to be recorded and maintained on microbiological analysis of raw materials, production sample, finished products, process, equipments, personnel
- KU7.** details to be recorded and maintained on food safety systems like HACCP, and food hygiene system followed in the organisation
- KU8.** details to be recorded on trainings provided
- KU9.** methods to record and maintain records on observations (if any), deviations from standards related to raw materials, process, finished products, personnel hygiene
- KU10.** basic computer knowledge
- KU11.** methods to track back record
- KU12.** entering details in the ERP system followed by the organisation

## Generic Skills (GS)

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

- GS1.** note the information communicated
- GS2.** note the raw materials used for production and the finished products produced
- GS3.** note the readings of the process parameters and provide necessary information to fill the process chart
- GS4.** note down observations (if any) related to the process
- GS5.** write information documents to internal departments/ internal teams
- GS6.** note down the data for online ERP or as per applicability in the organization
- GS7.** read and interpret the process required for producing various types of products
- GS8.** read and interpret and process flowchart for all products produced
- GS9.** read equipment manuals and process documents to understand the equipments operation and process requirement
- GS10.** read internal information documents sent by internal teams
- GS11.** discuss task lists, schedules and activities
- GS12.** effectively communicate with team members
- GS13.** question in order to understand the nature of the problem and to clarify queries
- GS14.** attentively listen and comprehend the information given by the speaker
- GS15.** communicate clearly on the issues being faced
- GS16.** analyse critical points in day to day tasks through experience and observation and identify control measures to solve the issue
- GS17.** handle issues in case the manager is not available (as per the authority matrix defined by the organization)
- GS18.** plan and organize the work order and jobs received
- GS19.** organize raw materials and packaging materials required for all products
- GS20.** plan and prioritize the work based on the instructions received
- GS21.** plan to utilise time and equipment's effectively
- GS22.** organize all process/ equipment manuals so as to access information easily
- GS23.** support the manager in scheduling tasks for helper(s)

## Qualification Pack

- GS24.** understand customer requirements and their priority and respond as per their needs
- GS25.** support manager in solving problems by detailing out problems
- GS26.** discuss the possible solutions with the manager for problem solving
- GS27.** apply domain information about maintenance processes and technical knowledge about tools and equipment
- GS28.** use common sense and make judgments on day to day basis
- GS29.** use reasoning skills to identify and resolve basic problems
- GS30.** use intuition to detect any potential problems which could arise during operations
- GS31.** use acquired knowledge of the process for identifying and handling issues

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Document and maintain records on microbiological analysis of raw materials for production of food products</i>	<b>18</b>	<b>12</b>	-	-
<b>PC1.</b> document and maintain records of details of raw materials and packaging materials sampled for microbiological analysis such as name of raw material, sampling date and time, sampling point, sampling procedure, details of sample like supplier information, batch number, receiving date/ date of manufacture, expiry date, supplier quality document, condition of the transport vehicle (or) storage area, condition of raw material etc. as per organisation standards	6	4	-	-
<b>PC2.</b> document and maintain records of details of microbiological analysis of raw materials and packaging material like storage of sample until analysis, date of microbiological analysis, method of analysis, microbiological analysis report, results and findings, ecommendations etc, as per organisation standards	3	2	-	-
<b>PC3.</b> document and maintain records of deviations of microbiological standards of raw materials and packaging materials from organisation standards and corrective actions taken	3	2	-	-
<b>PC4.</b> load the microbiological analysis result and report on raw materials and packaging materials in ERP for future reference	3	2	-	-
<b>PC5.</b> verify the documents and track from finished product to microbiological analysis details and report of raw materials and packaging materials, in case of quality concerns and during quality management system audits	3	2	-	-
<i>Document and maintain records on microbiological analysis of production sample, finished products, control sample and market complaint samples for production of food products</i>	<b>27</b>	<b>18</b>	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC6.</b> document and maintain records of details of on-line production sample drawn for microbiological analysis such as production stage/sampling area (in the process line), sampling date and time, sampling procedure, details of sample, sample condition, storage of sample until analysis, date of microbiological analysis, method of analysis, microbiological analysis report, results and findings, recommendations etc. as per organisation standards	6	4	-	-
<b>PC7.</b> document and maintain records of details of finished product and control sample drawn for microbiological analysis like name of product, sampling date and time, sampling procedure and sampling condition, batch number, date of manufacture, expiry date, label details, sample condition, storage of sample until analysis, date of microbiological analysis, method of analysis, microbiological analysis report, results and findings, recommendations etc. as per organisation standards	6	4	-	-
<b>PC8.</b> document and maintain records of details of market complaint samples received for microbiological analysis like name of product, sampling location (in market), type of outlet, display condition, storage condition, sampling methods and sampling condition, method of transfer of sample to lab, physical condition of sample (package and product), date of manufacture, expiry date, storage of sample until analysis, date of microbiological analysis, method of analysis, microbiological analysis report, results and findings, recommendations etc. as per organisation standards	6	4	-	-
<b>PC9.</b> document and maintain records of deviations on microbiological standards of on-line production sample, finished product, control sample, market complaint sample from organisation standards, and corrective actions taken	3	2	-	-
<b>PC10.</b> load the microbiological analysis result and report on production sample, finished product, control sample, market complaint sample in erp for future reference	3	2	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC11.</b> verify the documents and track microbiological analysis details and report of finished product to production sample, finished product, control sample, in case of quality concerns and during quality management system audits	3	2	-	-
<i>Document and maintain records on food safety and hygiene system for food processing unit</i>	<b>15</b>	<b>10</b>	-	-
<b>PC12.</b> document and maintain records of audits carried out on housekeeping, processing area, premises etc	4	2	-	-
<b>PC13.</b> document and maintain records of food safety system like haccp implemented in the organisation like critical control points identified, monitoring control points, microbiological analysis on the critical control points, deviations identifies, recommended corrective actions, corrective actions taken, report on the effectiveness of the system etc, as per the organisation standards	4	3	-	-
<b>PC14.</b> document and maintain records of food safety hygiene system like tests carried out to assess the personal hygiene of the employees, test findings, recommendations, follow up audit reports on compliance to the recommendations	4	3	-	-
<b>PC15.</b> document and maintain records of training provided to the employees on food safety and hygiene system like date of training, attendance, group trained, training assessment, ratings on trainings etc as per organisation standards	3	2	-	-
<b>NOS Total</b>	<b>60</b>	<b>40</b>	-	-



## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	FIC/N7612
<b>NOS Name</b>	Complete documentation and record keeping related to microbiological analysis
<b>Sector</b>	Food Processing
<b>Sub-Sector</b>	Fruits and Vegetables, Food Grain Milling, Dairy Products, Meat and Poultry, Fish and Sea Food, Bread and Bakery, Alcoholic Beverages, Aerated Water/Soft Drinks, Soya Food, Packaged Snacks, Packing and Refrigeration
<b>Occupation</b>	Quality Analysis
<b>NSQF Level</b>	6
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	04/09/2018
<b>Next Review Date</b>	31/03/2022
<b>Deactivation Date</b>	31/03/2022
<b>NSQC Clearance Date</b>	03/03/2017

## Qualification Pack

# FIC/N9001: Ensure food safety, hygiene and sanitation for processing food products

## Description

This unit is about maintaining food safety, hygiene and sanitation in work area and processing unit for processing food products

## Elements and Performance Criteria

### *Perform safety and sanitation related functions (for processing food products)*

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

- PC1.** comply with food safety and hygiene procedures followed in the organization
- PC2.** ensure personal hygiene by use of gloves, hairnets, masks, ear plugs, goggles, shoes, etc.
- PC3.** ensure hygienic production of food by inspecting raw materials, ingredients, finished products etc. for compliance to physical, chemical and microbiological parameters
- PC4.** pack products in appropriate packaging materials, label and store them in designated area, free from pests, flies and infestations
- PC5.** clean, maintain and monitor food processing equipment periodically, using it only for the specified purpose
- PC6.** use safety equipment such as fire extinguisher, eye wash unit, first aid kit when required
- PC7.** follow housekeeping practices by having designated area for machines/tools
- PC8.** follow industry standards like GMP, HACCP and product recall process
- PC9.** attend training on hazard management to understand types of hazards such as physical, chemical and biological hazards and measures to control and prevent them
- PC10.** Identify, document and report problems such as rodents and pests to management
- PC11.** conduct workplace checklist audit before and after work to ensure safety and hygiene
- PC12.** document and maintain raw material, packaging material, process and finished products for the credibility and effectiveness of the food safety control system

### *Apply food safety practices (for processing food products)*

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

- PC13.** determine the quality of food using criteria such as odour, appearance, taste and best before date, and take immediate measures to prevent spoilage
- PC14.** store raw materials, finished products and allergens separately to prevent cross contamination
- PC15.** label raw materials and finished products and store them in different storage areas according to safe food practices
- PC16.** follow stock rotation based on FEFO/FIFO

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** organization standards, process standards and procedures followed in the organisation

## Qualification Pack

- KU2.** types of products produced by the organisation
- KU3.** code of business conduct
- KU4.** dress code to be followed
- KU5.** job responsibilities/duties and standard operating procedures
- KU6.** internal processes such as procurement, store management, inventory management, quality management and key contact points for query resolution
- KU7.** provision of wages, working hours as per organisation policy
- KU8.** food safety and hygiene standards followed
- KU9.** possible physical, chemical and biological hazards and methods of prevention of various hazards
- KU10.** personal hygiene requirement
- KU11.** different types of sanitizers used for process area, equipment and the procedure to use them
- KU12.** knowledge on food safety standards and regulations (as per fssai)
- KU13.** quality parameters and quality assessment based on physical parameters, basic food microbiology
- KU14.** labelling/marketing requirements for raw materials, finished goods, stored materials, packaging materials and their designated storage area
- KU15.** cleaning and sanitation of equipment and work area
- KU16.** CIP and COP methods and procedures
- KU17.** storage norms for raw materials, packaging material and finished products
- KU18.** stock rotation of ingredients and finished products based on FEFO/FIFO
- KU19.** method of maintaining safety check lists for all machineries
- KU20.** GHP
- KU21.** GMP
- KU22.** HACCP

## Generic Skills (GS)

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

- GS1.** note the information communicated by the supervisor
- GS2.** note the raw materials used for production and the finished products produced
- GS3.** note the readings of the process parameters and provide necessary information to fill the process chart
- GS4.** note down observations (if any) related to the process
- GS5.** write information documents to internal departments/ internal teams
- GS6.** note down the data for online ERP or as per applicability in the organization
- GS7.** read and interpret the process required for producing various types of products
- GS8.** read and interpret and process flowchart for all products produced
- GS9.** read equipment manuals and process documents to understand the equipment operation and process requirement
- GS10.** read internal information documents sent by internal teams

## Qualification Pack

- GS11.** discuss task lists, schedules and activities with the supervisor
- GS12.** effectively communicate with the team members
- GS13.** question the supervisor in order to understand the nature of the problem and to clarify queries
- GS14.** attentively listen and comprehend the information given by the speaker
- GS15.** communicate clearly with the supervisor and cross department teams on the issues faced during process
- GS16.** analyse critical points in day to day tasks through experience and observation and identify control measures to solve the issue
- GS17.** handle issues in case the supervisor is not available (as per the authority matrix defined by the organization)
- GS18.** plan and organize the work order and jobs received from the supervisor
- GS19.** organize raw materials and packaging materials required for all products following the instruction provided by the supervisor
- GS20.** plan and prioritize the work based on the instructions received from the supervisor
- GS21.** plan to utilise time and equipment's effectively
- GS22.** organize all process/ equipment manuals so as to access information easily
- GS23.** support the supervisor in scheduling tasks for helper(s)
- GS24.** understand customer requirements and their priority and respond as per their needs
- GS25.** support supervisor in solving problems by detailing out problems
- GS26.** discuss the possible solutions with the supervisor for problem solving
- GS27.** apply domain information about maintenance processes and technical knowledge about tools and equipment
- GS28.** use common sense and make judgments on day to day basis
- GS29.** use reasoning skills to identify and resolve basic problems
- GS30.** use intuition to detect any potential problems which could arise during operations
- GS31.** use acquired knowledge of the process for identifying and handling issues

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Perform safety and sanitation related functions (for processing food products)</i>	<b>25</b>	<b>50</b>	-	-
<b>PC1.</b> comply with food safety and hygiene procedures followed in the organization	2	3	-	-
<b>PC2.</b> ensure personal hygiene by use of gloves, hairnets, masks, ear plugs, goggles, shoes, etc.	1	5	-	-
<b>PC3.</b> ensure hygienic production of food by inspecting raw materials, ingredients, finished products etc. for compliance to physical, chemical and microbiological parameters	2	3	-	-
<b>PC4.</b> pack products in appropriate packaging materials, label and store them in designated area, free from pests, flies and infestations	4	6	-	-
<b>PC5.</b> clean, maintain and monitor food processing equipment periodically, using it only for the specified purpose	2	3	-	-
<b>PC6.</b> use safety equipment such as fire extinguisher, eye wash unit, first aid kit when required	4	6	-	-
<b>PC7.</b> follow housekeeping practices by having designated area for machines/tools	2	3	-	-
<b>PC8.</b> follow industry standards like GMP, HACCP and product recall process	4	6	-	-
<b>PC9.</b> attend training on hazard management to understand types of hazards such as physical, chemical and biological hazards and measures to control and prevent them	1	4	-	-
<b>PC10.</b> Identify, document and report problems such as rodents and pests to management	1	4	-	-
<b>PC11.</b> conduct workplace checklist audit before and after work to ensure safety and hygiene	1	4	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC12.</b> document and maintain raw material, packaging material, process and finished products for the credibility and effectiveness of the food safety control system	1	3	-	-
<i>Apply food safety practices (for processing food products)</i>	<b>10</b>	<b>15</b>	-	-
<b>PC13.</b> determine the quality of food using criteria such as odour, appearance, taste and best before date, and take immediate measures to prevent spoilage	2	3	-	-
<b>PC14.</b> store raw materials, finished products and allergens separately to prevent cross contamination	2	3	-	-
<b>PC15.</b> label raw materials and finished products and store them in different storage areas according to safe food practices	2	3	-	-
<b>PC16.</b> follow stock rotation based on FEFO/FIFO	4	6	-	-
<b>NOS Total</b>	<b>35</b>	<b>65</b>	-	-

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	FIC/N9001
<b>NOS Name</b>	Ensure food safety, hygiene and sanitation for processing food products
<b>Sector</b>	Food Processing
<b>Sub-Sector</b>	Fruits and Vegetables
<b>Occupation</b>	Generic
<b>NSQF Level</b>	4
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	30/09/2021
<b>Next Review Date</b>	30/07/2024
<b>Deactivation Date</b>	30/07/2024
<b>NSQC Clearance Date</b>	30/09/2021

## Qualification Pack

### FIC/N9004: Manage and lead a team

#### Description

Manage the team on day to day basis, ensuring their deployment, motivating them by involving them in various engagement initiatives at the work area, helping them improve the skills levels and managing their grievances in the best possible manner in order to maximize the people productivity

#### Elements and Performance Criteria

##### *Manage and lead a team*

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

- PC1.** ensure that the team is aware of the schedule and job expectations on a daily basis
- PC2.** involve the team in regular meetings to communicate information intended for them
- PC3.** ensure communication to the team on any changes in policies/ processes by the organization through required verbal/ written mechanisms
- PC4.** ensure participation of the team in various engagement initiatives organized by the organization
- PC5.** counsel and address issues among the team for any work related issues
- PC6.** support the manager in deployment of the team as per production schedule and the organizational norms and guidelines
- PC7.** ensure periodic training of the team and support the team by delivering trainings
- PC8.** share knowledge of processes, techniques and products with the team to enhance their skill levels
- PC9.** provide feedback to the manager pertaining to performance of the team

#### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** organizations standards of performance, services and products
- KU2.** relevant hr policies and processes followed by the organization
- KU3.** knowledge of organizational norms and guidelines
- KU4.** how and when to measure performance of the team
- KU5.** how to share feedback with team members
- KU6.** applicable legislation relating to the workplace (for example health and safety, workplace regulations, use of work equipment, handling/ storage/ disposal/ cautions of use of products, fire precautions, hygiene practice, disposal of waste, environmental protection)

#### Generic Skills (GS)

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

- GS1.** note the information communicated



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- GS2.** note the raw materials used for production and the finished products produced
- GS3.** note the readings of the process parameters and provide necessary information to fill the process chart
- GS4.** note down observations (if any) related to the process
- GS5.** write information documents to internal departments/ internal teams
- GS6.** note down the data for online ERP or as per applicability in the organization
- GS7.** read and interpret the process required for producing various types of products
- GS8.** read and interpret and process flowchart for all products produced
- GS9.** read equipment manuals and process documents to understand the equipments operation and process requirement
- GS10.** read internal information documents sent by internal teams
- GS11.** discuss task lists, schedules and activities
- GS12.** effectively communicate with team members
- GS13.** question in order to understand the nature of the problem and to clarify queries
- GS14.** attentively listen and comprehend the information given by the speaker
- GS15.** communicate clearly on the issues being faced
- GS16.** analyze critical points in day to day tasks through experience and observation and identify control measures to solve the issue
- GS17.** handle issues in case the manager is not available (as per the authority matrix defined by the organization)
- GS18.** plan and organize the work order and jobs received
- GS19.** organize raw materials and packaging materials required for all products
- GS20.** plan and prioritize the work based on the instructions received
- GS21.** plan to utilize time and equipment's effectively
- GS22.** organize all process/ equipment manuals so as to access information easily
- GS23.** support the manager in scheduling tasks for helper(s)
- GS24.** understand customer requirements and their priority and respond as per their needs
- GS25.** support manager in solving problems by detailing out problems
- GS26.** discuss the possible solutions with the manager for problem solving
- GS27.** apply domain information about maintenance processes and technical knowledge about tools and equipment
- GS28.** use common sense and make judgments on day to day basis
- GS29.** use reasoning skills to identify and resolve basic problems
- GS30.** use intuition to detect any potential problems which could arise during operations SB16.use acquired knowledge of the process for identifying and handling issues
- GS31.** use acquired knowledge of the process for identifying and handling issues

## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Manage and lead a team</i>	<b>35</b>	<b>65</b>	-	-
<b>PC1.</b> ensure that the team is aware of the schedule and job expectations on a daily basis	4	8	-	-
<b>PC2.</b> involve the team in regular meetings to communicate information intended for them	4	8	-	-
<b>PC3.</b> ensure communication to the team on any changes in policies/ processes by the organization through required verbal/ written mechanisms	4	8	-	-
<b>PC4.</b> ensure participation of the team in various engagement initiatives organized by the organization	4	8	-	-
<b>PC5.</b> counsel and address issues among the team for any work related issues	4	8	-	-
<b>PC6.</b> support the manager in deployment of the team as per production schedule and the organizational norms and guidelines	4	6	-	-
<b>PC7.</b> ensure periodic training of the team and support the team by delivering trainings	3	7	-	-
<b>PC8.</b> share knowledge of processes, techniques and products with the team to enhance their skill levels	4	6	-	-
<b>PC9.</b> provide feedback to the manager pertaining to performance of the team	4	6	-	-
<b>NOS Total</b>	<b>35</b>	<b>65</b>	-	-

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	FIC/N9004
<b>NOS Name</b>	Manage and lead a team
<b>Sector</b>	Food Processing
<b>Sub-Sector</b>	Fruits and Vegetables, Food Grain Milling (including oilseeds), Dairy Products, Meat and Poultry, Fish and Sea Food, Bread and Bakery, Alcoholic Beverages, Aerated Water/Soft Drinks, Soya Food, Packaged Foods
<b>Occupation</b>	GENERIC
<b>NSQF Level</b>	6
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	29/07/2021
<b>Next Review Date</b>	29/07/2024
<b>Deactivation Date</b>	29/07/2024
<b>NSQC Clearance Date</b>	29/07/2021

## 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.

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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 : 70

(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/N7609.Prepare and maintain work area and lab equipment	35	65	-	-	100	15
FIC/N7610.Carry out microbiological analysis of food products	35	65	-	-	100	15
FIC/N7611.Monitor food safety system	35	65	-	-	100	20
FIC/N7612.Complete documentation and record keeping related to microbiological analysis	60	40	-	-	100	15
FIC/N9001.Ensure food safety, hygiene and sanitation for processing food products	35	65	-	-	100	20
FIC/N9004.Manage and lead a team	35	65	-	-	100	15
<b>Total</b>	<b>235</b>	<b>365</b>	<b>-</b>	<b>-</b>	<b>600</b>	<b>100</b>

## Qualification Pack

### Acronyms

<b>NOS</b>	National Occupational Standard(s)
<b>NSQF</b>	National Skills Qualifications Framework
<b>QP</b>	Qualifications Pack
<b>TVET</b>	Technical and Vocational Education and Training
<b>CIP</b>	Clean In Place
<b>COP</b>	Clean Out Of Place
<b>ERP</b>	Enterprise Resource Planning
<b>FIFO</b>	First In First Out
<b>FEFO</b>	First Expiry First Out
<b>FSSAI</b>	Food Safety and Standards Authority of India
<b>GMP</b>	Good Manufacturing Practices
<b>GHP</b>	Good Hygiene Practices
<b>HACCP</b>	Hazard Analysis and Critical Control Point

## Qualification Pack

### Glossary

<b>Sector</b>	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.
<b>Sub-sector</b>	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
<b>Occupation</b>	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
<b>Job role</b>	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
<b>Occupational Standards (OS)</b>	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.
<b>Performance Criteria (PC)</b>	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
<b>National Occupational Standards (NOS)</b>	NOS are occupational standards which apply uniquely in the Indian context.
<b>Qualifications Pack (QP)</b>	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.
<b>Unit Code</b>	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
<b>Unit Title</b>	Unit title gives a clear overall statement about what the incumbent should be able to do.
<b>Description</b>	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.
<b>Scope</b>	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.

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<b>Knowledge and Understanding (KU)</b>	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.
<b>Organisational Context</b>	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.
<b>Technical Knowledge</b>	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
<b>Core Skills/ Generic Skills (GS)</b>	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.
<b>Electives</b>	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.
<b>Options</b>	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.