



# Fruits and Vegetables Drying/Dehydration Technician

QP Code: FIC/Q0105

Version: 2.0

NSQF Level: 3

Food Industry Capacity & Skill Initiative || Shriram Bharatiya Kala kendra, 3rd floor, 1, Copernicus Marg, Mandi House, New Delhi  
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## Qualification Pack

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## Qualification Pack

# FIC/Q0105: Fruits and Vegetables Drying/Dehydration Technician

## Brief Job Description

A Fruits and Vegetables Drying/Dehydration Technician is responsible for drying/dehydration of various types of fruits and vegetables through the process of washing, sorting, peeling, cutting/slicing, blanching, sulphurizing, drying /dehydration, using various methods, packaging and storing.

## Personal Attributes

A Fruits and Vegetables Drying/Dehydration Technician must have the ability to plan, organize, prioritize, calculate and handle pressure. The individual must possess reading, writing and communication skills. In addition, the individual must have stamina and professional hygiene.

## Applicable National Occupational Standards (NOS)

### Compulsory NOS:

1. [FIC/N0116: Prepare and maintain work area and process machineries for drying/dehydration of fruits and vegetables](#)
2. [FIC/N9001: Ensure food safety, hygiene and sanitation for processing food products](#)
3. [FIC/N0119: Complete documentation and record keeping related to drying/dehydration of fruits and vegetables](#)
4. [FIC/N0118: Dry/ Dehydrate fruits and vegetables](#)
5. [FIC/N0117: Prepare for drying/dehydration of fruits and vegetables](#)

## Qualification Pack (QP) Parameters

<b>Sector</b>	Food Processing
<b>Sub-Sector</b>	Fruits and Vegetables
<b>Occupation</b>	Processing-Fruits and Vegetables
<b>Country</b>	India
<b>NSQF Level</b>	3
<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2004/NIL

### Qualification Pack

<b>Minimum Educational Qualification &amp; Experience</b>	8th Class OR 5th Class with 3 Years of experience
<b>Minimum Level of Education for Training in School</b>	
<b>Pre-Requisite License or Training</b>	1. Food standards for fruits and vegetables 2. Methods of drying/dehydration of fruits and vegetables 3. Handling fruits, packaging and storage techniques 4. Quality assessment of raw material, packaging materials and finished products 5. Operation and maintenance of processing machineries and equipments 6. Waste management 7. GMP 8. HACCP 9. QMS 10. Computer basics and ERP 11. Training in Food Safety Standards and Regulations (as per FSSAI) (Mandatory)
<b>Minimum Job Entry Age</b>	18 Years
<b>Last Reviewed On</b>	30/09/2021
<b>Next Review Date</b>	30/07/2024
<b>Deactivation Date</b>	30/07/2024
<b>NSQC Approval Date</b>	30/09/2021
<b>Version</b>	2.0
<b>Reference code on NQR</b>	2021/FI/FICSI/04515
<b>NQR Version</b>	1

## Qualification Pack

# FIC/N0116: Prepare and maintain work area and process machineries for drying/dehydration of fruits and vegetables

## Description

This unit is about preparing work area for hygiene and safety, and ensuring performance, efficiency and maintenance of process machineries and tools for drying/ dehydration of fruits and vegetables, as per the specifications and standards of the organization.

## Elements and Performance Criteria

### *Prepare and maintain work area (for drying/dehydration of fruits and vegetables)*

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

- PC1.** clean and maintain the cleanliness of the work area using approved sanitizers and keep it free from dust, waste, flies and pests
- PC2.** ensure that work area is safe and hygienic for food processing
- PC3.** dispose waste materials as per organisation standards and industry requirements

### *Prepare and maintain process machineries and tools ( for drying/dehydration of fruits and vegetables)*

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

- PC4.** check the working and performance of all machineries and tools used for the process such as washer, peeler, corer, slicer, drier, packaging machines, etc.
- PC5.** clean the machineries and tools used with approved sanitizers following the specifications and standards of the organization
- PC6.** place the necessary tools required for process
- PC7.** attend minor repairs/faults of all machines, if required

## 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
- 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.** types of chemicals, materials and equipment required for the cleaning and maintenance
- KU10.** cleaning process to disinfect equipment/ tools
- KU11.** supplier/manufacturers instructions related to cleaning and maintenance
- KU12.** knowledge of food safety standards and Regulations (as per HSSAI)

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**KU13.** knowledge of 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 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 equipments operation and process requirement
- GS10.** read internal information documents sent by internal teams
- 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



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- 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 and maintain work area (for drying/dehydration of fruits and vegetables)</i>	<b>18</b>	<b>32</b>	-	-
<b>PC1.</b> clean and maintain the cleanliness of the work area using approved sanitizers and keep it free from dust, waste, flies and pests	10	15	-	-
<b>PC2.</b> ensure that work area is safe and hygienic for food processing	3	7	-	-
<b>PC3.</b> dispose waste materials as per organisation standards and industry requirements	5	10	-	-
<i>Prepare and maintain process machineries and tools ( for drying/dehydration of fruits and vegetables)</i>	<b>17</b>	<b>33</b>	-	-
<b>PC4.</b> check the working and performance of all machineries and tools used for the process such as washer, peeler, corer, slicer, drier, packaging machines, etc.	5	10	-	-
<b>PC5.</b> clean the machineries and tools used with approved sanitizers following the specifications and standards of the organization	5	10	-	-
<b>PC6.</b> place the necessary tools required for process	2	3	-	-
<b>PC7.</b> attend minor repairs/faults of all machines, if required	5	10	-	-
<b>NOS Total</b>	<b>35</b>	<b>65</b>	-	-



## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	FIC/N0116
<b>NOS Name</b>	Prepare and maintain work area and process machineries for drying/dehydration of fruits and vegetables
<b>Sector</b>	Food Processing
<b>Sub-Sector</b>	Fruits and Vegetables
<b>Occupation</b>	Processing
<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/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

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- 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/N0119: Complete documentation and record keeping related to drying/dehydration of fruits and vegetables

## Description

This unit is about documenting and maintaining records of raw material, production, process and finished products related to drying/ dehydration of fruits and vegetables.

## Elements and Performance Criteria

### *Document and maintain records of raw material (for drying and dehydration of fruits and vegetables)*

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

- PC1.** document and maintain record of details of raw materials and packaging materials such as name of raw materials, type and variety, vendor/supplier details, grown area, grown season, quantity, receiving date, supplier details, receiving date/ date of manufacture, expiry date, supplier quality document, quality parameters of all raw materials, internal quality analysis report etc, as per organisation standards
- PC2.** document and maintain record of observations (if any) related to raw materials and packaging materials
- PC3.** load the raw materials details in erp for future reference
- PC4.** verify the documents and track from finished product to raw materials, in case of quality concerns and during quality management system audits

### *Document and maintain records of production schedule and process parameters (for drying and dehydration of fruits and vegetables)*

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

- PC5.** document and maintain records of production plan with details such as the product details, production sequence, equipments and machinery details, efficiency and capacity utilization of equipment
- PC6.** document and maintain records of process details such as type of raw material used, process parameters ( temperature, time, pressure etc as applicable) for entire production and packaging in process chart or production log for all products produced
- PC7.** document and maintain records of batch size, production yield, wastage of raw materials, energy utilization and final products produced
- PC8.** document and maintain record of observations (if any) or deviations related to process and production
- PC9.** load the production plan and process details in erp for future reference
- PC10.** verify documents and track from finished product to ingredients, in case of quality concerns and for quality management system audits

### *Document and maintain records of finished products (for drying and dehydration of fruits and vegetables)*

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

- PC11.** document and maintain records of the types of finished products produced
- PC12.** document and maintain records of the finished products details like batch number, time of packing, date of manufacture, date of expiry, other label details, primary, secondary and tertiary packaging materials for all finished products, storage conditions etc, as per organisation standards

## Qualification Pack

- PC13.** document and maintain record of observations or deviations (if any) related to finished products
- PC14.** load the finished product details in erp for future reference
- PC15.** verify the documents and track from finished product to ingredients, in case of quality concerns and for quality management system audits

## 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
- 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 like procurement, store management, inventory management, quality management and key contact points for query resolution
- KU7.** provision of wages, working hours and accident compensation as per organisation policy
- KU8.** . food safety and hygiene standards followed
- KU9.** documentation system followed in the organization like, production chart, process chart and finished goods chart
- KU10.** details to be recorded on raw materials and finished products
- KU11.** details to be recorded and maintained on production and process parameters
- KU12.** methods to record and maintain records on observations (if any) related to raw materials, process and finished products
- KU13.** methods to track back the record from finished product to raw material
- KU14.** entering the details in ERP system followed by the organisation

## 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 equipments operation and process requirement

## Qualification Pack

- GS10.** read internal information documents sent by internal teams
- 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>Document and maintain records of raw material (for drying and dehydration of fruits and vegetables)</i>	<b>15</b>	<b>10</b>	-	-
<b>PC1.</b> document and maintain record of details of raw materials and packaging materials such as name of raw materials, type and variety, vendor/supplier details, grown area, grown season, quantity, receiving date, supplier details, receiving date/ date of manufacture, expiry date, supplier quality document, quality parameters of all raw materials, internal quality analysis report etc, as per organisation standards	6	4	-	-
<b>PC2.</b> document and maintain record of observations (if any) related to raw materials and packaging materials	3	2	-	-
<b>PC3.</b> load the raw materials details in erp for future reference	3	2	-	-
<b>PC4.</b> verify the documents and track from finished product to raw materials, in case of quality concerns and during quality management system audits	3	2	-	-
<i>Document and maintain records of production schedule and process parameters (for drying and dehydration of fruits and vegetables)</i>	<b>30</b>	<b>20</b>	-	-
<b>PC5.</b> document and maintain records of production plan with details such as the product details, production sequence, equipments and machinery details, efficiency and capacity utilization of equipment	6	4	-	-
<b>PC6.</b> document and maintain records of process details such as type of raw material used, process parameters ( temperature, time, pressure etc as applicable) for entire production and packaging in process chart or production log for all products produced	9	6	-	-
<b>PC7.</b> document and maintain records of batch size, production yield, wastage of raw materials, energy utilization and final products produced	6	4	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC8.</b> document and maintain record of observations (if any) or deviations related to process and production	3	2	-	-
<b>PC9.</b> load the production plan and process details in erp for future reference	3	2	-	-
<b>PC10.</b> verify documents and track from finished product to ingredients, in case of quality concerns and for quality management system audits	3	2	-	-
<i>Document and maintain records of finished products (for drying and dehydration of fruits and vegetables)</i>	<b>15</b>	<b>10</b>	-	-
<b>PC11.</b> document and maintain records of the types of finished products produced	2	1	-	-
<b>PC12.</b> document and maintain records of the finished products details like batch number, time of packing, date of manufacture, date of expiry, other label details, primary, secondary and tertiary packaging materials for all finished products, storage conditions etc, as per organisation standards	4	3	-	-
<b>PC13.</b> document and maintain record of observations or deviations (if any) related to finished products	3	2	-	-
<b>PC14.</b> load the finished product details in erp for future reference	3	2	-	-
<b>PC15.</b> verify the documents and track from finished product to ingredients, in case of quality concerns and for quality management system audits	3	2	-	-
<b>NOS Total</b>	<b>60</b>	<b>40</b>	-	-

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	FIC/N0119
<b>NOS Name</b>	Complete documentation and record keeping related to drying/dehydration of fruits and vegetables
<b>Sector</b>	Food Processing
<b>Sub-Sector</b>	Fruits and Vegetables
<b>Occupation</b>	Processing
<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/N0118: Dry/ Dehydrate fruits and vegetables

#### Description

This unit is about drying/dehydration of fruits and vegetables through various methods using machineries as per the specifications and standards of the organization.

#### Elements and Performance Criteria

##### *Wash fruits and vegetables*

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

- PC1.** receive fruits and vegetables from the supplier/vendor, check weight and check the quality through physical parameters such as appearance, colour, texture, maturity, etc.
- PC2.** open valves or start pump to fill water into the washing tank and control water level, dump fruits manually or start elevator conveyor to transfer fruits into washing tank for washing (or) wash and rinse manually
- PC3.** switch on agitator of revolving screens/blades to immerse each fruit into water to remove dirt, soil, etc., start ladder conveyor to lift fruits from the washing tank and transfer to washing line conveyor
- PC4.** open valves of the high pressure spraying system for chlorinated water and fresh water, adjust pressure to spray water on fruits and vegetables to wash with chlorinated water and rinse with fresh water

##### *Sort, peel, slice and blanch fruits and vegetables*

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

- PC5.** start and adjust speed of sorting/inspecting line conveyor to transfer raw material to inspection station, inspect visually and remove damaged, blemished and rotten fruits, dispose waste following SOP
- PC6.** start conveyor or elevator and control speed to transfer sorted fruits and vegetables into peeler or corer machine (depending on the type of fruits and vegetables), start peeler/corer machine and control speed to remove peel or core of fruits and vegetables (or)
- PC7.** dump measured quantity of lye chemical into tank of heated water to prepare lye solution for lye peeling, turn valves to admit steam to heat lye solution in tank, observe dials and adjust controls to regulate pressure and temperature
- PC8.** start conveyor and adjust speed to carry fruit and vegetables through lye peeling machine or load by hand, set and adjust timer for immersion time following sop, observe fruit and vegetable emerging from machine to ensure removal of skin or membrane, open valve to drain the excess lye solution, ( or)
- PC9.** turn valves to introduce steam and adjust controls to maintain pressure for steam peeling of fruits and vegetables, open valves of water spraying system to wash the peeled/ scalded fruits and vegetables
- PC10.** start conveyor to transfer fruits and vegetable to chopper/cutter/slicer machine to slice to specified size and shape following SOP
- PC11.** open valves or start pump to fill water in the blanching machine, adjust controls to set temperature, pressure, blanching time, etc. for different types of fruits and vegetables following sop, open valves to allow steam, observe dial and adjust controls to regulate and maintain set parameters



## Qualification Pack

- PC12.** start feed conveyor and control speed to feed fruits and vegetables to and from the blanching machine, examine blanched fruits and vegetables visually and through feel/texture to determine adequacy of softening

### *Sulphurize fruits and vegetables*

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

- PC13.** load fruits and vegetables (only that require sulphurizing) in trays either manually or mechanically for sulphur treatment, shake/tap trays (or) pass trays through vibrator machines to vibrate trays for uniform spreading of fruits and vegetable
- PC14.** place loaded trays in the cart, push loaded cart into sulphurizing chamber, set timer following sop for sulphurizing various types of fruits and vegetables, light burner to generate sulphur fumes and allow to stand for specified time, move cart out of the sulphurizing chamber after specified time (or)
- PC15.** pump measured quantity of water into sulphurizing tank, measure sulphurizing chemicals and add into water, mix manually or start stirrer and control speed for uniform mixing to prepare sulphur solution
- PC16.** load fruits and vegetables in basket and lower basket mechanically into sulphurizing tank (or) start conveyor and control speed to dump fruit and vegetables into sulphurizing tank,
- PC17.** start motor to lift basket (or) start conveyor and control speed to remove sulphur treated fruits and vegetables from sulphurizing tank after specified time and transfer to drying line

### *Sun dry fruits and vegetables*

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

- PC18.** weigh pre-processed fruits and vegetables (with or without sulphur treatment) for drying, load in tray, shake/tap trays manually or pass trays through vibrator machines to vibrate for uniform spreading
- PC19.** transfer loaded trays to the drying area/yard, arrange in rows in drying area for exposure to direct sunlight, allow to stand until fruits and vegetable are completely dried (drying time depends on intensity of sunlight), check drying produce periodically to check the completeness of drying
- PC20.** check the dried fruits and vegetables through feel and dryness to ensure complete removal of moisture
- PC21.** transfer dried product into scraping line, scrap trays manually using scrapper to remove dried product from the trays
- PC22.** start vibrating mesh conveyor and control vibration, transfer dried product on the conveyor to vibrate products and to remove any undesirable particles, start conveyor to transfer dried product to finished product inspection line

### *Hot air dry fruits and vegetables*

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

- PC23.** adjust controls of hot air drier to set temperature and time, switch on drier to preheat (or) add fuel to furnace to heat drier (batch process)
- PC24.** move loaded cart from sulfurizing chamber into drier to dehydrate fruit and vegetables
- PC25.** adjust controls of drier to set drying temperature and drying time for various types of fruits and vegetables following sop, push button or turn knob to start drier, control speed of blower fan to circulate hot air and to maintain temperature inside drier
- PC26.** open drier after specified time, remove cart(s) from the drier and transfer to the cooling area, start fans and control speed to allow air to pass through dried product for cooling (or)

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- PC27.** start drying line conveyor, load measured quantity of pre-processed fruits and vegetables on conveyor, control speed to transfer fruits and vegetables into tunnel drier(continuous process)
- PC28.** set control parameters of tunnel drier (in control panel of drier or in plc) like drier temperature, drying time, fan speed, air temperature, rate of air flow etc, start and control speed of conveyor to allow and control amount of material conveyed to tunnel drier for drying
- PC29.** observe gauges to verify temperature, adjust controls to maintain process parameters in tunnel drier
- PC30.** check the dried product passing out of tunnel drier through physical parameters like colour, appearance, dryness (through feel) , firmness etc or observe gauges to determine if moisture content of material conforms to standard
- PC31.** start cooling line conveyor and control speed, start fans and adjust speed to blow air on dried material passing through conveyor to cool dried products, start conveyor to transfer dried product to finished product inspection line

### *Freeze dry fruits and vegetables*

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

- PC32.** load raw material (fruits and vegetables) cartons/crates in freezing room and close, set parameters like temperature, time etc of freezing room and allow to freeze until required temperature
- PC33.** monitor gauges to confirm raw materials have reached specified temperature, open freezing room and unload frozen produce, open carton and check frozen raw materials to ensure it is completely frozen (i.e. converted to ice crystals)
- PC34.** start ladder/elevator conveyor and control speed, open cartons and dump frozen produce on the conveyor and allow to pass to the inspection line
- PC35.** start and adjust speed of sorting/inspection line conveyor, inspect visually and remove produce non-conforming to standards
- PC36.** load sorted frozen produce in trays and load them in carts, set control parameters like temperature, time etc of cold storage room following sop for cooling, move loaded carts into cold storage room/chamber, close door, maintain set parameters and allow produce to cool for specified time to achieve required fineness, unload carts from cold storage room, check if cooled produce have achieved required firmness
- PC37.** set controls of freeze drying chamber like pressure, time etc in control panel or in plc, load carts in freezing chamber for freeze drying fruits and vegetables, observe gauges and adjust controls to maintain process parameters
- PC38.** open freeze drying chamber after specified time, unload cart, check freeze dried product through physical parameters like colour, flavour, appearance, dryness (through feel) etc, sample dried product and transfer to quality lab for analysis, transfer the product to bins or boxes and hold for specified time to equalize moisture content

### *Inspect, pack and store dried/dehydrated fruits and vegetables*

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

- PC39.** set controls of electronic colour sorter and metal detector, start finished product inspection line conveyor and control speed, load dried product on conveyor and allow to pass through visual inspection station, electronic colour sorter and metal detector to remove metals and products that do not conform to standards

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- PC40.** start packaging line conveyor to transfer product to packaging machine, start pump or manually load dried/dehydrated products in the hopper of the packaging machine to pack finished product
- PC41.** load packing materials in packaging machine and set packing quantity, set date coding machine for date code details like batch number, date of manufacture, date of expiry etc
- PC42.** start automatic packaging machine to form, fill and seal measured quantity of finished products, check weight of packed product periodically to ensure its conformance to standards
- PC43.** sample packed product and transfer to quality lab for analysis and to ensure its conformance to quality standards
- PC44.** place packed and labelled products in cartons and transfer to storage area and store maintaining storage conditions following sop
- PC45.** report discrepancies/concerns to department supervisor for immediate action

### *Carry out post production cleaning and regular maintenance of equipments*

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

- PC46.** clean the work area, machineries, equipment and tools using recommended cleaning agents and sanitizers
- PC47.** attend minor repairs/faults of all machines (if any)
- PC48.** ensure periodic (daily/weekly/monthly/quarterly/half yearly/annual) maintenance of all machines and equipment following the sop or following suppliers instructions/manuals

## 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
- 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 and accident compensation as per organisation policy
- KU8.** food safety and hygiene standards followed
- KU9.** types and varieties of raw materials (various fruits and vegetables)
- KU10.** various types of drying and dehydration process
- KU11.** production process, parameters for drying/dehydration of various fruits and vegetables
- KU12.** types of machineries used in processing and machineries used in the organisation
- KU13.** handling all processing machineries
- KU14.** maintenance of machineries, equipments and tools
- KU15.** basic mathematics
- KU16.** calculation of raw material to yield of finished product
- KU17.** procedures for disposal of waste from agricultural produce

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- KU18.** quality parameters, basic food microbiology and quality assessment based on physical parameters
- KU19.** types and category of packaging materials, packaging machineries
- KU20.** storage procedures for raw materials, packaging materials and finished goods
- KU21.** cleaning procedures such as CIP and COP
- KU22.** knowledge on sanitizers and disinfectants and its handling and storing methods
- KU23.** food laws and regulations on product, packaging and labelling
- KU24.** food safety and hygiene
- KU25.** GMP
- KU26.** 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 equipments operation and process requirement
- GS10.** read internal information documents sent by internal teams
- 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

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- 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>Wash fruits and vegetables</i>	<b>3</b>	<b>7</b>	-	-
<b>PC1.</b> receive fruits and vegetables from the supplier/vendor, check weight and check the quality through physical parameters such as appearance, colour, texture, maturity, etc.	1.5	2.5	-	-
<b>PC2.</b> open valves or start pump to fill water into the washing tank and control water level, dump fruits manually or start elevator conveyor to transfer fruits into washing tank for washing (or) wash and rinse manually	0.5	1.5	-	-
<b>PC3.</b> switch on agitator of revolving screens/blades to immerse each fruit into water to remove dirt, soil, etc., start ladder conveyor to lift fruits from the washing tank and transfer to washing line conveyor	0.5	1.5	-	-
<b>PC4.</b> open valves of the high pressure spraying system for chlorinated water and fresh water, adjust pressure to spray water on fruits and vegetables to wash with chlorinated water and rinse with fresh water	0.5	1.5	-	-
<i>Sort, peel, slice and blanch fruits and vegetables</i>	<b>4</b>	<b>6</b>	-	-
<b>PC5.</b> start and adjust speed of sorting/inspecting line conveyor to transfer raw material to inspection station, inspect visually and remove damaged, blemished and rotten fruits, dispose waste following SOP	0.5	1.5	-	-
<b>PC6.</b> start conveyor or elevator and control speed to transfer sorted fruits and vegetables into peeler or corer machine (depending on the type of fruits and vegetables), start peeler/corer machine and control speed to remove peel or core of fruits and vegetables (or)	0.5	0.5	-	-
<b>PC7.</b> dump measured quantity of lye chemical into tank of heated water to prepare lye solution for lye peeling, turn valves to admit steam to heat lye solution in tank, observe dials and adjust controls to regulate pressure and temperature	0.5	0.5	-	-

**Qualification Pack**

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC8.</b> start conveyor and adjust speed to carry fruit and vegetables through lye peeling machine or load by hand, set and adjust timer for immersion time following sop, observe fruit and vegetable emerging from machine to ensure removal of skin or membrane, open valve to drain the excess lye solution,( or)	0.5	0.5	-	-
<b>PC9.</b> turn valves to introduce steam and adjust controls to maintain pressure for steam peeling of fruits and vegetables, open valves of water spraying system to wash the peeled/ scalded fruits and vegetables	0.5	0.5	-	-
<b>PC10.</b> start conveyor to transfer fruits and vegetable to chopper/cutter/slicer machine to slice to specified size and shape following SOP	0.5	0.5	-	-
<b>PC11.</b> open valves or start pump to fill water in the blanching machine, adjust controls to set temperature, pressure, blanching time, etc. for different types of fruits and vegetables following sop, open valves to allow steam, observe dial and adjust controls to regulate and maintain set parameters	0.5	1.5	-	-
<b>PC12.</b> start feed conveyor and control speed to feed fruits and vegetables to and from the blanching machine, examine blanched fruits and vegetables visually and through feel/texture to determine adequacy of softening	0.5	0.5	-	-
<i>Sulphurize fruits and vegetables</i>	<b>3</b>	<b>7</b>	-	-
<b>PC13.</b> load fruits and vegetables (only that require sulphurizing) in trays either manually or mechanically for sulphur treatment, shake/tap trays (or) pass trays though vibrator machines to vibrate trays for uniform spreading of fruits and vegetable	0.5	0.5	-	-
<b>PC14.</b> place loaded trays in the cart, push loaded cart into sulphurizing chamber, set timer following sop for sulphurizing various types of fruits and vegetables, light burner to generate sulphur fumes and allow to stand for specified time, move cart out of the sulphurizing chamber after specified time (or)	1	2	-	-



**Qualification Pack**

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC15.</b> pump measured quantity of water into sulphurizing tank, measure sulphurizing chemicals and add into water, mix manually or start stirrer and control speed for uniform mixing to prepare sulphur solution	0.5	1.5	-	-
<b>PC16.</b> load fruits and vegetables in basket and lower basket mechanically into sulphurizing tank (or) start conveyor and control speed to dump fruit and vegetables into sulphurizing tank,	0.5	1.5	-	-
<b>PC17.</b> start motor to lift basket (or) start conveyor and control speed to remove sulphur treated fruits and vegetables from sulphurizing tank after specified time and transfer to drying line	0.5	1.5	-	-
<i>Sun dry fruits and vegetables</i>	<b>4.5</b>	<b>10.5</b>	-	-
<b>PC18.</b> weigh pre-processed fruits and vegetables (with or without sulphur treatment) for drying, load in tray, shake/tap trays manually or pass trays through vibrator machines to vibrate for uniform spreading	1	2	-	-
<b>PC19.</b> transfer loaded trays to the drying area/yard, arrange in rows in drying area for exposure to direct sunlight, allow to stand until fruits and vegetable are completely dried (drying time depends on intensity of sunlight), check drying produce periodically to check the completeness of drying	1	3	-	-
<b>PC20.</b> check the dried fruits and vegetables through feel and dryness to ensure complete removal of moisture	1	2	-	-
<b>PC21.</b> transfer dried product into scraping line, scrap trays manually using scraper to remove dried product from the trays	0.5	1.5	-	-
<b>PC22.</b> start vibrating mesh conveyor and control vibration, transfer dried product on the conveyor to vibrate products and to remove any undesirable particles, start conveyor to transfer dried product to finished product inspection line	1	2	-	-
<i>Hot air dry fruits and vegetables</i>	<b>7</b>	<b>13</b>	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC23.</b> adjust controls of hot air drier to set temperature and time, switch on drier to preheat (or) add fuel to furnace to heat drier (batch process)	0.5	1.5	-	-
<b>PC24.</b> move loaded cart from sulfurizing chamber into drier to dehydrate fruit and vegetables	0.5	0.5	-	-
<b>PC25.</b> adjust controls of drier to set drying temperature and drying time for various types of fruits and vegetables following sop, push button or turn knob to start drier, control speed of blower fan to circulate hot air and to maintain temperature inside drier	1	2	-	-
<b>PC26.</b> open drier after specified time, remove cart(s) from the drier and transfer to the cooling area, start fans and control speed to allow air to pass through dried product for cooling (or)	0.5	1.5	-	-
<b>PC27.</b> start drying line conveyor, load measured quantity of pre-processed fruits and vegetables on conveyor, control speed to transfer fruits and vegetables into tunnel drier(continuous process)	1	2	-	-
<b>PC28.</b> set control parameters of tunnel drier (in control panel of drier or in plc) like drier temperature, drying time, fan speed, air temperature, rate of air flow etc, start and control speed of conveyor to allow and control amount of material conveyed to tunnel drier for drying	1	2	-	-
<b>PC29.</b> observe gauges to verify temperature, adjust controls to maintain process parameters in tunnel drier	0.5	1.5	-	-
<b>PC30.</b> check the dried product passing out of tunnel drier through physical parameters like colour, appearance, dryness (through feel) , firmness etc or observe gauges to determine if moisture content of material conforms to standard	1	1	-	-
<b>PC31.</b> start cooling line conveyor and control speed, start fans and adjust speed to blow air on dried material passing through conveyor to cool dried products, start conveyor to transfer dried product to finished product inspection line	1	1	-	-
<i>Freeze dry fruits and vegetables</i>	<b>7.5</b>	<b>12.5</b>	-	-

**Qualification Pack**

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC32.</b> load raw material (fruits and vegetables) cartons/crates in freezing room and close, set parameters like temperature, time etc of freezing room and allow to freeze until required temperature	1	2	-	-
<b>PC33.</b> monitor gauges to confirm raw materials have reached specified temperature, open freezing room and unload frozen produce, open carton and check frozen raw materials to ensure it is completely frozen (i.e. converted to ice crystals)	0.5	1.5	-	-
<b>PC34.</b> start ladder/elevator conveyor and control speed, open cartons and dump frozen produce on the conveyor and allow to pass to the inspection line	0.5	1.5	-	-
<b>PC35.</b> start and adjust speed of sorting/inspection line conveyor, inspect visually and remove produce non-conforming to standards	0.5	1.5	-	-
<b>PC36.</b> load sorted frozen produce in trays and load them in carts, set control parameters like temperature, time etc of cold storage room following sop for cooling, move loaded carts into cold storage room/chamber, close door, maintain set parameters and allow produce to cool for specified time to achieve required fineness, unload carts from cold storage room, check if cooled produce have achieved required firmness	2	2	-	-
<b>PC37.</b> set controls of freeze drying chamber like pressure, time etc in control panel or in plc, load carts in freezing chamber for freeze drying fruits and vegetables, observe gauges and adjust controls to maintain process parameters	2	2	-	-
<b>PC38.</b> open freeze drying chamber after specified time, unload cart, check freeze dried product through physical parameters like colour, flavour, appearance, dryness (through feel) etc, sample dried product and transfer to quality lab for analysis, transfer the product to bins or boxes and hold for specified time to equalize moisture content	1	2	-	-
<i>Inspect, pack and store dried/dehydrated fruits and vegetables</i>	<b>4.5</b>	<b>5.5</b>	-	-

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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC39.</b> set controls of electronic colour sorter and metal detector, start finished product inspection line conveyor and control speed, load dried product on conveyor and allow to pass through visual inspection station, electronic colour sorter and metal detector to remove metals and products that do not conform to standards	0.5	1.5	-	-
<b>PC40.</b> start packaging line conveyor to transfer product to packaging machine, start pump or manually load dried/dehydrated products in the hopper of the packaging machine to pack finished product	0.5	0.5	-	-
<b>PC41.</b> load packing materials in packaging machine and set packing quantity, set date coding machine for date code details like batch number, date of manufacture, date of expiry etc	1	1	-	-
<b>PC42.</b> start automatic packaging machine to form, fill and seal measured quantity of finished products, check weight of packed product periodically to ensure its conformance to standards	0.5	0.5	-	-
<b>PC43.</b> sample packed product and transfer to quality lab for analysis and to ensure its conformance to quality standards	1	1	-	-
<b>PC44.</b> place packed and labelled products in cartons and transfer to storage area and store maintaining storage conditions following sop	0.5	0.5	-	-
<b>PC45.</b> report discrepancies/concerns to department supervisor for immediate action	0.5	0.5	-	-
<i>Carry out post production cleaning and regular maintenance of equipments</i>	<b>1.5</b>	<b>3.5</b>	-	-
<b>PC46.</b> clean the work area, machineries, equipment and tools using recommended cleaning agents and sanitizers	0.5	1.5	-	-
<b>PC47.</b> attend minor repairs/faults of all machines (if any)	0.5	1.5	-	-
<b>PC48.</b> ensure periodic (daily/weekly/monthly/quarterly/half yearly/annual) maintenance of all machines and equipment following the sop or following suppliers instructions/manuals	0.5	0.5	-	-



### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
NOS Total	35	65	-	-

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	FIC/N0118
<b>NOS Name</b>	Dry/ Dehydrate fruits and vegetables
<b>Sector</b>	Food Processing
<b>Sub-Sector</b>	Fruits and Vegetables, Bread and Bakery, Packaged Goods
<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/N0117: Prepare for drying/dehydration of fruits and vegetables

#### Description

This unit is about preparation for drying/dehydration of fruits and vegetables by planning production, machinery utilization, organizing raw materials, packaging and other machineries for the drying/dehydration process.

#### Elements and Performance Criteria

##### *Provide support in production planning (for drying/dehydration of fruits and vegetables)*

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

- PC1.** read and understand the production order from the supervisor
- PC2.** check the availability of raw materials, packaging materials, equipment and manpower
- PC3.** support in planning production sequence by grouping fruits and vegetables of similar type selecting raw materials that do not impact the quality of the other avoiding cip after each product using the same equipment and machinery for various products planning maximum capacity utilization of machineries considering the process time for each product planning efficient utilization of resources/manpower prioritizing urgent orders
- PC4.** calculate the batch size based on the production order and machine capacity
- PC5.** calculate the raw materials, packaging materials and manpower requirement for the completing the order

##### *Plan equipment utilization (for drying/dehydration of fruits and vegetables)*

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

- PC6.** ensure the working and performance of each equipment required for process
- PC7.** calculate the process time for effective utilization of machineries
- PC8.** plan batch size considering full capacity utilization of machineries
- PC9.** plan to utilize machineries for multiple products without affecting the quality of finished products, and to optimize production and saving energy
- PC10.** allot responsibilities/ work to the assistants and helpers

##### *Organize and check equipment and raw material (for drying/dehydration of fruits and vegetables)*

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

- PC11.** refer to the process chart for drying/dehydration of various fruits and vegetables
- PC12.** weigh the raw materials and ingredients required for the batch
- PC13.** check the conformance of raw material quality to company standards, through physical analysis by referring to the quality analysis report from the supplier / internal lab analysis report
- PC14.** ensure working and performance of required machineries and tools
- PC15.** clean machinery and equipment, using steam hose, soap, and brushes
- PC16.** keep the tools accessible to attend repairs/faults in case of breakdown

#### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:



## Qualification Pack

- KU1.** organization standards, process standards and procedures followed in the organisation
- 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 relevant to production process
- KU6.** internal processes like procurement, store management, inventory management, quality management and key contact points for query resolution
- KU7.** provision of wages, working hours, accident compensation as per organisation policy
- KU8.** food safety and hygiene standards followed
- KU9.** types of fruits and vegetables dried/dehydrated
- KU10.** various drying/dehydration methods
- KU11.** types of machineries used in drying/dehydration process and machineries used in the organisation
- KU12.** handling and maintenance of drying/dehydration equipments
- KU13.** supplier/manufacturers instructions related to machineries
- KU14.** process for drying/dehydration of various type of fruits and vegetables
- KU15.** basic mathematics
- KU16.** calculation of raw material for required quantity of finished product
- KU17.** quality parameters, basic food microbiology and quality assessment based on physical parameters
- KU18.** food safety and hygiene
- KU19.** GMP
- KU20.** 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 equipments operation and process requirement
- GS10.** read internal information documents sent by internal teams
- GS11.** discuss task lists, schedules and activities with the supervisor
- GS12.** effectively communicate with the team members

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- 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>Provide support in production planning (for drying/dehydration of fruits and vegetables)</i>	<b>15</b>	<b>25</b>	-	-
<b>PC1.</b> read and understand the production order from the supervisor	4	6	-	-
<b>PC2.</b> check the availability of raw materials, packaging materials, equipment and manpower	2	3	-	-
<b>PC3.</b> support in planning production sequence by grouping fruits and vegetables of similar type selecting raw materials that do not impact the quality of the other avoiding cip after each product using the same equipment and machinery for various products planning maximum capacity utilization of machineries considering the process time for each product planning efficient utilization of resources/manpower prioritizing urgent orders	5	10	-	-
<b>PC4.</b> calculate the batch size based on the production order and machine capacity	2	3	-	-
<b>PC5.</b> calculate the raw materials, packaging materials and manpower requirement for the completing the order	2	3	-	-
<i>Plan equipment utilization (for drying/dehydration of fruits and vegetables)</i>	<b>8</b>	<b>17</b>	-	-
<b>PC6.</b> ensure the working and performance of each equipment required for process	2	3	-	-
<b>PC7.</b> calculate the process time for effective utilization of machineries	2	5	-	-
<b>PC8.</b> plan batch size considering full capacity utilization of machineries	2	5	-	-
<b>PC9.</b> plan to utilize machineries for multiple products without affecting the quality of finished products, and to optimize production and saving energy	1	2	-	-
<b>PC10.</b> allot responsibilities/ work to the assistants and helpers	1	2	-	-

### Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Organize and check equipment and raw material (for drying/dehydration of fruits and vegetables)</i>	12	23	-	-
<b>PC11.</b> refer to the process chart for drying/dehydration of various fruits and vegetables	1.5	3.5	-	-
<b>PC12.</b> weigh the raw materials and ingredients required for the batch	1	2	-	-
<b>PC13.</b> check the conformance of raw material quality to company standards, through physical analysis by referring to the quality analysis report from the supplier / internal lab analysis report	1	4	-	-
<b>PC14.</b> ensure working and performance of required machineries and tools	4	6	-	-
<b>PC15.</b> clean machinery and equipment, using steam hose, soap, and brushes	4	6	-	-
<b>PC16.</b> keep the tools accessible to attend repairs/faults in case of breakdown	0.5	1.5	-	-
<b>NOS Total</b>	<b>35</b>	<b>65</b>	-	-

## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	FIC/N0117
<b>NOS Name</b>	Prepare for drying/dehydration of fruits and vegetables
<b>Sector</b>	Food Processing
<b>Sub-Sector</b>	Fruits and Vegetables
<b>Occupation</b>	Processing
<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

## 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.

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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/N0116.Prepare and maintain work area and process machineries for drying/dehydration of fruits and vegetables	35	65	-	-	100	20
FIC/N9001.Ensure food safety, hygiene and sanitation for processing food products	35	65	-	-	100	20
FIC/N0119.Complete documentation and record keeping related to drying/dehydration of fruits and vegetables	60	40	-	-	100	20
FIC/N0118.Dry/ Dehydrate fruits and vegetables	35	65	-	-	100	20
FIC/N0117.Prepare for drying/dehydration of fruits and vegetables	35	65	-	-	100	20
<b>Total</b>	<b>200</b>	<b>300</b>	<b>-</b>	<b>-</b>	<b>500</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

## 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.