









Butter and Ghee Processing Operator

QP Code: FIC/Q2003

Version: 2.0

NSQF Level: 3

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FIC/Q2003: Butter and Ghee Processing Operator

Brief Job Description

A Butter and Ghee Processing Operator is responsible for operating various dairy processing machineries (filter, separator, pasteurizer, etc.) to produce butter and ghee following specifications and standards of the organization.

Personal Attributes

A Butter and Ghee Processing Operator must have the ability to plan, organize, prioritize, calculate and handle pressure. S/he must possess reading, writing and communication skills. In addition, s/he must have personal and professional hygiene and an understanding of food safety standards and requirements.

Applicable National Occupational Standards (NOS)

Compulsory NOS:

- 1. FIC/N2009: Prepare and maintain work area and process machineries for butter and ghee production
- 2. FIC/N2010: Prepare for production of butter and ghee
- 3. FIC/N2011: Produce butter and ghee
- 4. FIC/N2012: Complete documentation and record keeping related to butter and ghee production
- 5. FIC/N9001: Ensure food safety, hygiene and sanitation for processing food products

Qualification Pack (QP) Parameters

Sector	Food Processing
Sub-Sector	Dairy Products
Occupation	Processing-Dairy Products
Country	India
NSQF Level	3
Aligned to NCO/ISCO/ISIC Code	NCO-2004/7413.30







Minimum Educational Qualification & Experience	10th Class OR 8th Class with 2 Years of experience relevant experience
Minimum Level of Education for Training in School	8th Class
Pre-Requisite License or Training	1. Food standards and regulations2. Operating different types of dairy processingequipments3. Packaging technology4. GMP5. HACCP6. QMS7. Computer basics and ERP system followed by theorganization8. Training in Food Safety Standards and Regulations (asper FSSAI) (Mandatory)
Minimum Job Entry Age	18 Years
Last Reviewed On	29/07/2021
Next Review Date	29/07/2024
Deactivation Date	29/07/2024
NSQC Approval Date	29/07/2021
Version	2.0
Reference code on NQR	2021/FI/FICSI/04370
NQR Version	1.0







FIC/N2009: Prepare and maintain work area and process machineries for butter and ghee production

Description

This unit is about preparing work area for hygiene and safety, and ensuring performance, efficiency and maintenance of process machineries and tools, for butter and ghee production, as per the specifications and standards of the organization.

Elements and Performance Criteria

Prepare and maintain work area (for butter and ghee production)

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 butter and ghee production)

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 filter, homogenizer, pasteurizer, separator, clarifier, separator, cutter, packaging machines, etc.
- **PC5.** clean the machineries and tools used with recommended sanitizers following the company specifications and standards
- **PC6.** place the necessary tools required for process
- **PC7.** attend to the minor repairs/ faults of all machines, if required
- **PC8.** select and set the machines and tools required for production

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 of chemicals, materials and equipment required for 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 FSSAI)
- **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
- **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







Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Prepare and maintain work area (for butter and ghee production)	18	32	-	-
PC1. clean and maintain the cleanliness of the work area using approved sanitizers and keep it free from dust, waste, flies and pests	10	15	-	-
PC2. ensure that work area is safe and hygienic for food processing	3	7	-	-
PC3. dispose waste materials as per organisation standards and industry requirements	5	10	-	-
Prepare and maintain process machineries and tools (for butter and ghee production)	17	33	-	-
PC4. check the working and performance of all machineries and tools used for the process such as filter, homogenizer, pasteurizer, separator, clarifier, separator, cutter, packaging machines, etc.	5	10	-	-
PC5. clean the machineries and tools used with recommended sanitizers following the company specifications and standards	5	10	-	-
PC6. place the necessary tools required for process	2	3	-	-
PC7. attend to the minor repairs/ faults of all machines, if required	2.5	5	-	-
PC8. select and set the machines and tools required for production	2.5	5	-	-
NOS Total	35	65	-	-







National Occupational Standards (NOS) Parameters

NOS Code	FIC/N2009
NOS Name	Prepare and maintain work area and process machineries for butter and ghee production
Sector	Food Processing
Sub-Sector	Dairy Products
Occupation	Processing
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	29/07/2021
Next Review Date	29/07/2024
Deactivation Date	29/07/2024
NSQC Clearance Date	29/07/2021







FIC/N2010: Prepare for production of butter and ghee

Description

This unit is about preparation for production of butter and ghee through planning machinery utilization and organizing and checking equipment and raw material.

Elements and Performance Criteria

Plan equipment utilization (for production of butter and ghee)

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

- **PC1.** read and understand the production order from the supervisor
- **PC2.** ensure working and performance of all machineries required for process
- **PC3.** report malfunctions of machine, if any, to the supervisor
- PC4. calculate the process time for effective utilization of machineries and manpower
- **PC5.** allot responsibilities/ work to the assistants and helpers

Organize and check equipments and raw material for carrying out production of butter and ghee

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

- **PC6.** refer process chart/ product flow chart/formulation chart for product(s)produced
- **PC7.** check the quality of raw materials by verifying the quality analysis report and assessing its physical parameters
- **PC8.** connect pipes between holding tanks and process equipment
- **PC9.** assemble fittings, valves, bowls, impeller shaft, strainers and other parts to equipment to prepare for production
- PC10. start machine and check the working condition and performance of the machine
- **PC11.** make minor adjustments and repairs (if required)
- **PC12.** 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:

- **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 of raw materials (cow milk, goat milk, buffalo milk etc) and various types of dairy products







- **KU10.** types of machineries used for processing each type of product
- **KU11.** various machineries used in the organisation
- **KU12.** maintenance of each of the process equipments
- KU13. supplier/manufacturer instructions related to machineries
- **KU14.** handling all processing machineries
- **KU15.** basic mathematics
- **KU16.** quality parameters, basic food microbiology and quality assessment based on physical parameters
- **KU17.** cleaning procedures such as CIP and COP
- **KU18.** knowledge on sanitizers and disinfectants and its handling and storing methods
- **KU19.** food laws and regulations on product, packaging and labelling
- KU20. food safety and hygiene
- 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 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
- **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 team 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







Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Plan equipment utilization (for production of butter and ghee)	12	18	-	-
PC1. read and understand the production order from the supervisor	2	3	-	-
PC2. ensure working and performance of all machineries required for process	4	6	-	-
PC3. report malfunctions of machine, if any, to the supervisor	2	3	-	-
PC4. calculate the process time for effective utilization of machineries and manpower	2	3	-	-
PC5. allot responsibilities/ work to the assistants and helpers	2	3	-	-
Organize and check equipments and raw material for carrying out production of butter and ghee	23	47	-	-
PC6. refer process chart/ product flow chart/formulation chart for product(s)produced	2	3	-	-
PC7. check the quality of raw materials by verifying the quality analysis report and assessing its physical parameters	5	5	-	-
PC8. connect pipes between holding tanks and process equipment	5	10	-	-
PC9. assemble fittings, valves, bowls, impeller shaft, strainers and other parts to equipment to prepare for production	5	10	-	-
PC10. start machine and check the working condition and performance of the machine	2	8	-	-
PC11. make minor adjustments and repairs (if required)	2	8	-	-
PC12. keep the tools accessible to attend repairs/faults in case of breakdown	2	3	_	-
NOS Total	35	65	-	-







National Occupational Standards (NOS) Parameters

NOS Code	FIC/N2010
NOS Name	Prepare for production of butter and ghee
Sector	Food Processing
Sub-Sector	Dairy Products
Occupation	Processing
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	29/07/2021
Next Review Date	29/07/2024
Deactivation Date	29/07/2024
NSQC Clearance Date	29/07/2021







FIC/N2011: Produce butter and ghee

Description

This unit is about operating dairy processing machineries to produce butter and ghee as per the specifications and standards of the organization.

Elements and Performance Criteria

Production of butter cream

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

- **PC1.** sterilize the dairy processing equipments before process by opening valves or pumping recommended sterilizing solution and rinse water through pipes
- **PC2.** check the quality of raw material through physical parameters such as impurities, colour, appearance, temperature etc and by verifying the quality report
- **PC3.** set and control metering devices or open valves to allow measured volume of milk from holding tank to pass through filter to remove sediment
- **PC4.** adjust controls to set speed of the separator, and open valves to allow milk to pass through the separator to separate cream (butter cream) from milk
- **PC5.** open valve of the of separator to allow the separated cream into the cream holding tank/bulk tank and stir the butter cream for uniform consistency
- **PC6.** check the quality of butter cream by testing the water and fat content
- **PC7.** set process parameters such as temperature, time of the pasteurizer, turn valves to admit steam, observe pressure and temperature gauge, and open valves to allow cream into pasteurizer to pasteurize cream
- PC8. collect the pasteurized butter cream in ageing tank for production of butter

Production of butter

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

- PC9. add bacterial culture to the butter cream in the ageing tank following the SOP
- **PC10.** allow the butter cream to stand in ageing tank for specified time for ageing/ fermentation of butter cream
- **PC11.** check the quality of butter cream, check the weight and start pump to move aged butter cream to churner
- PC12. adjust controls to regulate speed of the churner, press switches to start churner
- **PC13.** stop the churner in specified intervals, open the air vent to release the air from the churner, close the vent and start the churner, repeat this operation until butter (butter popcorn) is formed (in semi-automated units)
- **PC14.** stop the churner after butter popcorn is formed, observe separation of buttermilk from butter, and pump buttermilk from churner into container/ tank
- **PC15.** open churner and spray water (chlorinated) into butter to remove buttermilk residue
- **PC16.** weigh salt and add manually or prepare salt solution and pump it into the butter popcorn in the churner and close the churner (for production of salted butter)
- **PC17.** adjust controls and valves in the churner to maintain pressure in the churner, set the churner speed and start the churner to thicken the fat molecules







- **PC18.** press switches to start extruder of churner to extrude butter/salted butter into mill machine for mixing butter to achieve desired fineness
- **PC19.** sample butter and test for moisture, butterfat, salt content, texture, aroma, taste to detect any undesirable flavours, and compare color against colour chart
- **PC20.** transfer butter into the butter moulding and wrapping machine, load primary packaging material, set controls and start machine to shape measured quantity of butter into blocks and wrap in the primary packaging material
- **PC21.** load secondary packaging material in the packaging machine and set batch code, date code, packaging quantity etc and start the packaging machine to pack the wrapped butter and periodically check the weight of the packed product
- PC22. sample packed product and transfer to quality lab for analysis and conformance to standards
- **PC23.** transfer packed product into finished product storage area, and store product maintaining suitable storage conditions following the SOP

Production of ghee

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

- **PC24.** check the quality of raw material (butter) through physical parameters
- **PC25.** set and control metering devices to transfer/extrude measured quantity of butter blocks/butter into the clarifying tank
- **PC26.** open valves to admit steam to heat clarifying tank to melt and remove moisture from butter
- **PC27.** pump melted butter to ghee boiler, set and maintain stirrer speed and temperature of the ghee boiler to heat melted butter to specified temperature for production of ghee
- PC28. position strainers across filling vents of the receiving tank
- **PC29.** turn valve to allow ghee to pass through strainers to remove scum
- **PC30.** open the valves to collect ghee in the receiving/holding tank
- **PC31.** adjust controls to set temperature of holding tank to cool ghee to specified temperature
- **PC32.** check the quality of ghee through physical parameters like appearance, colour, texture, aroma, taste etc
- **PC33.** load packaging material in the packaging machine, set batch code, date code, packaging quantity etc, start the packaging machine to pack measured quantity of ghee and periodically check the weight of the packed product
- PC34. sample packed product and transfer to quality lab for analysis and conformance to standards
- **PC35.** transfer packed product into finished product storage area, and store product maintaining suitable storage conditions following the sop
- **PC36.** report malfunction/discrepancies/concerns to department supervisor for immediate action

Post production cleaning and regular maintenance of equipments

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

- **PC37.** turn valves or pump recommended sterilizing solution and rinse water through pipes for CIP of tanks and processing equipment following SOP
- PC38. clean the work area using recommended cleaning agents and sanitizers
- **PC39.** attend minor repairs/faults of all machines (if any)
- **PC40.** ensure periodic (daily/weekly/monthly/quarterly/half yearly/annual) maintenance of all machines and equipment following the sop or 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 as per organisation policy
- **KU8.** food safety and hygiene standards followed
- **KU9.** types of raw materials (cow milk, goat milk, buffalo milk etc) and various types of dairy products
- **KU10.** various types of ingredients used for producing dairy products
- **KU11.** types of machineries used for processing each type of product
- KU12. various machineries used in the organisation
- **KU13.** maintenance of each of the process equipments
- **KU14.** supplier/manufacturer instructions related to machineries
- **KU15.** handling all processing machineries
- **KU16.** process and process parameters for production of various products
- **KU17.** basic mathematics
- **KU18.** quality parameters, basic food microbiology and quality assessment based on physical parameters
- KU19. cleaning procedures like CIP and COP
- **KU20.** knowledge on sanitizers and disinfectants and its handling and storing methods
- **KU21.** food laws and regulations on product, packaging and labelling
- KU22. food safety and hygiene
- KU23. GMP
- KU24. 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
- **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







Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Production of butter cream	9	16	-	-
PC1. sterilize the dairy processing equipments before process by opening valves or pumping recommended sterilizing solution and rinse water through pipes	0.5	1.5	-	-
PC2. check the quality of raw material through physical parameters such as impurities, colour, appearance, temperature etc and by verifying the quality report	1	1	-	-
PC3. set and control metering devices or open valves to allow measured volume of milk from holding tank to pass through filter to remove sediment	1	2	-	-
PC4. adjust controls to set speed of the separator, and open valves to allow milk to pass through the separator to separate cream (butter cream) from milk	2	3	-	-
PC5. open valve of the of separator to allow the separated cream into the cream holding tank/bulk tank and stir the butter cream for uniform consistency	1	2	-	-
PC6. check the quality of butter cream by testing the water and fat content	1	2	-	-
PC7. set process parameters such as temperature, time of the pasteurizer, turn valves to admit steam, observe pressure and temperature gauge, and open valves to allow cream into pasteurizer to pasteurize cream	2	3	-	-
PC8. collect the pasteurized butter cream in ageing tank for production of butter	0.5	1.5	-	-
Production of butter	12.5	22.5	-	-
PC9. add bacterial culture to the butter cream in the ageing tank following the SOP	0.5	1.5	-	-
PC10. allow the butter cream to stand in ageing tank for specified time for ageing/ fermentation of butter cream	0.5	0.5	-	-







Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC11. check the quality of butter cream, check the weight and start pump to move aged butter cream to churner	1	1	-	-
PC12. adjust controls to regulate speed of the churner, press switches to start churner	1	2	-	-
PC13. stop the churner in specified intervals, open the air vent to release the air from the churner, close the vent and start the churner, repeat this operation until butter (butter popcorn) is formed (in semi-automated units)	1	2	-	-
PC14. stop the churner after butter popcorn is formed, observe separation of buttermilk from butter, and pump buttermilk from churner into container/ tank	1	2	-	-
PC15. open churner and spray water (chlorinated) into butter to remove buttermilk residue	1	2	-	-
PC16. weigh salt and add manually or prepare salt solution and pump it into the butter popcorn in the churner and close the churner (for production of salted butter)	0.5	1.5	-	-
PC17. adjust controls and valves in the churner to maintain pressure in the churner, set the churner speed and start the churner to thicken the fat molecules	1	2	-	-
PC18. press switches to start extruder of churner to extrude butter/salted butter into mill machine for mixing butter to achieve desired fineness	1	2	-	-
PC19. sample butter and test for moisture, butterfat, salt content, texture, aroma, taste to detect any undesirable flavours, and compare color against colour chart	1	1	-	-
PC20. transfer butter into the butter moulding and wrapping machine, load primary packaging material, set controls and start machine to shape measured quantity of butter into blocks and wrap in the primary packaging material	0.5	1.5	-	-







Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC21. load secondary packaging material in the packaging machine and set batch code, date code, packaging quantity etc and start the packaging machine to pack the wrapped butter and periodically check the weight of the packed product	1	2	-	-
PC22. sample packed product and transfer to quality lab for analysis and conformance to standards	0.5	0.5	-	-
PC23. transfer packed product into finished product storage area, and store product maintaining suitable storage conditions following the SOP	1	1	-	-
Production of ghee	10.5	19.5	-	-
PC24. check the quality of raw material (butter) through physical parameters	1	1	-	-
PC25. set and control metering devices to transfer/extrude measured quantity of butter blocks/butter into the clarifying tank	1	2	-	-
PC26. open valves to admit steam to heat clarifying tank to melt and remove moisture from butter	0.5	1.5	-	-
PC27. pump melted butter to ghee boiler, set and maintain stirrer speed and temperature of the ghee boiler to heat melted butter to specified temperature for production of ghee	1.5	3.5	-	-
PC28. position strainers across filling vents of the receiving tank	0.5	0.5	-	-
PC29. turn valve to allow ghee to pass through strainers to remove scum	0.5	1.5	-	-
PC30. open the valves to collect ghee in the receiving/holding tank	0.5	1.5	-	-
PC31. adjust controls to set temperature of holding tank to cool ghee to specified temperature	0.5	1.5	-	-
PC32. check the quality of ghee through physical parameters like appearance, colour, texture, aroma, taste etc	1	2	-	-







Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC33. load packaging material in the packaging machine, set batch code, date code, packaging quantity etc, start the packaging machine to pack measured quantity of ghee and periodically check the weight of the packed product	1	2	-	-
PC34. sample packed product and transfer to quality lab for analysis and conformance to standards	1	1	-	-
PC35. transfer packed product into finished product storage area, and store product maintaining suitable storage conditions following the sop	1	1	-	-
PC36. report malfunction/discrepancies/concerns to department supervisor for immediate action	0.5	0.5	-	-
Post production cleaning and regular maintenance of equipments	3	7	-	-
PC37. turn valves or pump recommended sterilizing solution and rinse water through pipes for CIP of tanks and processing equipment following SOP	1	3	-	-
PC38. clean the work area using recommended cleaning agents and sanitizers	0.5	1.5	-	-
PC39. attend minor repairs/faults of all machines (if any)	0.5	1.5	-	-
PC40. ensure periodic (daily/weekly/monthly/quarterly/half yearly/annual) maintenance of all machines and equipment following the sop or suppliers instructions/manuals	1	1	-	-
NOS Total	35	65	-	-







National Occupational Standards (NOS) Parameters

NOS Code	FIC/N2011
NOS Name	Produce butter and ghee
Sector	Food Processing
Sub-Sector	Dairy Products
Occupation	Processing
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	29/07/2021
Next Review Date	29/07/2024
Deactivation Date	29/07/2024
NSQC Clearance Date	29/07/2021







FIC/N2012: Complete documentation and record keeping related to butter and ghee production

Description

This unit is about documenting and maintaining records of raw materials, process and finished products related to butter and ghee production.

Elements and Performance Criteria

Document and maintain records of raw materials (for butter and ghee production)

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

- **PC1.** document and maintain records of raw material processed such as name of raw material, tag details, supplier details, receiving date/ date ofmanufacture, expiry date, quality parameters, internal quality analysis report, etc., as per company standards
- **PC2.** maintain record of observations (if any) related to raw 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 and process parameters (for butter and gheeproduction)

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

- **PC5.** document production details such as the products handled, production sequence, equipments and machinery details, efficiency and capacity utilization of equipment
- **PC6.** document process details such as type of raw material used, process parameters, temperature, time, pressure, etc. (as applicable) for entire production in process chart or production log for all products produced
- **PC7.** document batch size, production yield, and wastage of raw materials, energy utilization and final products produced
- **PC8.** maintain record of observations (if any) or deviations related to process and production
- **PC9.** load the production 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 butter and ghee production)

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 finished products details such as batch number, time of packing, date of manufacture, date of expiry, other label details, primary and secondary and packaging materials for all finished products, storage conditions, etc. as per company standards
- **PC13.** 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 organization
- **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.** documentation system followed in the organization such as production chart, process chart and finished products chart
- **KU10.** details to be recorded and maintained of raw materials and finished products
- **KU11.** dfetails to be recorded and maintained of production plan and process parameters
- **KU12.** methods to document and maintain records of 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.** handle issues in case the supervisor is not available (as per the authority matrix defined by the organization)
- **GS2.** plan and organize the work order and jobs received from the supervisor
- **GS3.** organize raw materials and packaging materials required for all products following the instruction provided by the supervisor
- **GS4.** plan and prioritize the work based on the instructions received from the supervisor
- **GS5.** plan to utilise time and equipment's effectively
- **GS6.** organize all process/ equipment manuals so as to access information easily
- **GS7.** support the supervisor in scheduling tasks for helper(s)
- **GS8.** understand customer requirements and their priority and respond as per their needs
- **GS9.** support supervisor in solving problems by detailing out problems
- **GS10.** discuss the possible solutions with the supervisor for problem solving
- **GS11.** apply domain information about maintenance Processes and technical knowledge about tools and equipment
- **GS12.** use common sense and make judgments on day to day basis
- **GS13.** use reasoning skills to identify and resolve basic problems
- **GS14.** use intuition to detect any potential problems which could arise during operations
- **GS15.** use acquired knowledge of the process for identifying and handling issues







- **GS16.** note the information communicated by the supervisor
- **GS17.** note the raw materials used for production and the finished products produced
- **GS18.** note the readings of the process parameters and provide necessary information to fill the process chart
- **GS19.** note down observations (if any) related to the process
- **GS20.** write information documents to internal departments/ internal teams
- **GS21.** note down the data for online ERP or as per applicability in the organization
- **GS22.** read and interpret the process required for producing various types of products
- **GS23.** read and interpret and process flowchart for all products produced
- **GS24.** read equipment manuals and process documents to understand the equipments operation and process requirement
- **GS25.** read internal information documents sent by internal teams
- GS26. discuss task lists, schedules and activities with the supervisor
- **GS27.** effectively communicate with the team members
- **GS28.** question the supervisor in order to understand the nature of the problem and to clarify queries
- **GS29.** attentively listen and comprehend the information given by the speaker
- **GS30.** communicate clearly with the supervisor and cross department teams on the issues faced during process
- **GS31.** analyse critical points in day to day tasks through experience and observation and identify control measures to solve the issue







Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Document and maintain records of raw materials (for butter and ghee production)	15	10	-	-
PC1. document and maintain records of raw material processed such as name of raw material, tag details, supplier details, receiving date/ date ofmanufacture, expiry date, quality parameters, internal quality analysis report, etc., as per company standards	6	4	-	-
PC2. maintain record of observations (if any) related to raw materials	3	2	-	-
PC3. load the raw materials details in ERP for future reference	3	2	-	-
PC4. verify the documents and track from finished product to raw materials, in case of quality concerns and during quality management system audits	3	2	-	-
Document and maintain records of production and process parameters (for butter and gheeproduction)	30	20	-	-
PC5. document production details such as the products handled, production sequence, equipments and machinery details, efficiency and capacity utilization of equipment	6	4	-	-
PC6. document process details such as type of raw material used, process parameters, temperature, time, pressure, etc. (as applicable) for entire production in process chart or production log for all products produced	9	6	-	-
PC7. document batch size, production yield, and wastage of raw materials, energy utilization and final products produced	6	4	-	-
PC8. maintain record of observations (if any) or deviations related to process and production	3	2	-	-
PC9. load the production and process details in ERP for future reference	3	2	-	-







Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC10. verify documents and track from finished product to ingredients, in case of quality concerns and for quality management system audits	3	2	-	-
Document and maintain records of finished products (for butter and ghee production)	15	10	-	-
PC11. document and maintain records of the types of finished products produced	2	1	-	-
PC12. document finished products details such as batch number, time of packing, date of manufacture, date of expiry, other label details, primary and secondary and packaging materials for all finished products, storage conditions, etc. as per company standards	4	3	-	-
PC13. maintain record of observations or deviations (if any) related to finished products	3	2	-	-
PC14. load the finished product details in ERP for future reference	3	2	-	-
PC15. verify the documents and track from finished product to ingredients, in case of quality concerns and for quality management system audits	3	2	-	-
NOS Total	60	40	-	-







National Occupational Standards (NOS) Parameters

NOS Code	FIC/N2012
NOS Name	Complete documentation and record keeping related to butter and ghee production
Sector	Food Processing
Sub-Sector	Dairy Products
Occupation	Processing
NSQF Level	4
Credits	TBD
Version	1.0
Last Reviewed Date	29/07/2021
Next Review Date	29/07/2024
Deactivation Date	29/07/2024
NSQC Clearance Date	29/07/2021







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







- **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/marking 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







- 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







Assessment Criteria

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







Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
PC12. document and maintain raw material, packaging material, process and finished products for the credibility and effectiveness of the food safety control system	1	3	-	-
Apply food safety practices (for processing food products)	10	15	-	-
PC13. 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	-	-
PC14. store raw materials, finished products and allergens separately to prevent cross contamination	2	3	-	-
PC15. label raw materials and finished products and store them in different storage areas according to safe food practices	2	3	-	-
PC16. follow stock rotation based on FEFO/FIFO	4	6	-	-
NOS Total	35	65	-	-







National Occupational Standards (NOS) Parameters

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







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/N2009.Prepare and maintain work area and process machineries for butter and ghee production	35	65	-	-	100	15
FIC/N2010.Prepare for production of butter and ghee	35	65	-	-	100	20
FIC/N2011.Produce butter and ghee	35	65	-	-	100	30
FIC/N2012.Complete documentation and record keeping related to butter and ghee production	60	40	-	-	100	15
FIC/N9001.Ensure food safety, hygiene and sanitation for processing food products	35	65	-	-	100	20
Total	200	300	-	-	500	100







Acronyms

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







Glossary

Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform similar/ related set of functions in an industry.
Job role	Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.
Occupational Standards (OS)	OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.
Performance Criteria (PC)	Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.
National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.
Unit Code	Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'
Unit Title	Unit title gives a clear overall statement about what the incumbent should be able to do.
Description	Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.
Scope	Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.







Knowledge and Understanding (KU)	Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.
Organisational Context	Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.
Technical Knowledge	Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.
Core Skills/ Generic Skills (GS)	Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles.
Electives	Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.
Options	Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.