

Revised Application Documentation: Version 4 /28 May, 2015

QUALIFICATION FILE – CONTACT DETAILS OF SUBMITTING BODY

Name and address of submitting body:

Food Industry Capacity & Skill Initiative (FICSI)
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New Delhi - 110001

Name and contact details of individual dealing with the submission

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List of documents submitted in support of the Qualifications File

1. Career Map of Dairy Processing Equipment Operator - Annexure 1
2. Qualification Pack of Dairy Processing Equipment Operator - Annexure 2
3. List of QP/NOS validating companies – Annexure 3
4. NSDC Human Resource and Skill Requirement Study- Annexure 4

QUALIFICATION FILE SUMMARY

Qualification Title	Dairy Processing Equipment Operator (FIC Q2002)		
Body/bodies which will assess candidates	Mettl, Stamp, IQAG, Skills Mantra, Aspiring Mind		
Body/bodies which will award the certificate for the qualification.	Food Industry Capacity & Skill Initiative (FICSI)		
Body which will accredit providers to offer the qualification.	Food Industry Capacity & Skill Initiative (FICSI)		
Occupation(s) to which the qualification gives access	Dairy Processing Equipment Operator		
Proposed level of the qualification in the NSQF.	Level 4		
Anticipated volume of training/learning required to complete the qualification.	240 hours		
Entry requirements / recommendations.	Preferably Class X		
Progression from the qualification.	Dairy Products Processor (Level 5)		
Planned arrangements for RPL.	RPL arrangements and policies are under development.		
International Comparability	Not done as yet.		
Formal structure of the qualification			
Title of unit or other component (include any identification code used)	Mandatory/ Optional	Estimated size (learning hours)	Level
FIC/N2005 Prepare and maintain work area and process machineries for operating dairy processing equipments	Mandatory	16	4
FIC/N2006 Prepare for operating dairy process machineries and production of various dairy products	Mandatory	32	4
FIC/N2007 Operate dairy processing machineries	Mandatory	144	4
FIC/N2008 Complete documentation and record keeping related to operation of dairy processing equipments	Mandatory	16	4
FIC/N9001 Food safety, hygiene and sanitation for processing food products	Mandatory	32	Common across levels

Please attach any document giving further detail about the structure of the qualification – e.g. a Curriculum or Qualification Pack.

Give details of the document here:

1. Qualification Pack of Dairy Processing Equipment Operator - Annexure 2

SECTION 1

ASSESSMENT

Name of assessment body:

If there will be more than one assessment body for this qualification, give details.

The assessment bodies include Mettl, Stamp, IQAG and Skills Mantra, Aspiring Mind

Will the assessment body be responsible for RPL assessment?

Yes

Give details of how RPL assessment for the qualification will be carried out and quality assured.

The RPL assessment will be based on the approved Qualification Pack and Assessment Criteria mentioned in the Qualification Pack.

Describe the overall assessment strategy and specific arrangements which have been put in place to ensure that assessment is always valid, consistent and fair and show that these are in line with the requirements of the NSQF:

Assessment will be done through third parties who will be affiliated to FICSI as an Assessment Body. The assessment plan will contain the following information:

- What will be assessed, i.e. the competency based on each NOS
- How assessment will occur i.e. methods of assessment
- When the assessment will occur
- Where the assessment will take place i.e. context of the assessment (workplace/simulation)
- Criteria for decision making i.e. those aspects that will guide judgements
- Where appropriate, any supplementary criteria would be used to make a judgement on the level of performance

The assessment would be conducted through theory, viva voce and practical.

Please attach any documents giving further information about assessment and/or RPL.

Give details of the document(s) here:

ASSESSMENT EVIDENCE

Complete the following grid for each grouping of NOS, assessment unit or other component as listed in the entry on the structure of the qualification on page 1.

<u>CRITERIA FOR ASSESSMENT OF TRAINEES</u>
Job Role: Dairy Processing Equipment Operator
Qualification Pack: FIC/Q2002
Sector Skill Council: Food Industry Capacity & Skill Initiative (FICSI)

Guidelines for Assessment:

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC
3. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below)
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criteria
5. To pass the Qualification Pack, every trainee should score a minimum of 70% in every NOS
6. In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack

Assessable Outcomes	Assessment Criteria	Total Marks	Out Of	Theory	Skills Practical
1. FIC/N2005: (Prepare and maintain work area and process machineries for operating dairy processing equipments)	PC1. Clean and maintain the cleanliness of the work area using approved sanitizers and keep it free from dust, waste, flies and pests		25	10	15
	PC2. Ensure that the work area is safe and hygienic for food processing		10	3	7
	PC3. Dispose waste materials as per organization standards and industry requirements		15	5	10
	PC4. Check the working and performance of all machineries and tools used for the process such as filter, homogenizer, pasteurizer, separator, clarifier, packaging		15	5	10

	machines, etc.				
	PC5. Clean the machineries and tools used with recommended sanitizers following specifications and organization standards		15	5	10
	PC6. Place the necessary tools required for the process		5	2	3
	PC7. Attend minor repairs/ faults of all machines, if required		7.5	2.5	5
	PC8. Select and set the machines and tools required		7.5	2.5	5
		Total	100	35	65
2. FIC/N2006: (Prepare for operating dairy process machineries and production of various dairy products)	PC1. Read and understand the production order from the supervisor		5	2	3
	PC2. Ensure working and performance of all machineries required for process		10	4	6
	PC3. Report malfunctions of machine, if any, to the supervisor		5	2	3
	PC4. Calculate the process time for effective utilization of machineries and manpower		5	2	3
	PC5. Allot responsibilities/ work to the assistants and helpers		5	2	3
	PC6. Refer process chart/ product flow chart/formulation chart for product(s) produced		5	2	3
	PC7. Check the quality of raw materials by verifying the quality analysis report and assessing its physical parameters		10	4	6
	PC8. Connect pipes between holding tanks and process equipment		15	5	10
	PC9. Assemble fittings, valves, bowls, impeller shaft, strainers and other parts of equipment to prepare for production		15	5	10

	PC10. Start machine and check the working condition and performance of the machine		10	2	8
	PC11. Make minor adjustments and repairs (if required)		10	3	7
	PC12. Keep the tools accessible to attend repairs/faults in case of breakdown		5	2	3
		Total	100	35	65
3. FIC/N2007: (Operate dairy processing machineries)	PC1. Turn valves to pump sterilizing solution and rinse by passing water through pipes to sterilize equipments		3	1	2
	PC2. Start pump to transfer measured volume of milk into the holding tank for storing until processing		3	1	2
	PC3. Set and control metering devices that measure and allow required volume of milk at all stages of processing		4	1	3
	PC4. Open valves to allow milk through filter to remove sediment		3	1	2
	PC5. Adjust controls of the separator and set process parameters like speed to separate cream and skim milk		6	2	4
	PC6. Open valves to allow milk into homogenizer and set controls for required fat level in milk to produce standardized milk		3	1	2
	PC7. Set process parameters like temperature, time etc of the pasteurizer to pasteurize milk and cream		6	2	4
	PC8. Turn valves to admit steam into pipes of the pasteurizer		3	1	2
	PC9. Open valves to allow milk/cream into pasteurizer to pasteurize milk/cream		3	1	2
	PC10. Observe temperature and pressure gauge of the pasteurizer to control and maintain process		6	2	4

parameters			
PC11. Set process parameters of the chilling tank like temperature, time	6	2	4
PC12. Turn valves to circulate refrigerant and pre-cooled water through coils to cool milk	3	1	2
PC13. Open valves to allow milk into the chilling tank for cooling	3	1	2
PC14. Pump specified amounts of liquid or powder ingredients like skim milk, starter culture, rennet, stabilizer, neutralizer, flavours etc into milk in milk tanks to make dairy products, such as toned milk, flavoured milk, curd, paneer, ice-cream etc	7	3	4
PC15. Set and maintain process parameters like temperature, pressure, speed, time etc for various dairy processing equipment to produce milk products	7	3	4
PC16. Start pump and agitator, observe pressure and temperature gauges, opens valves of dairy processing equipment to fill, stir, and steam/heat milk to produce milk products	7	3	4
PC17. Check the quality of products produced at various stages of processing through physical parameters, sample products and transfer to quality lab for analysis	5	2	3
PC18. Set batch code, date code and filling volume of the packaging machines	3	1	2
PC19. Open valves to allow dairy products into packaging machine for packing	2	0.5	1.5
PC20. Check the weight of packed dairy products for conformance to organisation standards	2	0.5	1.5

	PC21. Record time, temperature, pressure and volume readings during each stage of processing		3	1	2
	PC22. Report malfunction/discrepancies/concerns to department supervisor for immediate action.		2	1	1
	PC23. Turn valves to pump recommended sterilizing solution and rinse water through pipes for CIP (clean-in-place) of tanks and processing equipment following SOP		4	1	3
	PC24. Clean the work area using recommended cleaning agents and sanitizers		2	0.5	1.5
	PC25. Attend minor repairs/faults of all machines (if any)		2	0.5	1.5
	PC26. Ensure periodic (daily/weekly/monthly/quarterly/half yearly/annual) maintenance of all machines and equipment following the SOP or suppliers instructions/manuals		2	1	1
		Total	100	35	65
4. FIC/N2008: (Complete documentation and record keeping related to operation of dairy processing equipments)	PC1. Document and maintain records of raw material processed in the equipments such as type of raw materials, tag details such as supplier details, receiving date/ date of manufacture, expiry date, supplier quality document, quality parameters for all raw materials, internal quality analysis report, storage condition etc, as per company standards		10	6	4
	PC2. Maintain record of observations (if any) related to raw materials		5	3	2
	PC3. Load the raw materials details in ERP for future reference		5	3	2
	PC4. Verify the documents and track from finished product to raw materials, in case of quality concerns and during quality		5	3	2

management system audits			
PC5. Document production details like the products handled, production sequence, equipments and machinery details, efficiency and capacity utilization of equipment etc	10	6	4
PC6. Document process details such as type of raw material used, process parameters like temperature, time, pressure, etc. (as applicable) for entire production in process chart or production log for all products produced	15	9	6
PC7. Document batch size, production yield, and wastage of raw materials, energy utilization and final products produced	10	6	4
PC8. Maintain record of observations (if any) or deviations related to process and production	5	3	2
PC9. Load the production and process details in ERP for future reference	5	3	2
PC10. Verify documents and track from finished product to ingredients, in case of quality concerns and for quality management system audits	5	3	2
PC11. Document and maintain records on the types of finished products produced	3	2	1
PC12. Document the finished products details such as 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 company standards	7	4	3
PC13. Maintain record on observations or deviations (if any) related to finished products	5	3	2

	PC14. Load the finished product details in ERP for future reference	5	3	2
	PC15. Verify the documents and track from finished product to ingredients, in case of quality concerns and for quality management system audits	5	3	2
	Total	100	60	40
5. FIC/N9001: (Food safety hygiene and sanitation for processing food products)	PC1. Comply with food safety and hygiene procedures followed in the organisation	5	2	3
	PC2. Ensure personal hygiene by using of gloves, hairnets, masks, ear plugs, goggles, shoes, etc.	6	1	5
	PC3. Ensure hygienic production of food by inspecting raw materials, ingredients, finished products, etc. for compliance to physical, chemical and microbiological parameters	5	2	3
	PC4. Pack products in appropriate packaging materials, label and store them in designated area, free from pests, flies and infestations	10	4	6
	PC5. Clean maintain and monitor food processing equipment periodically, using it only for specified purpose	5	2	3
	PC6. Use safety equipment such as fire extinguisher, first aid kit and eye-wash station when required	10	4	6
	PC7. Follow housekeeping practices by having designated area for materials/tools	5	2	3
	PC8. Follow industry standards like GMP and HACCP and product recall process	10	4	6
	PC9. Attend training on hazard management to understand types of hazards such as physical, chemical and biological hazards and measures to control and	5	1	4

	prevent them			
	PC10. Identify, document and report problems such as rodents and pests to management	5	1	4
	PC11. Conduct workplace checklist audits before and after work to ensure safety and hygiene	5	1	4
	PC12. Document and maintain raw material, packaging material, process and finished products for the credibility and effectiveness of the food safety control system	4	1	3
	PC13. Determine the quality of food using criteria such as aroma, appearance, taste and best before date, and take immediate measures to prevent spoilage	5	2	3
	PC14. Store raw materials, finished products, allergens separately to prevent cross-contamination	5	2	3
	PC15. Label raw materials and finished products and store them in designated storage areas according to safe food practices	5	2	3
	PC16. Follow stock rotation based on FEFO / FIFO	10	4	6
	Total	100	35	65

SECTION 2

EVIDENCE OF NEED

What evidence is there that the qualification is needed?

During the industry interactions carried out while creating occupational maps and prioritization of job roles for Qualification Pack development, the mentioned qualification was indicated as a key requirement by the industry. Governing Council of FICSI shared the final approval for the development of the role. The qualification has also been validated and its need endorsed by some of the leading industry players such as Mother Dairy, Mehsana District Cooperative Milk Producers' Union Ltd. popularly known as Dudhsagar Dairy, Paras (VRS Foods Ltd), etc.

In addition, the NSDC Human Resource and Skill Requirement study has indicated a strong growth for the dairy products segment considering that India ranks first in the world in production of milk. The same was endorsed through multiple meetings with key stakeholders in this segment and a workshop. Meetings were held with Mr. Ram Mohan Rao (General Manager- Mother Dairy- Dairy segment), Mr. Praveen Agarwal (Gopaljee Dairy), etc. and inputs were taken from various cooperatives including Dudhsagar Dairy which is one of the largest dairies in India.

Milk and milk products account for a significant 17 percent of India's total expenditure on food. The major growth drivers of the milk and milk products sector are increasing per capita income, increasing population and high per capita consumption of milk, which leads to greater demand for high-value dairy products, such as cottage cheese and yogurt.

Evidence of the qualification is also supported by 32 validations. The complete list of validating companies has been enclosed as an annexure to the Q file.

What is the estimated uptake of this qualification and what is the basis of this estimate?

As per the NSDC Human Resource and Skill Requirement study, the projected size of Dairy Products till the year 2022 is Rs. 2597 billion (CAGR of 11.4%). The incremental human resource requirement in Dairy Products is expected to be 68,000 with demand in the organized sector being 12,000 (annual).

What steps were taken to ensure that the qualification(s) does/do not duplicate already existing or planned qualifications in the NSQF?

The qualification discussed above is checked for any duplication across sectors. Given the qualification is niche to Food Processing sector, there is no duplication or pre-existing similar qualifications.

What arrangements are in place to monitor and review the qualification(s)? What data will be used and at what point will the qualification(s) be revised or updated?

The comments, feedback and suggestions were collected through interaction with industry during December '14 to August'15. The same will be compiled and justifiable changes will be incorporated in the next/updated version of the QP. This QP is set to be revised post 15th September, 2016.

Please attach any documents giving further information about any of the topics above.

Give details of the document(s) here:

- List of QP NOS validating companies- Annexure 3
- NSDC Human Resource and Skill Requirement study – Annexure 4

SECTION 3

SUMMARY EVIDENCE OF LEVEL

Level of qualification: Level 4

Summary of Direct Evidence (from learning outcomes):

The job activities are exhaustively studied and their outcomes are evaluated to understand their mapping with the NSQF framework. The same had been reviewed and validated by sector skill council and industry representatives.

Summary of other evidence (if used):

Dairy Processing Equipment Operator – QP FIC/Q 2002					
Process required	Professional Knowledge	Professional Skills	Core Skills	Responsibility	Level
The job holder is responsible for operating various dairy processing machineries to produce dairy products. This involves working in familiar, predictable, routine, situation of clear choice such as preparing and maintaining work area and process machineries, sterilizing dairy equipments, setting and controlling metering devices, setting process parameters, adjusting controls, etc. in order to produce dairy products.	The job holder is expected to have factual knowledge of field of knowledge or study. For example, the job holder is expected to have knowledge of types of raw materials (cow milk, goat milk, buffalo milk etc.) and various types of dairy products, various types of ingredients used for producing dairy products, types of machineries used for processing each type of product, handling all processing machineries,	The job holder is expected to carry out routine and repetitive activities in a narrow range of application, using appropriate rule and tool. For instance, the job holder has to operate dairy processing machineries by sterilizing equipments, setting and maintaining process parameters, checking the quality of products produced at various stages of processing, reporting any malfunction, and also carrying out post	The job holder is expected to communicate with clarity, have basic arithmetic skills and a basic understanding of political and natural environment. For instance, s/he should be able to note the information communicated, note the readings of process parameters, write information documents to internal departments/ internal teams, read and interpret the process flow chart for products produced,	The job holder is responsible for only own work and learning. S/he is a skilled worker who carries out activities after reading and understanding the production order, provide support to the supervisor in planning production sequence, refer to the process chart/ production flow chart/ formulation chart for products to be produced and ensure working and performance of required machineries and tools required for operating dairy	4

<p>Hence, it qualifies as a Level 4 role. Since it does not involve several choices to be made even in a familiar context, the role does not qualify for Level 5.</p>	<p>knowledge on sanitizers and disinfectants, food safety and hygiene laws, etc. Since all the above mentioned areas are related to factual knowledge of field of knowledge, the role qualifies for Level 4.</p>	<p>production cleaning and regular maintenance of equipments. All these activities are mostly repetitive and have a narrow range of application, hence qualifying the role for a Level 4.</p>	<p>effectively communicate with team members and cross department teams on the issues faced during process. Hence, this role qualifies for Level 4.</p>	<p>processing equipments. Hence, this role qualifies for Level 4. It does not comprise of any supervisory activities.</p>	
Level 4	Level 4	Level 4	Level 4	Level 4	Level 4

SECTION 4

EVIDENCE OF RECOGNITION OR PROGRESSION

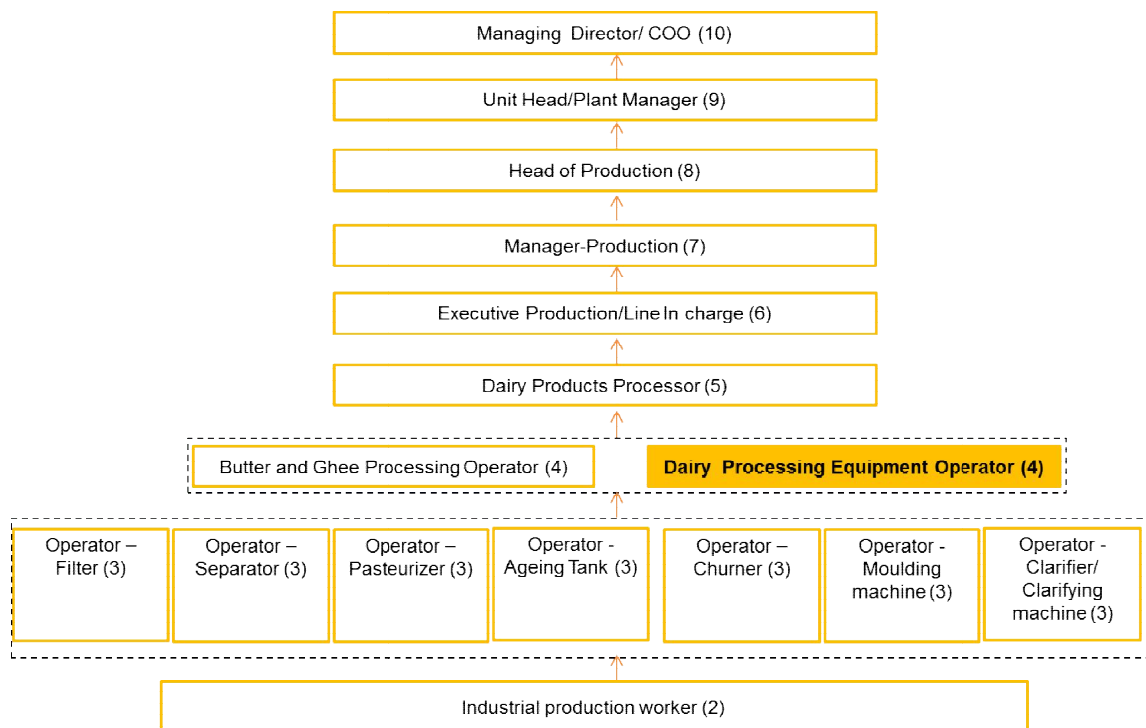
What steps have been taken in the design of this or other qualifications to ensure that there is a clear path to other qualifications in this sector?

1. Discussing the growth trajectory within each occupation after studying organisational charts of various industry players across small, medium and large scale organizations.
2. Exploring various lateral career opportunities for the discussed qualification
3. Ensuring that there is a clear role up in terms of performance criteria qualification experience and skill requirement from lower NSQF Level to higher levels in the hierarchy.

Please refer to the career path as per Annexure 1 which clearly defines the career path.

Please attach any documents giving further information about any of the topics above. Give details of the document(s) here:

Annexure 1: Career Map of Dairy Processing Equipment Operator



Annexure 2: Qualification Pack of Dairy Processing Equipment Operator (separate file)

Annexure 3: List of QP/NOS validating companies (separate file)